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The Journal of the American Botanical Council and the Herb Research Foundation

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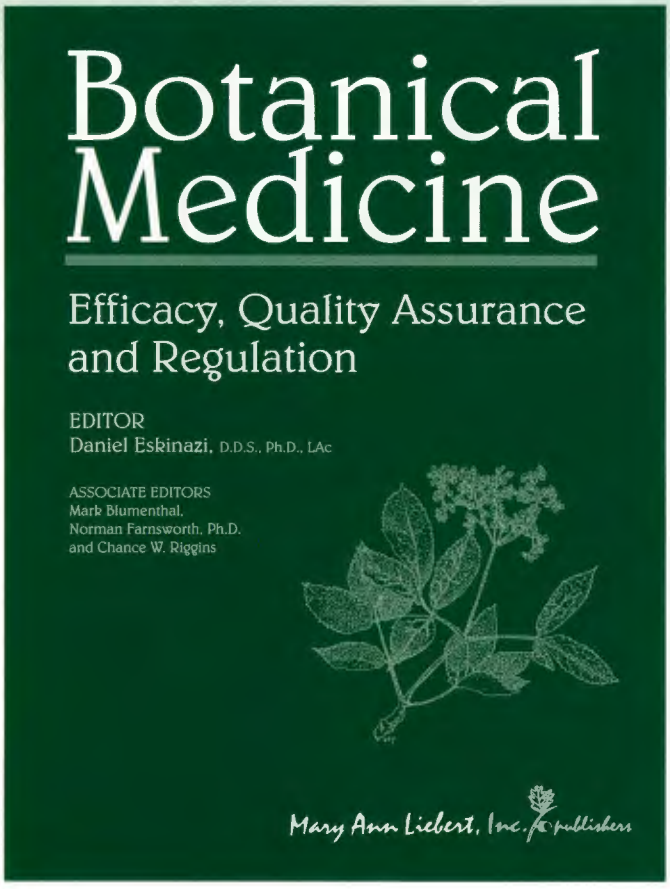
NUMBER 48

Botanical Medicine

Efficacy, Quality Assurance and Regulation



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The last decade has seen a resurgence of interest in the use of botanical products for medicinal purposes. This interest may have been kindled by factors such as inadequate treatments of chronic conditions, and other perceived shortcomings of the conventional health care system. Also, an increasing number of articles in the lay and scientific press have touted the virtues of these products, and also raised concerns about maintaining their availability in their natural habitat. This book brings together academia, industry, the United States Pharmacopeia, and agency and government officials, both from the United States and worldwide, to discuss the role and regulation of botanical products in U.S. health care.

TOPICS INCLUDE

- What botanicals are, and how are they currently used?
- How can we know that botanicals work? – the relative advantages and limitations of the traditional controlled clinical trial, as well as other methodological approaches, including single case studies and outcomes research.
- How can we know that these products are safe? – methods for assessing potential adverse events.
- How can we ensure that botanical preparations will be reliable and of good quality?– the necessary steps to ensure the product's quality, purity, and reliability.
- How regulations affect the marketplace and impact the cost of health care.
- Economic factors impacting upon the development of botanical medicine in various countries, including Europe and the U.S.
- Legal and regulatory issues relevant to the marketing of these products.

FOR ORDERING INFORMATION, SEE PAGE 31 OF THE HERBAL EDUCATION CATALOG IN THIS ISSUE OF HERBALGRAM

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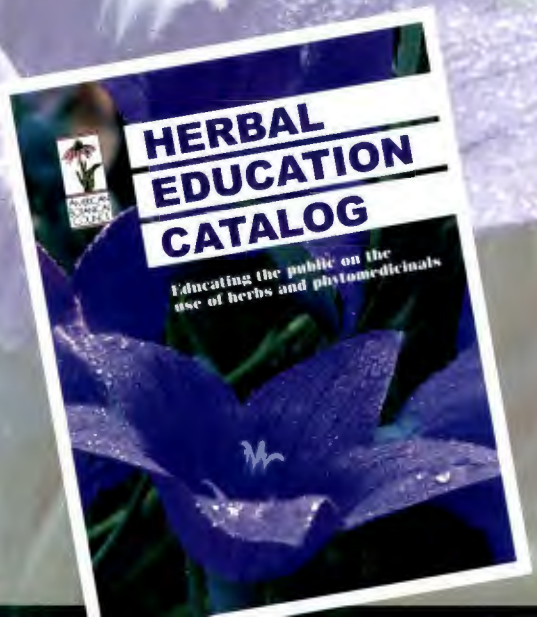

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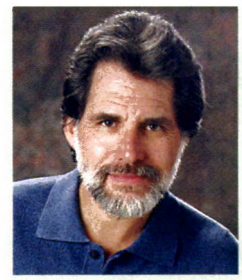

FDA's new rules for the regulation of herbs and other dietary supplements make front page news since their publication on January 6. Herb regulation is one of the biggest stories in the media these days, with continual parroting of the mantra "unregulated industry." To inform our readers about just what kind of regulations are in the statutes and on the books at FDA and FTC, we were going to publish a thoughtful treatment of this subject by Bill Soller, Vice President of the Consumer Healthcare Products Association. His report on the myth of the unregulated industry contains a table documenting 143 publications dealing with dietary supplements in the *Federal Register* by FDA since 1962. Most have been published in the last five years.

However, as John Lennon put it, "Life is what happens when you're busy making plans." With the publication of FDA's new final rules dealing with structure-function (SF) claims for dietary supplements (DS) under the Dietary Supplement Health and Education Act (DSHEA), we had to "jump" Dr. Soller's article to a later issue of *HerbalGram*, to make room for the summary compiled of these important new regulations. However, Soller's article is published in its entirety on our website <www.herbalgram.org/herbalgramarticle/sollerhg48regulation.html> for full access now.

One development in the new rules is FDA's acceptance of the American Herbal Products Association's public comments that many over-the-counter (OTC) drug claims are not intended to treat or cure a disease but are in fact dealing with the structure or function of the body. Thus, in AHPA's opinion, these claims should be allowed for herbs and other DS too. We published this argument in industry attorney Tony Young's essay, "Forget About Disease," in *HerbalGram* 45, (pp. 29-33). FDA has agreed, now allowing antacid, antigas, digestive, laxative, and other claims to the DS domain. This opens new product opportunities to help boost sales for the lackluster herb industry, but as Young points out in an editorial in this issue, industry members must ensure that the products really do work!

Nevertheless, the lines between a DS and an OTC drug may get a bit blurred out there in the market. Speaking of OTC drugs, FDA has *finally* published proposed rules to deal with the possibility that well researched herbs sold as drugs in foreign countries for a "material time" and to a "material extent" can now be

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The Wildlife Pond at ABC. Photo by John Jonietz for *HerbalGram*.

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COINAGE OF GREEK CYRENAICA, THE SILPHIUM ECONOMY, AND EXAGGERATED ADVERTISING

by Henry C. Koerper and Daniel E. Moerman

An all-but-forgotten plant was heavily used in ancient Greek medicine and overharvested to extinction. Are there lessons for us today? Photo © The British Museum.

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BEAUTY IN PERIL: THE STOLTMANN WILDERNESS

by Suzanne Diamond, M.Sc.

A clearcut in the upper Elaho Valley at the edge of the Stoltmann Wilderness. Photo © Graham Osborne 1998.

Cover: The Sims Creek Waterfall is just one of the many breathtaking landscapes of the Stoltmann Wilderness. See Suzanne Diamond's article beginning on page 50. Photo © 1997 Dwayne Himmelsbach.

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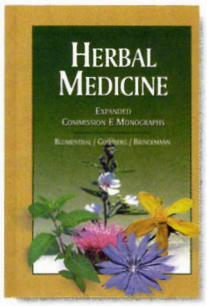

Expanded Commission E Book Available

The new book, *Herbal Medicine—Expanded Commission E Monographs*, is now available from ABC. This companion to the award-winning *The Complete German E Commission Monographs—Therapeutic Guide to Herbal Medicines* provides in-depth information from recent clinical research to describe more than 100 of the most widely used medicinal plants. It contains information on the quality and efficacy of specific herbal preparations, as well as supporting references to scientific literature.

"While *The Complete German Commission E Monographs* covered the array of medicinal plants sold as medicines in Germany with brief summaries and recommendations on each, the new *Herbal Medicine* offers greater depth of information," said Mark Blumenthal, founder and executive director of ABC and senior editor of both books. "This is a much more extensive resource, providing information about clinical studies, herb safety, side effects, interactions, types of preparations, and more." *Herbal Medicine*, edited by Blumenthal and associate editors Alicia Goldberg and Josef Brinckmann, was published in cooperation with Integrative Medicine Communications.

Herbal Medicine also features 91 beautiful color images by noted botanical photographer Steven Foster. It includes expanded and modified scientific research monographs on 107 herbs covered by the Commission E Monographs, and expanded overviews on chemistry, pharmacology, therapeutic use, contraindications, dosage and administration, quality, proper use during pregnancy and lactation, and plant name cross-references.

The Complete German Commission E Monographs, published in 1998, was ranked among the top three medical texts of 1998 by *Doody's Medical Book Review Journal*, and was included as a "must have" core resource on the Brandon/Hill Selected List of Books and Journals for the Small Medical Library. The new *Herbal Medicine* is available in book format or on CD-ROM for $49.95 each, plus shipping and handling. The Herbal Education Catalog in this issue of *HerbalGram* has complete ordering information for this book, listed as #B181E. Contact ABC at 800/373-7105, fax 512/926-2345, email <custserv@herbalgram.org> or order from the ABC website, <www.herbalgram.org>, or toll-free at the automated order line 800/373-7105. — *Karen Robin* ❑

ABC Website Receives Netscape Award

Netscape's "Web Site Garage" recently awarded the American Botanical Council Online <www.herbalgram.org> an "Excellent Diagnosis," its highest score. The site was judged on browser compatibility, load time, popularity, HTML design and other technical criteria. ABC's web site is continually updated with new information about herbal education research and literature, selected monographs, new accredited continuing education programs for healthcare professionals, extensive links to related sites, and information about ABC's new home at the historic Case Mill Homestead in Austin, Texas. Stop by to keep up-to-date on new research, education opportunities and other ABC activities. — *Trey Bennett* ❑

HerbalGram Named *Utne Reader* Alternative Press Award Finalist

For the second time in three years, *HerbalGram* was named as one of the best magazines in the alternative magazine publishing area.

In 1997, *HerbalGram* was a finalist in the "Personal Life Coverage" category. This year's *Utne Reader* 11th Annual Alternative Press Awards listed *HerbalGram* as one of five finalists in the "Science and the Environment" category. The final winner in that category, announced in the January/February 2000 issue, was *The Sciences*.

Mark Blumenthal, *HerbalGram's* editor and publisher, said, "It is always validating and encouraging to be acknowledged for the quality of our magazine, especially by a publication like *Utne Reader*. They evaluate hundreds of alternative magazines and newsletters. Their recognition of

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HerbalGram is a strong endorsement of our work at ABC."

The *Utne Reader* selects its Alternative Press Award nominees from the journals, magazines, newspapers, newsweeklies, and other publications that it relies upon to produce each issue. The Alternative Press Awards were established in 1989 to celebrate the efforts of the many thoughtful, inspiring, informative, and provocative alternatives to mass media. The *Utne Reader* <www.utne.com> is a national general interest magazine with 225,000 circulation. Published independently since 1984, it is the nation's leading digest of alternative ideas. — *Karen Robin* ❑

Commission E Monographs Available at Medical School Intranet

The University of Texas Medical Branch at Galveston, Texas, has loaded *The Complete German Commission E Monographs* onto its Alternative and Integrative Health Care Program website <atc.utmb.edu/altmed>. This is the first time the Commission E Monographs have been available electronically at an academic health science center since this landmark work was translated into English and published in 1998. This web-based application of the Commission E Monographs will become part of a site that is dedicated to promoting research and information for students and faculty in the field of alternative and integrative therapies. Although most of the site is open to the public through the internet, the Commission E Monographs will be password protected within UTMB's intranet.

Other highly useful, licensed software on this site are HealthNotes Online and AltHealth Watch, which are full text, searchable databases in the area of alternative health care. These are also password protected, licensed sites available only to on-campus users. Victor S. Sierpina, M.D., Associate Professor of Family Medicine, University of Texas Medical Branch said, "Healthcare practitioners are universally and reasonably concerned that before prescribing herbs, they must have reliable information on indications, contraindications, dosages, purity, strength, safety, and drug-herb interactions. They need this in an easily accessible, readable format. The Commission E Monographs by Blumenthal *et al.* offers this information in a concise fashion and from a trustworthy source. It has improved the confidence of practitioners who now have a reference they can rely on in their practice. Putting this online in a university medical center setting allows a wider variety of learners, faculty, and practitioners to access it than would be likely to buy the printed version."

It is expected that the addition of the Commission E monographs to this educational website will increase access for students and faculty to reliable information on herbal therapies as well as their dosages, indications, contraindications, and potential drug interactions. ❑

ABC Co-sponsors Ethnobotanical Festival

On the weekend of April 29-30, ABC is cosponsoring an educational event with the Lady Bird Johnson Wildflower Center (LBJWC), formerly the National Wildflower Research Center. Every spring, during the peak blooming period for Texas wildflowers, LBJWC hosts Wildflower Days on their beautiful site in south Austin, Texas. This year will be celebrated as an Ethnobotanical Festival with ABC and the Austin Herb Society participating. The purpose of the festival is to introduce the public to the historical uses of native plants by indigenous people as well as to educate them regarding their own contemporary connection to plants.

ABC has arranged for the two keynote speakers to be Steven King, Ph.D., Senior Vice President of Ethnobotany and Conservation at ShamanBotanicals.com, and Phyllis Hogan, founder of the Arizona Ethnobotanical Research Association and Practitioner Associate in the Anthropology Department at Northern Arizona University.

ABC will also sponsor book and plant sales at the event, and staff members will lead workshops and demonstrations. Some of the events that ABC will be responsible for are a voucher sample identification lecture, an archeobotany lecture, a demonstration of using gourds for both function and beauty, a phytocosmetic demonstration, and a wildflower apothecary. — *Gayle Engels* ❑

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Historic Case Mill Homestead.
Photo by John Jonietz for *HerbalGram*.

ABC History: Library Formed from 30-Year Collection

The following is the last of a five-part series profiling ABC, its people, and its history.

ABC Librarians Shirley Beckwith, left, and Cathy Pedraza.

When the American Botanical Council moved into its new home at the historic Case Mill Homestead in Austin, it also moved closer to its vision for the future: to become a research resource that the public, industry, academia, and healthcare practitioners would be able to access for information on medicinal plants. While ABC fulfills many needs for education through *HerbalGram* as well as the HerbClip educational service, the many presentations that Mark Blumenthal and other staff members make through the course of a given year, assistance to numerous media queries on a daily basis, and contributions to the literature on herbal medicines, ABC envisions still more that needs to be done.

For example, over the past three decades, Mark and ABC have acquired an extensive private collection of books, monographs, special publications and journals, some of which are quite rare and out of print. These resources continue to grow into a library that ABC intends to make available to the public. Two volunteers have undertaken the task of organizing this collection of print, audio-visual, and electronic resources into a functional library: Shirley Beckwith, who recently received her master's degree in Library and Information Science from The University of Texas at Austin, and Cathy Pedraza, who is in her first year of that same program. "I love doing this work," Shirley says. "It's a librarian's dream to start from scratch, to organize a collection and make it useful." Cathy is enthusiastic. "Now I see how a library is put together from the ground up, and can put the theoretical material that I learn in school to practical use."

They both share ABC's vision of developing an eclectic collection with special emphases on Southwest traditional medicines, Native American traditional healing, Eclectic medicine of the late 1800s and early 1900s, rainforest and Amazonian plants, Asian traditional medicine, economic botany, phytotherapy, nutraceuticals and natural foods, alternative therapies, history of medicine, and related topics. A special environmentally controlled rare book room is being planned. In the meantime, Shirley and Cathy are organizing print resources, modifying the Library of Congress classification system to create call numbers to create an on-site database. This vision also includes a new building to house the library, a multi-purpose meeting room, and additional offices, and is the focus of ABC's current capital campaign.

Already, the proposed library has won major support from Dick Marconi, president of Global Health Sciences, Inc. ABC's Chief Administrative Officer, Wayne Silverman, devotes energy to finding additional support for this project through foundations, individuals, and other sources, showing how it will benefit the future of the herbal movement by growing ABC's resources and ability to educate the public, government, and industry about medicinal herbs. Once that building is constructed, ABC will then expand its medicinal botanical theme gardens on the grounds of the Case Mill Homestead. Already a dozen gardens have been designed and installed, with such themes as antioxidants, women's and men's health, Southwestern plants, medieval medicinals, medicinal lilies, fragrance specimens, purifying and protecting herbs, shade-loving herbs, herbs that affect the nervous system, a children's garden, a rose garden, and ethnic culinary gardens with herbs commonly grown for Mexican, French, Italian, Chinese, Middle Eastern, Indian, and Southeast Asian cultural use.

Future gardens include Chinese and native Texas medicinal plants, plants that affect human body systems, and a large terraced garden with sacred plants, Ayurvedic medicinal plants, Andean varieties, Highland, and South African herbs.

Many of these gardens were designed by renowned horticulturist Gabriel Howearth Landeros. Others were submitted to ABC during the 1998 garden design contest. ABC's resident gardeners, Lisa LaRousse and Rachel Hagan, tenderly oversee the gardens' care and progress.

Lisa brought a lifetime of gardening experience to ABC in February 1997. "The best part about working at ABC," she says, "are the people that I work with, and the fact that I'm learning all the time, building on what I already know. I believe we're accomplishing something important here." Rachel joined ABC in the spring of 1999, with a fresh bachelor's degree in horticulture from Texas A&M University, just in time to help install many of the new gardens. "I was very lucky to come to work here at ABC with plants. I am interested in our commitment to organic methods. I'm always learning more about plant history and uses." — *Karen Robin* ❑

ABC SEEKING ASSISTANCE WITH GRANT PROGRAM

With the growth of the herbal medicine field, there has been continued pressure to expand the programs and resources of the American Botanical Council. Newspapers and magazines report that the expanding economy has resulted in record levels of corporate and personal giving to charities. Consequently, ABC is exploring new ways for developing additional resources and needs the assistance of people experienced in accessing financial revenue from grants and related sources of charitable giving. Additionally, ABC wishes to obtain contacts and leads for potential support from foundations, trusts, and individual donors. To provide assistance or for more information, please contact Wayne Silverman, Ph.D., Chief Administrative Officer of ABC, 512/926-4900 ext. 120, or email at <wsilverman@herbalgram.org>.

Accredited Ethnobotanical Tours for Healthcare Professionals

The most recent ABC-sponsored Pharmacy from the Rainforest trip of the 20th century was a huge success. More than 60 people, including two groups of college students studying related subjects, flew to Peru in October 1999. This was the sixth ethnobotanical ecotour to the Peruvian Amazon co-sponsored by ABC, the Texas Pharmacy Foundation, and International Expeditions, and was dedicated to Dr. Varro E. Tyler, Lilly Distinguished Professor of Pharmacognosy of Purdue University, for all his work in the area of medicinal plants.

The next Peruvian adventure will be October 28 through November 5, 2000. Under consideration is a trip that will combine study of herbal medicine of the Amazon and the Andes.

For further information on these and other ethnobotanical expeditions, visit the ABC web site at <www.herbalgram.org> or call 512/926-4900, ext. 114. — *Gayle Engels* ❑

Ethnobotanical ACPE* Expeditions		**Location**	**Trip Number**
June 30-July 13, 2000	Pharmacy on Safari	South Africa	385
Medical CME Expeditions & Voyages**			
June 30-July 15, 2000	International Health	South Africa	385
Sept. 2-9, 2000	Perspectives in Healing	Alaska	417
October 2000	Perspectives in Healing	Amazon/Andes	355
February 2001	Infertility & Reproduction	South America	354

*ACPE credits available
**CME credits available

Left: Workshop leaders Luis Diego Gomez and Amanda McQuade Crawford on the ACEER Medical Plant Trail. Photo © 2000 Dawnelle Malone. **Above:** Blowgun demonstration in Yagua Indian village in Peruvian Amazon. Photo © 2000 Lauren Thompson.

ABC ACTIVITIES: SEPTEMBER THROUGH NOVEMBER, 1999

Highlights of presentations by ABC's Executive Director, Mark Blumenthal

Sept. 7 — Annual Membership Luncheon of the Austin Herb Society at Zilker Gardens, Austin, TX. "Medicinal Herbs for Women."

Sept. 9 — Presentation at the University of North Texas, Fort Worth, TX, to osteopathic medical students.

Sept. 9 — Presentation for the Botanical Research Institute of Texas, "Efficacy of Herbal Products: What Does the Research Show?"

Sept. 25 — Yearly Conference for Great Earth Inc., Las Vegas, NV. "Overview of Medicinal Herbs in the Current Marketplace."

Oct. 5 — Council for Responsible Nutrition Annual Conference in Palm Springs, CA. "Clinically Tested, Effective Herbal Products: What Does the Research Show about Specific Brands?"

Oct. 25 — Knowledge Foundation Conference: "Applying Scientific Methods to Ensure and Market the Integrity of Your Product: A Scientific Forum on Natural Products," in Baltimore, MD. Panel discussion of "Validation and Harmonization of Analytical Methods."

Nov. 12 — Supply Side West Conference, Las Vegas, NV. "Results from the American Botanical Council's Ginseng Evaluation Program."

Nov. 18 — Massachusetts College of Pharmacy and Health Sciences Center for Integrative Therapies in Pharmaceutical Care's Fifth Annual Rain Forest Lecture Series, Boston, MA. "Clinically Tested, Effective Herbal Products: What Does the Research Show about Specific Brands?"

Nov. 19 — Gerontological Society's 52nd Annual Scientific Meeting, "New Perspectives on Aging in the Post Genome Era" in San Francisco, CA. Panel discussion on "Public Policies on Safety and Efficacy of Herbal Dietary Supplements." ❑

HRF Hosts Herbal Benefits Banquet

The Herb Research Foundation's first annual Herbal Benefits Banquet was held March 2, 2000, at the elegant Omni Interlocken Resort in Boulder, CO. HRF was excited to welcome special guest Peter McLaughlin, an internationally known business speaker who has been motivating individuals, teams, and entire corporations for the past 10 years. At the event, HRF President Rob McCaleb presented the first annual Herb Research Foundation Merit Award to Tom and Kate Chappell from Tom's of Maine for their commitment to making high-quality natural personal care products in a "socially and environmentally responsible way."

The foundation also celebrated the publication of its new book, *The Encyclopedia of Popular Herbs*. Throughout the evening, there was a silent auction offering the best of Colorado, from adventures in the high country to a night on the town. This fun-filled evening presented a chance for HRF members to socialize with each other and with those new to the work of HRF.

The diverse group of attendees at the Herbal Benefits Banquet reflected the current broad interest in complementary health care and included executives from the growing Colorado high-tech industry; local natural products companies; officials from federal, state, and local agencies; health care practitioners; other prominent community members; and HRF members. In preparation for the event, HRF worked with their personal chef to create a menu that highlighted fresh herbs at every course. Informative cards at each table explained the many traditional uses of the herbs.

Guest speaker Peter McLaughlin credited his experience as a tennis pro in the 1970s with his success today. He said he had the talent to win but failed because he didn't "understand the psychology behind benefiting from adversity." McLaughlin researched what it takes to make athletes effective and went on to co-author the book *Mentally Tough: The Principles of Winning At Sports Applied to Winning in Business.* His most recent book is *Catch Fire*, a program for combating stress and "terminal illness" (a condition caused by over-exposure to computers and TV) by maximizing energy, productivity, and fun. Tips in the book range from eating for performance to creating a "mirth committee" that infuses the workplace with humor. Clients such as AT&T, Disney Enterprises, *USA Today*, IBM, and others have given McLaughlin's presentations rave reviews.

Currently, Mr. McLaughlin is Senior Vice President of Corporate Programs for Fitness Age™, a company that combines health education with state-of-the-art technology to inspire people to make positive lifestyle changes. A key part of Fitness Age is a unique software program that reveals an individual's "fitness age" by measuring cardiovascular health, flexibility, strength, and body composition. The idea is to work towards a fitness age that is lower than one's actual chronological age. The company recently welcomed Mike Shanahan, Head Coach of the Denver Broncos, as Fitness Age spokesperson for the west. Shanahan, who is 46 years old, is currently celebrating his personal fitness age—a remarkable 32 years young! HRF looks forward to another Herbal Benefits Banquet next year. — *Krista Morien* ❑

SOUTH AFRICAN ROUNDTABLE UPDATE

In April, in cooperation with the South African Agricultural Research Council, the Herb Research Foundation will cohost the Agribusiness in Sustainable Natural African Plant Products Roundtable. This unique event, scheduled to take place April 4-6, 2000, in Cape Town, South Africa, will provide a valuable educational forum for a gathering of pan-African natural products producers as well as buyers from both the regional and worldwide natural products marketplace.

In addition to the important networking opportunity the event will provide for both producers and buyers, workshops will cover topics that are relevant to anyone involved in this burgeoning market, such as the trend toward sustainable herb cultivation; an examination of market development linkages, constraints, and opportunities; intellectual property rights and indigenous knowledge; international trade and regulation of plant-based products; and a general overview of the state of the international natural products marketplace.

The Roundtable is part of a three-year project funded by the U.S. Agency for International Development (USAID). The project, known as A-SNAPP (Agribusiness in Sustainable Natural African Plant Products), is a pan-African venture with a vision toward fostering sustainable herb production, developing and enhancing African rural enterprises, and improving quality of life in African rural communities while protecting the environment. As project manager, HRF will provide natural products production and marketing expertise to Africa producers via a variety of communication channels, including regional workshops, international agribusiness seminars, publications, an internet update service, and others. By the end of the project, we hope to see a substantial increase in the variety and volume of sustainably produced herbs grown in Africa for both the African and the worldwide marketplace.

Anyone interested in attending the Roundtable or in learning more about A-SNAPP should contact Margaret Blank at HRF: email <mblank@herbs.org> or phone (303) 449-2265. — *Margaret Blank* ❑

FDA Scientist Moves to Herb Industry

Joseph Betz

Joseph Betz, Ph.D., has been appointed to fill the newly created position of Vice President of Scientific & Technical Affairs for the American Herbal Products Association (AHPA). Betz will oversee the association's ongoing work on technical issues and will serve as AHPA's technical liaison with other associations and scientific bodies.

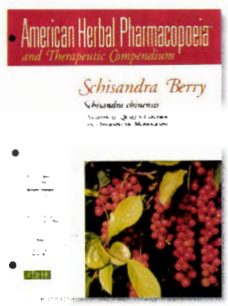
"I have been aware of Dr. Betz's scientific endeavors and publications for several years and could not have identified a more ideal candidate for this role," commented AHPA President Michael McGuffin. "This appointment provides AHPA with the opportunity to apply Dr. Betz's unique skills and experience in the areas of pharmacognosy and plant chemistry to the unique challenges confronting botanical products, and assures that AHPA will continue to play a leadership role in addressing these challenges."

Betz went to AHPA from the U.S. Food and Drug Administration Center for Food Safety and Applied Nutrition (CFSAN), where he has spent the past 12 years, most recently as a Research Chemist. While at FDA, he served as Project Manager for CFSAN's Plant Toxins Research Program and as CFSAN's liaison to U.S. Pharmacopeia's Subcommittee on Natural Products. He earned his Ph.D. in pharmacognosy at the Philadelphia College of Pharmacy and Science (now the University of the Sciences) in 1988. He has been a principal investigator in the National Cancer Institute's Functional Foods program and currently serves as the Association of Official Analytical Chemists General Referee for Botanicals and Other Supplements.

In addition, Betz has conducted original work in the area of plant chemistry, including analysis of goldenseal (*Hydrastis canadensis*) and its economic adulterants, identification of pyrrolizidine alkaloids in comfrey (*Symphytum officinale*), and, most recently, determination of quinolizidine alkaloids in blue cohosh (*Caulophyllum thalictroides*). He is an acknowledged leader in the field of analytical methods development for botanicals.

"I'm excited about the opportunity to have my entire focus on the science of botanicals," Betz said. "I look forward to participating in the American Herbal Products Association's education and outreach activities, and to bringing new life and renewed credibility to an area that was once characterized as a dead science." — *Rodney Storm* ❑

AHP Publishes Two New Monographs



The American Herbal Pharmacopoeia (AHP) has added two new monographs to its series. Schisandra (*Schisandra glabra* (Brickell) Rehder) berry and willow (*Salix* spp.) bark are the latest to join the five already in print (St. John's wort, hawthorn berry, hawthorn leaf with flower, valerian root, and astragalus root).

AHP's analytical, quality control, and therapeutic monographs have been officially endorsed by the Executive Committee of the American Herbal Products Association (AHPA) as a compendial standard for botanicals. The unanimous vote by the AHPA Executive Committee was taken after recommendation by the AHPA Standards Committee.

Michael McGuffin, President of the American Herbal Products Association, said, "I am pleased that the Board has acknowledged the value of the work of the American Herbal Pharmacopoeia. The American Herbal Pharmacopoeia monographs are extremely valuable to AHPA members as they serve as accurate and authoritative references to assure the quality of botanical raw materials. The monographs also identify effective dosage and safety information and provide substantiation for approved statements of nutritional support (structure/function claims)." According to Roy Upton, Executive Director and President of AHP, "Endorsement of the American Herbal Pharmacopoeia by AHPA is a significant achievement for us and the industry. It is a reconfirmation of AHPA's leadership role in the commitment to quality assurance initiatives and paves the way for increased collaboration between the two organizations." — *Cathirose Petrone* ❑

For more about AHP and other monographs available from ABC, look on page 4 and 5 of the Herbal Education Catalog following page 82.

Natural Pharmacist Wins APhA National Merit Award

Daniel T. Wagner

Daniel T. Wagner, R.Ph., M.B.A., owner of Nutri-Farmacy and MED-PHARM in Wildwood, Pennsylvania, received the American Pharmaceutical Association Academy of Pharmacy Practice and Management (APhA-APPM) National Merit Award for 2000. The award, established in 1988, recognizes individual pharmacy practitioners for singular, significant contributions to pharmacy practice.

Wagner was selected for his many years of work to improve the health care quality of society in some of the poorest countries of the world. In the past few years he has traveled to Nigeria, Egypt, Cuba, Ecuador, and Belize, distributing medical supplies, drugs, vitamins, and durable equipment to Third World hospitals and clinics. APhA-APPM recognized his outstanding contribution in setting up a diabetes screening and hypertension-screening clinic at Jos University Teaching Hospital in Jos, Nigeria. Wagner has spent much of his free time disseminating pharmacy education in both the clinical and natural pharmacy fields. APhA president John A. Gans said, "Dan's efforts in helping the less fortunate members of our society, both at home and in some of the poorest places of the world, certainly merit commendation."

For the past four years Wagner has led a group of American college students studying pharmacy, medicine, botany, biology, and the environment to the Belizean rainforests to do ethnobotanical field work with Dr. Rosita Arvigo, and to collect herbarium samples for the National Cancer Institute [see *HerbalGram* #47, p. 22]. He is also a frequent traveler with ABC on the popular "Pharmacy from the Rainforest" expeditions. The award will be presented in March at the APhA 147th Annual Meeting and Exposition. Part of Wagner's business includes acting as East Coast distributor for SISU Enterprises, a line of herbal supplements formulated for practitioners and natural pharmacies. — *Dawnelle Malone* ❑

Iwu Recipient of 1999 Schultes Award

Maurice M. Iwu

Maurice M. Iwu, Ph.D., has been named the recipient of the 1999 Richard Evans Schultes Award. Iwu is Senior Research Associate at the Division of Experimental Therapeutics, Walter Reed Army Institute of Research, and founder and director of the Bioresources Development and Conservation Programme, an international non-governmental organization operating in several African countries. The award is presented annually by the Healing Forest Conservancy, a nonprofit foundation dedicated to the conservation of tropical forests, particularly medicinal plants, and their sustainable use for human health. It honors the career of distinguished Harvard ethnobotanist, Richard Evans Schultes, and is given to a scientist, practitioner, or organization that has made an outstanding contribution to ethnobotany or to resolving indigenous peoples' issues related to ethnobotany.

Iwu is being honored for his efforts to build technical skills in Africa to make bioresources a viable vehicle for sustainable development. The improvement in technical skills generates drug-discovery programs, based on natural products and traditional knowledge. The programs target therapeutic categories for tropical diseases suffered throughout Africa such as malaria, leishmaniasis, and trypanosomiasis. Working through the Fund for Integrated Rural Development and Traditional Medicine, economic benefits from commercialized products are channeled back into the areas where the source plants are found, with provisions to compensate individuals, communities, traditional healer associations, and local institutions.

Iwu, an Igbo traditional healer and past professor of pharmacognosy at the University of Nigeria, Nsukka, is Editor-in-chief of the new *Journal of Ethnomedicine and Drug Development*. His recent books include the *Handbook of African Medicinal Plants* and *African Ethnomedicine*. He is currently president of the International Society of Ethnobiology, and a member of the Advisory Board of ABC. — *Dawnelle Malone* ❑

Balick Elected American Association for the Advancement of Science Fellow

Michael J. Balick

Michael J. Balick, Ph.D., has been elected a Fellow of the American Association for the Advancement of Science (AAAS). He is Associate Vice-President for Research and Training, and Director and Philecology Curator at the Institute of Economic Botany of The New York Botanical Garden. According to the AAAS, Balick is being honored for his "fundamental interdisciplinary contributions to understanding the relationship between traditional cultures and the plants in their environment, particularly the role of biological diversity in influencing the evolution of human culture." The AAAS has been electing Fellows since 1874, honoring those individuals whose efforts either advance science or foster applications deemed scientifically or socially distinguished.

Balick has been on the staff of The New York Botanical Garden since 1980, and is a co-founder of the Garden's Institute of Economic Botany, described by the past director of the Royal Botanic Gardens, Kew, as "the largest and most active group of economic botanists in the world." His research has taken him all over the world, including South and Central America, Asia, the Caribbean, the Pacific Basin, and the Near East. In Belize, for example, Balick worked with Drs. Rosita Arvigo and Greg Shropshire and other local community members. His most recent books include *Rainforest Remedies: One Hundred Healing Herbs of Belize, Medicinal Plants*, with Rosita Arvigo, and *Plants, People, and Culture: the Science of Ethnobotany*, with Paul A. Cox.

"Dr. Balick's election is a fitting recognition of a career spent advancing an interdisciplinary approach to the study of plants and people—the science known as economic botany," notes Dr. Brian M. Boom, Vice-President for Botanical Science and Pfizer Curator of Botany at The New York Botanical Garden. Balick is also a member of the Board of Trustees of ABC. — *Dawnelle Malone* ❑

NIH Funds Botanical Research Centers

Appropriates $50 Million in Complementary and Alternative Medicine Funding

On October 6, 1999, the Office of Dietary Supplements (ODS) at the National Institutes of Health (NIH) in collaboration with the National Center for Complementary and Alternative Medicine (NCCAM), announced awards to establish the nation's first Dietary Supplements Research Centers with an emphasis on botanicals. The competitive awards of approximately $1.5 million per year for five years were made to the University of Illinois at Chicago (UIC), and to the University of California at Los Angeles (UCLA). The research centers are expected to advance greatly the scientific base of knowledge about botanicals, including issues of their safety, effectiveness, and biological action.

Norman R. Farnsworth, Ph.D., Research Professor of Pharmacognosy and Senior University Scholar, is principal investigator and director of UIC's new Center for Dietary Supplements Research on Botanicals. Richard B. van Breemen, Associate Professor of Medicinal Chemistry and Pharmacognosy, is the center's co-director. The multidisciplinary UIC research team will study two botanicals each year.

The UCLA Center, directed by David Heber, M.D., will conduct basic and clinical research on yeast-fermented rice (made with *Monascus purpurea*), green tea (*Camellia sinensis*) extract, soy (*Glycine max*), and St. John's wort (*Hypericum perforatum*). He will also assess the levels of bioactive compounds in several other botanicals.

In 1999, the NCCAM funded a total of nine specialty research centers that will evaluate alternative treatments for chronic health conditions. Each grant totals approximately $7.5 million, to be distributed incrementally over a five-year period. Research findings derived from these studies will be published in the scientific literature and disseminated to the public. Among these centers are the New Center for Natural Medicine and Prevention inaugurated October 11, 1999, at Maharishi University of Management's College of Maharishi Vedic Medicine, Fairfield, Iowa; principal investigator Robert Schneider, M.D., Dean of the College of Maharishi Vedic Medicine, and the Center for CAM Research in Aging at Columbia University, College of Physicians and Surgeons, under the direction of Fredi Kronenberg, Ph.D., initially evaluating herbal and other supplement treatments in postmenopausal women.

Additional awards include:

- The University of Pittsburgh School of Medicine, $15 million six-year cooperative agreement (NCCAM in collaboration with the National Institute on Aging (NIA)) to coordinate a study of efficacy of ginkgo (*Ginkgo biloba*) for dementia; principal investigator Steven DeKosky, M.D., Professor of Psychiatry, Neurology and Neurobiology, and Director of the Alzheimer's Disease Research Center at the University of Pittsburgh School of Medicine.
- The National Institute of Diabetes and Digestive Kidney Disease (NIDDK) and the NCCAM cosponsoring a randomized, controlled clinical trial of saw palmetto (*Serenoa repens*) for treating benign prostatic hyperplasia (BPH); principal investigator Andrew Avins, M.D., M.P.H., of the Northern California Institute for Research and Education in San Francisco.
- Bruce Barrett, M.D., Ph.D., University of Wisconsin Madison, Department of Family Medicine, four-year Mentored Patient-Oriented Research Career Development Grant to conduct randomized trials of herbal medicines.
- Researcher Shujia Pan, Ph.D., Fellowship Award to study the effects of Asian ginseng (*Panax ginseng*) on an animal model of insulin resistance, which accompanies type II diabetes; sponsored by The University of Texas at Austin, Department of Kinesiology and Health Education, and co-sponsored by the American Botanical Council.

The NCCAM's $50 million appropriation for fiscal year 1999 will be followed by a budget of $68.7 million in 2000, an increase of 37 percent, the largest among all NIH Institutes and Centers.

Information on all grants, including current funding opportunities, can be accessed at <nccam.nih.gov/nccam/research>, NCCAM Research Grants webpage. The Office of Dietary Supplements requests applications for additional Specialized Botanical Research Centers in 2000, details available at <odp.od.nih.gov/ods>. Other grant information available at <grants.nih.gov/grants> (National Institutes of Health Funding Opportunities webpage). The publication *Complementary and Alternative Medicine at the NIH* is available online through the NCCAM Clearinghouse at <nccam.nih.gov/nccam/clearinghouse>. — *Dawnelle Malone* ❑

DEA Hempseed Seizure "For the Birds"

Hemp, *Cannabis sativa,* in a cottage garden, Swiss Alps.
Photo © 2000 Steven Foster.

On August 9, 1999, the U.S. Drug Enforcement Agency (DEA) declared war on Canada's industrial hemp industries. DEA agents seized a tractor trailer load of sterilized Canadian hemp seed (*Cannabis sativa* L., Cannabaceae) on its way to a large U.S. company that has been selling hemp birdseed blends for years. U.S. Customs and the DEA then demanded that Kenex, Canada's leading producer and processor of industrial hemp products, recall previous shipments of other hemp products such as oil, granola bars, horse bedding, and animal feed. These actions were taken although all of the products clearly have been exempted under the U.S. Controlled Substances Act since 1937 and many have been sold in the U.S. for years.

The DEA, after repeated requests, refused to provide any legal basis for the confiscation or recall. Kenex's president, Jean Laprise said, "Kenex, along with many other U.S. companies, is suffering irreparable damages due to the illegal actions taken by the DEA and U.S. Customs. It seems like the DEA could be spending the taxpayers' drug war money in better ways than chasing around after birdseed and horse bedding." (Roulac, 1999).

U.S. Customs threatened $500,000 in fines against Kenex if the granola bars, oil, animal feed, and other products were not redelivered to Detroit Customs in the next few days. These fines were in addition to the fines and possible criminal charges that could be levied in relation to the birdseed load itself. A 30-day extension request to clarify the situation was denied by U.S. Customs.

U.S. Customs also issued subpoenas to Kenex's customers in the U.S. to obtain all correspondence, documents, and any other records related to all hemp product purchases from Kenex, including fiber use to manufacture car parts.

Jean Laprise said, "All the proper documentation has been supplied to Customs in the past in accordance with our custom broker's instructions. Kenex has always acted in good faith and has never violated any U.S. laws. Our legal counsel has advised us that the DEA and U.S. Customs are acting in clear violation of U.S. laws as well as NAFTA (North American Free Trade Agreement)." (Laprise, Sept. 1999).

As a result, U.S. and Canadian hemp industries—with the help of concerned citizens and legislators—fought an intense political and legal battle with the DEA and U.S. Customs. Following three months of discussions, meetings, and legal posturing, the DEA decided to back off of its zero tolerance policy, agreeing that industrial hemp products may be sold in the U.S. as in the past 60 years regardless of whether or not they may occasionally contain trace amounts of THC (tetrahydrocannabinol), the primary euphoria-producing active ingredient in marijuana.

The reversal of this policy has been called a significant victory for the nation's rising hemp-products industry, the conflict in federal law, possibly becoming a milestone for the hemp business. "DEA's position right now is to recommend that they (Customs) no longer seize anything," said a DEA official, who requested anonymity, in an article published in the Santa Rosa, California, *Press Democrat*. "We recognize there is a private industry out there." (Weiser, Dec. 1999).

"IT SEEMS LIKE THE DEA COULD BE SPENDING THE TAXPAYERS' DRUG WAR MONEY IN BETTER WAYS THAN CHASING AROUND AFTER BIRD SEED AND HORSE BEDDING."

On Tuesday, November 9, 1999, Nutiva, a U.S. company of Sebastapol, California, imported its first truckload of Canadian hempseed products since the seizure, including Nutiva bars and cans of shelled

hempseeds and hemp meal. Ultimately, it was a combination of grassroots efforts and high-level political pressure that forced the U.S. Customs and DEA to retreat from their position. — *Barbara A. Johnston* ❑

[Anderson J, Cohn D. DEA's Assault on Birdseed. *The Hemp News*. Oct. 4, 1999.

Laprise J. DEA Seizes "Birdseed" as Schedule I Narcotic. *The Hemp News*. Sept. 24, 1999.

Laprise J. Kenex Wins Battle for Hemp Industry. *The Hemp News*. Nov. 15, 1999.

McCartney P. Birdseed Latest Victim in Unending War against Drugs. *Auburn Journal*. Oct. 12, 1999.

Nightingale C. Drug War Stupidity. Hightower Radio. Oct. 13, 1999.

Roulac J. DEA Rescinds its Recall Notices. *The Hemp News*. Nov. 19, 1999.

Roulac J. DEA Seizes Tractor Trailer of Legal Hempseed Products from Canada. *HempBrokers.com*, Sept. 27, 1999.

Thielen C. Rep. Cynthia Thielen Letter to the DEA. State of Hawaii. Oct. 14, 1999.

Weiser M. DEA Drops Demand on Hemp Company. *Santa Rosa Press Democrat*. Dec. 1, 1999.

Wren C. Bird Food is a Casualty of the War on Drugs. *New York Times*. Oct. 4, 1999.]

Two States Take Steps Toward Growing Industrial Hemp

MINNESOTA

In May of 1999 the Minnesota State Legislature passed and Governor Jesse Ventura signed a bill that required the following to occur before September 30:

- Legislature to make an attempt to get from the federal government what amounts to a state exemption to grow hemp;
- Legislature to put into place standards allowing cultivation of experimental or demonstration plots of industrial hemp;
- Registration of persons to allow growing of hemp.

The required steps did not occur and subsequently on September 30, 1999, Gov. Ventura stated that he was making the Minnesota Board of Pharmacy (MNBP) the state agency in charge of registration and relations with the DEA.

HAWAII

On December 14, 1999, the first industrial hemp seed was planted in Hawaiian soil. According to Hawaii State Representative Cynthia Thielen(R), "This historic event marks the beginning of a change in federal policy, one which I believe will lead to DEA 'farmer friendly' regulations within the next year."

Until the Hawaii Industrial Hemp Project, the DEA had not issued any permit to grow industrial hemp. However, the DEA staff processed and approved Hawaii's permit application within record time so the planting could occur before the year 2000. Governor Benjamin Cayetano proclaimed December 14, 1999, as Industrial Hemp Day in Hawaii.

Many dignitaries attended the hemp seed planting, including some who traveled from the mainland just for this historic event. Joe Hickey, Kentucky Hemp Growers Cooperative; Don Wirtshafter, Ohio Hempery; and many others were present to see Dr. David P. West plant the live seed (imported from Kenex in Canada).

In addition to Minnesota, Hawaii, and California, North Dakota also passed legislation (Spring of 1999) to allow farmers to sow hemp. — *Barbara A. Johnston* ❑

[Birrenbach J. Personal communication. Dec. 28, 1999.

Mitchell K. Hawaii Becomes Mentor State in Campaign to Farm Industrial Hemp in America. *Business Wire*. Dec. 13, 1999.

Roulac J. Personal communication. Jan. 12, 2000.

Thielen C. Hawaii Becomes First State of the Modern Era to Plant Industrial Hemp. <thielen@aloha.net> Dec. 13, 1999.]

Actor Dennis Weaver Speaks Up for Industrial Hemp

Dennis Weaver, the actor honored for his roles in such television series as "McCloud" and "Gunsmoke," is a leader in the drive to legalize the growth of industrial hemp anywhere in the United States, and he is encouraging enactment of appropriate approval in California. He is supporting the Coalition for Agricultural and Industrial Renewal (C.A.I.R.) in its increasingly successful move to gain California acceptance for the crop.

As the president and founder of The Institute of Ecolonomics, Weaver is actively working to protect the environment worldwide, while strengthening the economy. In his opinion, growing industrial hemp is an Ecolonomic project with countless beneficial applications.

Weaver quotes from a resolution approved by the California State Assembly on September 10:

Industrial hemp can be easily distinguished from marijuana by appearance, cultivation methods and chemical analysis because industrial hemp is a non-intoxicating, benign form of the *Cannabis sativa* plant that contains less than one percent tetrahydrocannabinol, while marijuana contains five to 20 percent. (See next page.)

Weaver and others who realize how valuable the cultivation of industrial hemp can be to California's environment and economy are urging the California State Senate and Governor Gray Davis to concur with the Assembly and permit its planting. — *Barbara A. Johnston*

Marijuana, *Cannabis sativa* (female) from *American Medicinal Plants* by Charles Millspaugh (1893).

California State Assembly Endorses Industrial Hemp

The California State Assembly has endorsed the legalization of "industrial hemp," the preferred term for the marijuana plant that is low in the psychoactive substance THC (tetrahydrocannabinol). House Resolution No. 32, Relative to Industrial Hemp passed on Friday, September 10, 1999, the last day of the session.

The resolution was introduced by Assembly member Virginia Strom-Martin, (D), who represents the 1st District which includes Sonoma, Mendocino, Humboldt, and Lake counties. The resolution was co-sponsored by three additional members of the Assembly and was co-authored by State Senator Tom Hayden (D-Los Angeles). Strom-Martin declared that industrial hemp can be grown by California farmers and regulated without interfering with marijuana laws. The resolution recommends that the Assembly consider allowing farmers to grow industrial hemp and that the crop be studied by the state university system.

The resolution was written and sponsored by Californians for Agricultural and Industrial Renewal (C.A.I.R), an organization dedicated to renewing the legal status of industrial hemp. C.A.I.R. succeeded earlier this year in getting the California Democratic Party and the Orange County Democratic Party to adopt similar resolutions supporting industrial hemp.

"Industrial hemp is not marijuana, but rather a non-intoxicating plant that has been cultivated and used in a multitude of ways around the world for millennia," said Strom-Martin. "Prohibiting California farmers from growing this potentially highly profitable crop makes about as much botanical sense as prohibiting gardeners from growing poppies because one variety is the source of opium."

The California Republican Party subsequently rejected the resolution at its biannual state convention in Anaheim on Saturday, September 25.

Next year the resolution will move on to the State Senate while C.A.I.R. works on getting a bill passed by the Assembly. The organization is now working with the Congressional delegations of California and several other states to get the DEA to shift authority to regulate industrial hemp to the USDA, which would then permit farmers to grow it under the condition that they comply with their local and state laws and regulations. — *Barbara A. Johnston* ❑

[CAIR. Press release. Oct. 15, 1999.

HR 32: California Assembly Resolution Relative to Industrial Hemp. <www.cair.net/doc.php3/res-general/ca-legislature-4>.

CAIR Policy Paper: Industrial Hemp is not "hemp" or marijuana. <www.cair.net/doc.php3/general-info/ih-not-mj>.]

"Kava Island" Victim of Earthquake

On Friday, November 26, 1999, a tidal wave hit Pentecost, one of the islands in the Republic of Vanuatu, South Pacific, home to the greatest amount of mature kava of any island in the world. Much of the Vanuatu kava (*Piper methysticum*) that has been shipped to the U.S. and Europe over the past few years came from growers on Pentecost.

Following an earthquake measuring 7.1 on the Richter scale, the huge wave slammed the western cost of Pentecost. According to Jan-Willem Smelik of the Malogu Company Ltd., exporter of kava, 10 lives were lost and one person hospitalized on the critical list, and 1,000 families were left homeless after the wave dragged the entire contents of several villages out to sea.

"Damage was severe with most communities losing their water supplies due to broken water tanks and pollution from landslides," said Smelik. "Due to landslides many roads in the area have been damaged and need extensive repairs."

The Red Cross and National Disaster Management Unit, with the help of overseas donors, have been working to get food supplies, cooking utensils, clothing, and tarpaulins into the area to help the thousands of people on Pentecost who lost everything. The tidal wave left the already poor villagers with only the clothing on their backs and nothing more.

After the news of the devastation reverberated around the world, aid in a variety of forms began flooding into the area from companies that purchase Pentecost kava.

Smelik commented, "In my opinion, the best way to assist the people of Pentecost in overcoming the damaging effects of this disaster would be to buy their produce, such as kava. In this way these proud and independent people won't have to feel embarrassed about accepting donations, but will be able through their own efforts to overcome their difficulties."

Those wishing to contribute funds may wire them in U.S. funds to the Vanuatu Fund, account #01-630197-07 at Moore Stevens Trust Account, Kumul Highway, Port Vila, Vanuatu. — *Barbara A. Johnston* ❑

[Friedman G. Personal communication. December 19, 1999.

Kilham C. Personal communication. Dec. 8, 13, 18, 1999.

Smelik J-W. Personal communication. Email Dec. 23, 1999.]

Verified Plant Specimen Program Initiated

Botanical Liaisons, an ethnobotanical consulting firm, has begun an exclusive voucher reference service. Upon request any company can purchase a verified botanical reference set which includes a pressed whole-plant reference specimen accompanied by a 500 g sample of the economically valuable plant part. This set can then be used as part of an in-house authentication process during raw material receiving. The specimens are collected upon demand and verified by reputable botanical institutions. Plants from all continents are available.

In addition to reference sets, companies can arrange with Botanical Liaisons to implement a two-day in-house training program on botany and microscopy. At the end of these two days, employees will have gained an overview of these two critical disciplines used to safeguard the natural products industry. Employees will be taught how to identify plants, set up an in-house herbarium, and use a microscope. In addition, they will be introduced to botanical terms, to tests to verify materials under the microscope, and instructed in what tools are needed to set up an in-house microscopy program. At the end of the course they will know when to apply these skills, which experts to contact, and what tools to purchase to set up in-house quality programs.

For more information contact: Trish Flaster, Botanical Liaisons, 1180 Crestmoor Drive, Boulder, CO 80303. 303/494-1555, 303/494-2555 fax <Tflaster@rmi.net> — *Barbara A. Johnston* ❑

HERB BLURB

Peach Oil as Pesticide?

U.S. government scientists at the Agricultural Research Service, as well as colleagues in South Africa and Israel, have found that the natural oil that gives peaches their perfume also kills fungi and other pests in the soil. Teams have been screening natural chemicals for years searching for substitutions for more dangerous synthetic compounds such as methyl bromide, the widely used pesticide that is toxic to people and damages the earth's protective ozone layer.

The compound from peaches, benzaldehyde, is manufactured synthetically and is already in use commercially, as are many other similar oils, like those distilled from lemon and peppermint.

Charles L. Wilson, a plant pathologist at the agency's Appalachian Fruit Research Station in Kearneysville, W. Va., feels that the essence of peach may be an especially promising candidate. He said in an interview that he doubted that any single compound would be a "magic bullet" to replace methyl bromide, but that combinations of naturally occurring chemicals, along with other changes in farming methods, would provide important benefits. "There is such a broad range of these things that are in nature already, and there has not been that much effort yet in trying to fish them out," he said. "The synthetic compounds were so powerful that we stopped looking for natural pesticides."

Not only does the peach essence kill off *Fusarium oxysporum*, *Rhizoctonia solani*, *Pythium aphanidermatum*, and *Sclerotinia minor*, the researchers found, but it seems to favor other, beneficial organisms in the soil that then continue to muscle out the unwanted pathogens.

Thomas Duafala, the chief of research at Trical, a company in Hollister, California, that applies methyl bromide and other pesticides on farms, said that it might take years to get regulatory approval for any new pesticide. "People have been looking for alternatives to methyl bromide as long as I have been involved with methyl bromide, which is 20 years," Mr. Duafala said. "Hopefully, we will be able to come up with several things, but it will not happen in the immediate future."

However, Tom Kurt, M.D., of the ABC Advisory Board, says, "By containing benzaldehyde, peach oil is a potential allergic sensitizer like formaldehyde, another better-known member of the aldehyde chemical family. I have encountered sensitivity problems with persons exposed to benzaldehyde used as a sanitizer in commercial clean-ups. I would not recommend peach oil to those who have allergic problems with other aldehydes." — *Barbara A. Johnston*

[Cushman JH. Peach Oil May Work as Pesticide. *New York Times*. March 14, 1999.

Kurt T. Personal communication. Nov. 19, 1999.]

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Tibetan Formula Effective in Peripheral Artery Disease

Neem, *Azadirachta indica*. Photo © 2000 Steven Foster.

A controlled, double-blind pilot trial adds to the growing body of evidence that Padma 28 is a safe and effective treatment for peripheral arterial occlusive disease (Sallon *et al.*, 1998). Padma 28 is a complex herbal preparation based on a traditional Tibetan formula consisting of 20 herbs. According to the authors of the study, Padma 28 has been used in traditional Tibetan medicine to treat conditions caused by over-consumption of meat, fat, and alcohol. Earlier clinical studies have shown that Padma 28 is effective in increasing pain-free walking distance in people with peripheral arterial occlusive disease (PAOD), and results of laboratory studies indicate that the formula has antioxidant activity. The present study, conducted at the School of Public Health of the Hadassah Medical Organization in Jerusalem, Israel, was designed to further investigate the efficacy, safety, and tolerability of the formula in the treatment of PAOD.

PAOD, also known as intermittent claudication, is a circulation disorder caused by hardening and narrowing of the arteries in the lower limbs. The condition results in impaired blood flow to the muscles and subsequent pain and cramping with walking. PAOD affects an estimated 12 percent of older adults, and that number is expected to increase as the population ages.

This study involved a total of 72 patients, 37 of whom were randomized to treatment with Padma 28 (two 403 mg capsules twice daily) and 35 to placebo. After six months of treatment, results were assessed with hemodynamic tests, including measurement of ankle pressure after exercise on a treadmill, an indicator of how blood flow changes to meet the increased demand placed on the limbs by exercise. According to these objective measurements, those taking Padma 28 had a significant 12 percent mean improvement in post-exercise ankle pressure drop (the rate at which ankle pressure returned to pre-exercise levels). More than 44 percent of the Padma 28 patients had greater than 15 percent improvement, compared to 22 percent of placebo patients.

Patients also completed subjective self-assessment questionnaires. These showed that 58 percent of participants taking Padma 28 perceived improvement in pain-free walking distance, compared with 39 percent of those on placebo. In addition, 40 percent of patients taking Padma 28 reported an overall improvement in well-being, including increased energy and better mood and concentration, compared to only 15.4 percent of control patients.

A total of 13 patients (six in the Padma 28 group and seven on placebo) dropped out before the study ended. Three patients in the Padma group and one in the placebo group dropped out because of gastrointestinal disturbances; the other dropouts were unrelated to treatment side effects. Of the remaining 59 participants, five in the Padma 28 group and three taking placebo reported side effects of either gastrointestinal upset or tiredness.

The investigators speculated that the effectiveness of Padma 28 in treating PAOD may be due to its antioxidant activity, but presented no strong evidence to support their theory. They concluded, "While the precise mode of action requires clarification, results suggest that Padma 28 may be an effective treatment for intermittent claudication."

The Padma 28 capsules used in the study were supplied by Padma AG of Schwerzenbach, Switzerland. Of the 20 dried and powdered herbs contained in each 403 mg tablet, those present in quantities of 30 mg or more include Indian costus (*Saussurea lappa* [Decne.] Schultz-Bip., Asteraceae), 40 mg; Iceland moss (*Cetraria islandica* [L.] Ach., Parmeliaceae), 40 mg; neem (*Azadirachta indica* A. Juss., Meliaceae), 35 mg; myrobalan fruit (*Terminalia chebula* [Gaertner] Retz., Combretaceae), 30 mg; cardamom fruit (*Elettaria cardamomum* [L.] Maton, Zingiberaceae), 30 mg; and red sandalwood (*Pterocarpus santalinus* L. f., Fabaceae), 30 mg. — *Evelyn Leigh, HRF* ❑

[Sallon S, Beer G, Rosenfeld J, Anner H, Volcoff D, Ginsberg G, Paltiel O, Berlatzky Y. The efficacy of Padma 28, a herbal preparation, in the treatment of intermittent claudication: a controlled double-blind pilot study with objective assessment of chronic occlusive arterial disease patients. *J Vasc Invest.* 1998;4(3):129-136.]

First Clinical Study on Purple Grape Juice

In the first clinical study of its kind, researchers from the University of Wisconsin-Madison found that purple grape juice (*Vitis labrusca* L., Vitaceae) helps protect heart health in those affected by coronary artery disease (Stein *et al.*, 1999). According to the study, two weeks of grape juice therapy increased vasodilation (relaxed blood vessels) while decreasing harmful oxidation of LDL cholesterol. Impaired vasodilation is thought to be one of the earliest manifestations of heart disease. Previous clinical studies on red wine have produced similar outcomes, leading some researchers to speculate that the alcohol content is the factor that protects against heart disease. The results of the current study provide support for the theory

that flavonoids (including quercetin, catechins, myricetin, kaempferol) and tannic acid are the more important constituents in purple grape juice and red wine. It is also likely that white grape juice and white wine provide fewer benefits because they contain mainly juice, without the healthful components from the grape seeds and skins.

In this small study, 15 volunteers (12 men and three women) with an average age of 63 years consumed approximately 21 ounces of purple grape juice each day for two weeks. Ten participants had a history of high blood pressure or were taking antihypertensive medication, and 11 people had high cholesterol levels or were receiving cholesterol-lowering treatment. In addition, most of the participants had been taking vitamins E and C, antioxidant therapies that may also have an effect on heart health. People with unstable angina, uncontrolled diabetes mellitus, or recent medication changes were not allowed to participate in the study. During the 14-day treatment period, volunteers were instructed to exclude fruit products, tea (i.e., *Camellia sinensis* (L.) Kuntze, Theaceae), and alcoholic beverages from their diet, keeping a daily food log to assure compliance. Participants served as their own controls, through a comparison of baseline values and those obtained after grape juice therapy. The study was single-blinded, meaning that the practitioners who performed testing had no information about the patients or the study.

The researchers were particularly impressed with the results of the study in light of the fact that many volunteers were already taking heart medications and antioxidant vitamins. During the course of the study, some participants experienced a small increase in total cholesterol and triglyceride levels due to the carbohydrate content of the grape juice. They concluded that the juice therapy was beneficial in spite of this slight rise in cholesterol levels, providing "further evidence of the potential usefulness of purple grape juice."

Although the sample size of 15 people was small, the Madison research team pointed out that "the BA [high resolution brachial artery ultrasonography] technique for evaluating endothelial function [the health of the cells lining the blood vessels] is very sensitive and reproducible." In addition, researchers used permutation tests to verify that the observed changes in heart health were, in fact, related to consumption of grape juice. Because the study was limited to two weeks, future research should test the effects of long-term grape juice consumption on heart health. — *Krista Morien, HRF* ❑

[Stein JH, Keevil JG, Wiebe DA, *et al.* Purple grape juice improves endothelial function and reduces the susceptibility of LDL cholesterol to oxidation in patients with coronary artery disease. *Circulation.* 1999;100:1050-1055.]

Review Confirms Ginkgo's Benefits

A recent review of the scientific literature on ginkgo leaf (*Ginkgo biloba* L., Ginkgoaceae) standardized extract, one of the best researched herbs, yielded evidence in favor of the plant's clinical use in dementia (Ernst and Pittler, 1999). In compiling their review, the research team used the most stringent inclusion criteria, selecting only clinical studies that were randomized, double-blind, and placebo-controlled. Although the authors had initially planned to perform a meta-analysis, data from the studies proved to be too heterogeneous for statistical pooling.

Ginkgo, *Ginkgo biloba.* Photo © 2000 Steven Foster.

Out of nine studies that met inclusion criteria, the 1997 American study published in the *Journal of the American Medical Association* (LeBars *et al.*, 1997) was the most impressive. The trial included a large sample size of 327 patients, although only 137 completed the study. It also employed a relatively long treatment period of one year, exceeding the duration of treatment in many pharmaceutical drug studies on dementia. Overall, Alzheimer's disease patients seemed to benefit more from ginkgo therapy than did those with multi-infarct dementia, a decline in brain function caused by multiple strokes. Researchers found no difference in effectiveness based on age or severity of symptoms at baseline. However, on the global rating of clinical symptoms, the clinicians were unable to detect significant differences between ginkgo and placebo. A six-month study of 156 participants supported the results of the *JAMA* study (Kanowski *et al.*, 1996). The current review also included seven studies ranging in length from four to 12 weeks, most of which demonstrated ginkgo's superiority to placebo.

Although encouraging, the review also revealed many limitations and methodological flaws. Only four studies out of nine scored the maximum five points on the Jadad scale, which assesses methodological quality. In the other five studies, inclusion and exclusion criteria varied widely, creating the possibility that participants without dementia-related conditions may have been included. Similarly, the earlier studies were conducted before consistent outcome measures for dementia were available, making it difficult to compare study results. Although all of the trials were randomized, few authors provided precise details on the randomization procedure they used. In terms of dosage, the amount of ginkgo taken in the active therapy groups ranged from 120 mg to 240 mg daily, and none of the studies attempted to define an optimal treatment regimen. Because ginkgo manufacturers sponsored the research, there is also a possibility of a bias towards publishing positive findings and ignoring negative ones. (This potential problem of publication bias applies to conventional drug research as well.) Finally, the authors pointed out that many of the studies were too short in duration to

"yield ultimately compelling results." Likewise, the research showed that ginkgo improved symptoms of dementia, but there is no solid evidence confirming its role in actually delaying clinical deterioration.

Although "none of the current studies is flawless and ultimately convincing," Ernst and Pittler concluded that there is compelling evidence in favor of ginkgo's use in dementia. In addition, there is a body of 40 controlled studies on cerebral vascular insufficiency that indirectly supports ginkgo's use in dementia. Although not well defined, vascular insufficiency shares some of the same symptoms as dementia, such as impaired memory and poor concentration. According to research, the incidence of side effects with ginkgo was not measurably different than with placebo. A large postmarketing surveillance study involving 10,815 people demonstrated mild side effects in just 1.7 percent of participants. Nevertheless, future research is needed "to establish the clinical value of ginkgo for dementia and to answer the multitude of open questions which remain." — *Krista Morien, HRF* ❑

[Ernst E, Pittler MH. *Ginkgo biloba* for dementia: a systematic review of double-blind, placebo-controlled trials. *Clin Drug Invest.* 1999;17(4):301-308.

Kanowski S, Herrmann WM, Stephan K, Wierich W, Hörr R. Proof of efficacy of the *Ginkgo biloba* extract EGb 761 in outpatients suffering from mild to moderate primary degenerative demetia of the Alzheimer type or multi-infarct demetia. *Phytomedicine.* 1997;4(1):3-13.

Le Bars PL, Katz MM, Berman N, Itil TM, Freedman AM, Schatzberg AF. A placebo-controlled, double-blind, randomized trial of an extract of *Ginkgo biloba* for dementia. *JAMA.* 1997;278:1327-1332.]

Coffee Lowers Risk of Gallstone Disease For Men in Major Study

Results of a large American population study suggest that regular consumption of coffee (*Coffea arabica* L. and *C. canephora* Pierre ex Froehner, Rubiaceae) may provide protection against the development of symptomatic gallbladder disease (Leitzmann *et al.*, 1999). According to the study, men who drank two to three cups of regular (caffeinated) coffee a day had a 40 percent lower risk of developing gallstone disease, and risk was reduced by 45 percent for those who drank four or more cups a day. All brewing methods (including filtered, instant, and espresso) were associated with decreased risk. Risk also declined with increasing caffeine intake. Men in the highest category of caffeine intake (more than 800 mg a day) had a risk reduction of 45 percent, compared with those who consumed less than 25 mg of caffeine a day. Decaffeinated coffee was not associated with any risk reduction.

The coffee analysis was part of the Health Professionals Follow-up Study, a prospective cohort study that tracked the dietary habits and health histories of 51,529 male physicians, veterinarians, and dentists aged 40 to 75 between 1986 and 1996. The study assessed the consumption of coffee and other caffeinated beverages as part of a 131-item food frequency questionnaire. A total of 46,008 men were eligible for inclusion in the coffee analysis, after exclusion of those with histories of gallbladder disease, cancer, or calorie intake outside a normal range. Dietary and health histories were established with a baseline questionnaire and updated biennially through follow-up questionnaires. The main outcome measurement was new symptomatic gallstone disease (diagnosed by ultrasound or x-ray) or cholecystectomy (gallbladder removal).

The investigators speculated that a number of coffee constituents may contribute to the protective effect, citing earlier research on the metabolic effects of caffeine, cafestol, and whole-bean coffee. According to the authors, caffeine demonstrated an ability to increase bile flow, decrease gallbladder fluid absorption, and inhibit biliary cholesterol crystallization, and cafestol (a lipid compound in coffee beans) may affect the concentration of bile cholesterol. Coffee itself has been shown to stimulate the release of cholecystokinin (a polypeptide that stimulates contraction of the gallbladder and release of pancreatic juice) and to increase gallbladder and large bowel motility. Most population studies investigating the relationship between coffee consumption and gallbladder disease have demonstrated lowered risks for people with high coffee intake, but at least three studies have suggested an increased risk. Gallstone disease is estimated to affect more than 20 million Americans and result in at least 800,000 hospitalizations a year, with direct costs of more than $2 billion. — *Evelyn Leigh, HRF* ❑

[Leitzmann MF, Willett WC, Rimm EB, Stampfer MJ, Spiegelman D, Colditz GA, Giovannucci E. A prospective study of coffee consumption and the risk of symptomatic gallstone disease in men. *JAMA.* 1999;281(22):2106-2112.]

Chocolate, *Theobroma cacao*. Photo © 2000 Steven Foster.

Chocolate: Latest Health Food?

In a recent Dutch study, researchers compared the levels of antioxidant catechins in chocolate (*Theobroma cacao* L., Sterculiaceae) and black tea (*Camellia sinensis* (L.) Kuntze,Theaceae). Catechins (a type of flavonoid or polyphenol) are often associated with tea, but are also found in red wine and a variety of other foods. Based on research with green tea, scientists believe that these compounds may play an important role in protecting against heart disease, cancer, and other health conditions. In this study, a team of researchers analyzed levels of six major catechins in dark chocolate, milk chocolate, and freshly brewed black tea (Arts *et al*., 1999). They found the highest level of total catechins in dark chocolate (53.5 mg per 100 g). Levels were much lower in milk chocolate (15.9 mg of catechins per 100 g) and black tea (13.9 mg per 100 ml). Based on these results, the Dutch team declared, "the antioxidant catechin content of chocolate is four times that of [black] tea."

In the second part of the study, researchers evaluated the importance of chocolate as a source of catechins in the Dutch diet. The survey, which drew from a sample of 6,250 people, aged one to 97 years, revealed that black tea was the most important source of catechins (55 percent of total intake) and that chocolate contributed an additional 20 percent of catechins. The authors pointed out that chocolate might contribute an even larger percentage of catechins in younger age groups who drink less tea. They concluded with the statement that "epidemiological studies on the health effects of catechins in tea will give biased results if other catechin-rich foods such as chocolate are ignored."

There is still much that is unknown about catechins in various foods. Researchers have conducted a considerable amount of research on green tea, with some studies indicating that between four and five cups of green tea a day (approximately 1,600 mg of polyphenols) are needed to provide therapeutic effects. The equivalent amount of catechins needed from black tea and chocolate to provide a similar effect is unknown. See the following review, "Black Tea May Protect Heart Health," for details about this study.

In addition, the researchers pointed out that chocolate and black tea contain different types of catechins. Chocolate contains only (+)-catechin and (-)-epicatechin, while black tea contains higher amounts of (-)-epicatechin gallate and (-)-epigallocatechin gallate, with low concentrations of (+)-catechin, (-)-epicatechin, (-)-epigallocatechin, and (+)-gallocatechin. Researchers still don't know precisely how these catechins differ in terms of health benefits. Clearly, more research is needed before we can elevate chocolate to "health food" status. — *Krista Morien, HRF* ❑

[Arts ICW, Hollman PCH, Kromhout D. Chocolate as a source of tea flavonoids (Letter). *Lancet.* 1999;354:488.

Geleijnse JM, Launer LJ, Hofman A, Huibert APP, Witteman JCM. Tea flavonoids may protect against atherosclerosis. The Rotterdam Study. *Arch Int Med.* 1999;159:2170-2174.]

Black Tea May Protect Heart Health

According to the results of a large-scale Dutch population study, consumption of black tea (*Camellia sinensis* (L.) Kuntze, Theaceae) may decrease the risk of developing atherosclerosis, a hardening and narrowing of the coronary arteries that can contribute to heart attack, stroke, and other serious cardiovascular disease. The study showed that people who drank one to two cups of black tea a day had a 46 percent lower risk of developing severe atherosclerosis, while those who drank four or more cups a day had a risk reduction of 69 percent (Geleijnse *et al*., 1999). Tea drinking had no statistically significant effect on the development of mild or moderate atherosclerosis, and appeared to be more protective for women than for men.

The tea analysis was a sub-study of the Rotterdam Study, a prospective study of 7,983 Dutch men and women aged 55 and older that was designed to evaluate the relationship between dietary habits and a variety of chronic health conditions. After exclusion of study participants with a history of cardiovascular disease (which could have led to intentional dietary changes), 3,454 healthy people were eligible for the tea analysis. At the beginning of the study, participants completed detailed interviews about current and past health, diet, and lifestyle, and were examined radiographically to determine the extent of existing atherosclerosis. Changes in the degree of atherosclerosis were detected by radiography again after two to three years. Participants were followed for a median duration of 1.9 years.

Black Tea, *Camellia sinensis*. Photo © 2000 Steven Foster.

The results of the Dutch tea study are in keeping with other research suggesting

that tea flavonoids may protect against heart disease, although most earlier studies have focused on green tea, with its higher flavonoid content. According to the investigators, black tea is the source of approximately half of the flavonoids consumed by Western populations, although they cite no source for this figure. In this study, one cup of tea was defined as 125 ml. Most people in the Netherlands take their tea without milk, and it is possible that the addition of milk to tea negatively affects the bioavailability of flavonoids.

Tea drinking among Westerners is associated with an overall healthier lifestyle and diet, and in general, the intake of tea in the Dutch study was higher among participants who were lean, were educated, smoked less, and consumed less alcohol, fat, and coffee. However, even after the data were adjusted for these and other possible confounding factors, the inverse association between tea consumption and severe atherosclerosis in this study remained statistically significant. — *Evelyn Leigh, HRF* ❑

[Geleijnse JM, Launer LJ, Hofman A, Huibert APP, Witteman JCM. Tea flavonoids may protect against atherosclerosis. The Rotterdam Study. *Arch Int Med.* 1999;159:2170-2174.]

Sleep Preparation Shows Promise in Clinical Trial

Chronic insomnia is a serious problem for millions of adults. Synthetic sleep aids can affect liver and kidney function and are often habit forming. The search for natural products that enhance sleep has spanned many centuries. In a recent study, researchers at Nizam's Institute of Medical Sciences in Hyderabad, India, studied a compound herbal formula using subjective evaluations and objective measures (Rani *et al.*, 1998). The formula tested contained 100 mg alcohol extract of Indian snake-root (*Rauvolfia serpentina* (L.) Kurz, Apocynaceae), the source of the prescription hypotensive drug reserpine; 100 mg spikenard (*Nardostachys jatamansi* DC, Valerianaceae) rhizome powder; and 100 mg aqueous extract of root stem and leaf of *Tinospora cordifolia* (Willd.) Miers, Menispermaceae, an herb used in Ayurvedic and Unani medicine as a mild sedative. *Nardostachys* is related to valerian and used for similar purposes in Indian traditional medicine. The authors found the preparation effective "without any major side effects."

Rauvolfia contains the potent alkaloid reserpine, which in clinical doses does have significant and serious side effects. Since reserpine is a prescription drug, the combination tested in this study will not be available as a dietary supplement or over-the-counter drug in the United States.

In this small open clinical trial, 39 subjects with chronic insomnia took a placebo for three weeks before initial testing, using polysomnographic recording to establish a baseline. This procedure, used in sleep disorder clinics and laboratories worldwide, measures brain waves (EEG), muscle activity (EMG), and eye movements to chart key sleep quality parameters throughout the night. In this study, researchers measured sleep latency (the amount of time it takes to get to sleep), number of awakenings, sleep efficiency (the percentage of time in bed spent asleep), amount of time awake during the night, and the amount of time in each of the phases of sleep (stage I to stage IV).

Tinospora cordifolia. Illustration courtesy Sabinsa Corporation.

Subjects meeting the inclusion criteria for the study then took the herbal sleep preparation just before bedtime for 21 days. In addition to poly-somnographic measurement in 10 subjects, each of the 39 subjects kept a daily sleep log. Comparing polysomnography before and after the 21-day treatment period, persistent sleep latency declined from 85 minutes (+/- 23) to 24 minutes (+/- 5.7), total sleep time increased by nearly one hour (204 to 262 minutes), and waking time during the night declined from 275 to 191 minutes. Eleven patients (nearly one-third of the 39 patients) complained of mild stomach upset.

The authors concluded: "The present herbal preparation containing three ingredients known to have sleep modulating properties, improved duration, quality and total sleep time and reduced sleep latency and number of awakenings. There was no significant alteration of biochemical, hematological, hepatic or renal parameters. Most patients tolerated test drug well without any major side effects. Problems like hangover and daytime sedation commonly observed with other hypnotic drugs were not seen.

"Thus it can be concluded that the present herbal drug can be used as a good therapeutic alternative for the management of insomnia."

This preliminary study suffers from some serious shortcomings and errors. The study is small, and there are disturbing errors in the reporting. For example, the study results and summary claim 191 minutes as the waking period during sleep, while Table 1 says 181. Similarly, the text says changes in REM sleep were insignificant, while Table 1 shows highly significant changes. These errors, as several reviewers point out, call into question the results of the study. — *Rob McCaleb, HRF* ❑

[Rani PU, Naidu MUR. Subjective and polysomnographic evaluation of a herbal preparation in insomnia. *Phytomedicine.* 1998; 5(4):253-257.]

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By Karen Dean

Gymnema Treatment for Type I and II Diabetes

Compositions for treating and preventing diabetes, impaired glucose tolerance and related symptoms, and methods for preparing and using such compositions. Invented by Edayatimangalam Raja Bhavani Shanmugasundaram and Kalathinkal Radha Shanmugasundaram (Chennai, India); and Rolland Hebert, Sohail Malik and Michael Baker (Seattle, WA). Assigned to Pharma Terra, Inc. (Bellevue, WA). U.S. Patent 5,980,902. Issued November 9, 1999.

This patent discloses methods of isolating compositions from the leaves of the traditional Ayurvedic medicinal plant gurmar (*Gymnema sylvestre* (Retz.) Sm., Asclepiadaceae), for oral, intravenous, subcutaneous or transdermal administration to treat patients with types 1 and 2 diabetes, impaired glucose tolerance, and other conditions associated with or symptoms of diabetes, including hyperlipidemia, elevated triglyceride levels, elevated free fatty acid levels, and reduced levels of insulin, c-peptide, amylase, and lipase. The patent also claims that the compositions reduce polydipsia, polyuria, and polyphagia, regenerate the pancreatic islets of Langerhans, including beta cells, increase endogenous insulin, lipase, and amylase levels, increase production of proinsulin and c-peptide, and lower blood lipids and triglycerides and free fatty acids tolerance. The text discusses the extent and costs of diabetes and impaired glucose tolerance worldwide, and the natural and manufactured pharmaceuticals used to control them.

The patent is intended for worldwide enforcement, and for the natural and manufactured pharmaceuticals used to control the above conditions. It mentions in passing that *G. sylvestre* is used in Ayurvedic medicine to treat diabetes, and presents data from clinical studies supporting the efficacy of the plant in the management of diabetes. The novelty of this patent is not readily apparent, and it is likely that it would be a difficult patent to enforce. ❑

Gurmar, *Gymnema sylvestre*. Photo © 2000 Steven Foster.

Multi-herbal Combination for Viral Infections

Composition for the treatment of viral infections including HIV. Invented by Som C. Pruthi, Pankaj Pruthy and Jasvant Rai Pruthy (Boca Raton, FL). No assignee. U.S. Patent 5,980,903. Issued November 9, 1999.

This invention addresses a composition for the treatment of viral diseases, including AIDS. The composition contains three herbal ingredients, including thymol, a crystal-like substance derived from bishop's weed (*Trachyspermum ammi* (L.) Sprague, Umbelliferae) and also found in thyme (*Thymus vulgaris* (L.) Labiatae); the fruit of myrobalan (*Terminalia chebula* (Gaertner) Retz. Combretaceae); and the leaves of holy basil (*Ocimum sanctum* L., Labiatae). The patent presents evidence that the composition has been shown to kill viruses, including HIV, and to inhibit viral replication.

Bishop's weed (Apiaceae or Umbelliferae) is a small annual bush with many branched leafy stems, feather-like tender leaves and flower heads. Its leaves yield crystals, called thymol, that have medicinal value in Ayurvedic practice. It should not be confused with another plant called bishop's weed (*Ammi visnaga* (L.) Lam., Umbelliferae).

Holy basil is an aromatic plant indigenous to India, where it is used to destroy bacteria and insects. In its preferred embodiment, the composition is formulated as capsules containing between 250 mg and 1,200 mg of the composition, as a tablet, or syrup, or in a liquid form for subcutaneous injection. The patent text describes the methods of combining the ingredients and the results of laboratory and animal tests of the mixture, and concludes that its antiviral properties have been demonstrated. The patent does not discuss the Ayurvedic uses of these plants, nor does it discuss the novelty of the claims for the medicinal benefits of the blend. ❑

Multi-component Supplement with Ginkgo

Nutritional supplement composition and use. Invented by Houn Simon Hsia (Irvine, CA) and David Fan (Mission Viejo, CA). Assigned to Viva America Marketing, Inc. (Costa Mesa, CA). U.S. Patent 5,976,548. Issued November 2, 1999.

This patent describes the composition and method of making a nutritional supplement containing antioxidants, barley grass extract, multiple vitamins and minerals, and *Ginkgo biloba* extract, a novel combination that acts to increase blood levels of high density lipoprotein (HDL) and calcium ions, and decrease human plasma levels of free radicals and glucose. It discusses in general terms the published body of knowledge about the physiologic benefits of the composition's individual ingredients, and describes the beneficial effects observed as a result of administering the compositions. The patent focuses on the optimization of human health and minimization of the effects of aging, presenting the unique blend of ingredients as the novel feature of the patent. The absence of detailed scientific evidence for the effects of the supplement may weaken the enforceability of the patent. ❑

Patents are presented in HerbalGram as a means to inform our readers on developments in this area. Readers are cautioned that a claimed action or application of an herb or herb formula by the applicant in a patent is not necessarily documentable or confirmable by scientific research. Patents are granted based on the novelty of a use of a substance, not on the scientific justification for such claimed use.

Amazonian Shamans Confront the U.S. Patent Office on South American Plant

by Karen Dean

"...they [the Shamans] are also here because they have felt, and continue to feel indignation that something sacred to us has become an object of trade. Our Shamans along with hundreds of learned Amazonians are worried that a handful of men and women are entering our indigenous communities to search for and to appropriate our knowledge. Indigenous peoples from all over the Amazon cannot understand how, given that Ayahuasca has served the indigenous peoples and all of humanity to cure and treat hundreds of corporal and spiritual illnesses, one can ignore the legitimacy of traditional knowledge." *— Contained in the Declaration on Behalf of the Indigenous Peoples of the Amazon Basin on the Ayahuasca Patent*

A delegation of Amazonian shamans wearing ceremonial ponchos, feathers, and beads, and accompanied by environmental lawyers, filed a petition at the U.S. Patent and Trademark Office (PTO) in March 1999, requesting re-examination and revocation of a 13-year-old patent that describes potential therapeutic uses for a particular strain of the ayahuasca vine (*Banisteriopsis caapi* (Griseb.) Morton L., Malpighiaceae), held sacred by many Amazonian peoples. The vine is the key element in a potent hallucinogenic blend of plants, also called ayahuasca, used by indigenous shamans in traditional healing ceremonies. The PTO issued the patent in 1986 to Loren Miller, an American businessman who, as a pharmacology graduate student, had collected what the patent application described as a unique variety of the ayahuasca plant in Ecuador. The patent describes the plant's possible medicinal value in cancer treatment and psychotherapy, its uses in treating post-encephalitic Parkinsonism and angina pectoris, and notes its antiseptic, bactericidal, amebicidal, and antihelminthic properties. Because the plant was used for medicinal purposes in the context of traditional shamanic healing ceremonies, the novelty of the patent was based on "unique" physical characteristics of the strain described in the patent, and not on unexpected medicinal properties of the plant.

The shamans, in collaboration with the Center for International Environmental Law (CIEL, Washington, D.C.), the Coordinating Body of Indigenous Organizations of the Amazon Basin (COICA, Quito, Ecuador), and several other environmental and legal groups, asked the PTO to reconsider Plant Patent number 5751 in light of information that was apparently unavailable to the examiner who had approved the patent 13 years ago. The petition cited testimony by expert botanists at three different institutions who collectively confirmed that the patent's *B. caapi* type specimen, which had been identified as having come from a private cultivated garden, was no different than specimens of *B. caapi* that could be gathered in the wild. They also provided evidence that, more than one year before filing of the patent application, the herbarium of the Field Museum in Chicago had collected and mounted a specimen of ayahuasca indistinguishable from that described in the patent.

The petition states that examination of "prior art" demonstrates that the patented variety of ayahuasca "is neither distinct nor new, because the medicinal and morphological characteristics on which the claim is based are well within the normal range of variation for individual plants of the species, and both the species and the characteristics described in the patent are well known, not only in the scientific literature, but also in the systems of traditional knowledge of indigenous groups throughout the Amazon," and that this variety, "like other forms of the species *B. caapi*, cannot be patented under the explicit terms of the Plant Patent Act because it is found in an uncultivated state."

The petition charges that "issuance of the Patent does not meet the public policy and morality aspects of the Patent Act, which preclude awarding a patent on a plant such as *B. caapi* that is sacred to indigenous peoples throughout the Amazon region and has been used and revered in their cultures for many generations. Awarding patent rights over a plant that is widely found in an uncultivated state in other countries, and as such is a recognized part of the natural resources within their sovereign control, is also contrary to public policy. Additionally, the PTO should not provide patent protection to a plant based on supposed medicinal characteristics that are well known in the systems of traditional knowledge of indigenous peoples of the areas where the plant is found. As illustrated by recent policy statements from the PTO, as well as analogous decisions on trademark registration, the PTO may and should decline to award intellectual property rights where their imposition would violate established moral, religious and cultural values."

At the same time that the shamans filed the "Request for Re-examination," they filed a second petition asking the PTO to review "the broader social implications of the practices and policies of the United States Patent and Trademark Office (PTO) that relate to biological diversity and to the knowledge, innovations and practices deriving from traditional knowledge systems, especially those of indigenous peoples." The second petition raised questions about the very philosophy underlying the U.S. patent system, the relationship of the U.S. patent system to the international protection of intellectual property, and about the appropriate standards of responsibility and stewardship for developed countries whose transnational corporations are exploring and exploiting the resources of less developed countries. The inflammatory nature of international trade issues such as these found expression in the protests that took place in Seattle during the World Trade Organization talks last November and December.

Commenting on the PTO's response to the Amazonian petitions, Deputy Assistant Commissioner for Patent Policy Stephen Kunin observed that patent correction mechanisms such as reexamination were established to allow incorporation of new information, including that from foreign

sources, into the PTO's evaluation of patentability. He pointed out that the globalization of all technologies and all forms of scientific discovery in recent years has impelled the PTO to expand its informational resources considerably beyond what they were 13 years ago when the ayahuasca patent was issued. He said that, while the PTO currently subscribes to more than 900 databases and more than 900 periodicals, "Not all technical information in the world is available in these databases, and often [what is available is] not in full-text English form."

Kunin said that the PTO was relying on familiar patent re-examination mechanisms to determine whether the patent had been issued with insufficient attention to relevant published prior art on *B. caapi*, and particularly on the variety described in the patent. Addressing the questions raised by the shamans' second petition, Kunin suggested, "Apart from the patentability issues, the question of biodiversity and its protection globally is at the root of the concerns being voiced by the South American advocacy group. However, those issues are outside the scope of the jurisdiction of the Patent and Trade Mark Office."

During the PTO's re-examination of the ayahuasca patent, it published a notice in the May 27, 1999, *Federal Register* (64 Fed. Reg. 28803) requesting input from the public on the PTO's procedures and practices for identifying prior art during the examination of a patent application. CIEL submitted a response focusing on the failure of the US patent system to recognize traditional knowledge as prior art, asserting "The PTO has issued patents that are neither novel nor non-obvious in the light of traditional knowledge. These patents allow those who have no right to claim traditional knowledge to remove it from the public domain, and they fail to acknowledge indigenous contributions to world culture and knowledge. Their issuance has provoked sharp protests by the peoples and countries from whom the knowledge or resources were acquired. The petition reads, in part, as follows:

"A recent patent on turmeric (*Curcuma longa* L., Zingiberaceae) provides a well publicized example. In 1995, researchers at the University of Mississippi Medical Center obtained a United States patent for the use of turmeric as a healing agent.[1] This patent aroused considerable public controversy, because turmeric has been used to promote healing of wounds for generations by people in India. Because the patent claims were for processes that were not new, but were part of traditional Indian knowledge in the public domain, the PTO canceled all six of the patent claims as a result of a reexamination requested by India's Council of Scientific and Industrial Research (CSIR). (See story in *HerbalGram* 41 pp. 11-12.)[5]

Amazonian shamans Antonio Jacanamijoy Rosero (COICA Coordinator) and Querubin Queta Alvarado present petitions to the PTO. Photo © 2000 Coordinating Body of the Indigenous Organizations of the Amazon Basin (COICA).

"The turmeric case demonstrates that traditional knowledge constitutes prior art when a patent claim merely restates in whole or part processes that have long been held within the knowledge systems of indigenous and local communities. However, because the turmeric patent 'slipped by' examiners who were not apprised of, and did not seek out, the available prior art, the burden was placed on the knowledge holders to protect their traditional knowledge, through the reexamination process. Yet developing countries and indigenous and local communities have limited means for discovering that their resources are being improperly claimed by United States commercial interests, and they have little chance of learning about an application until after the patent has been awarded. At that point, their least expensive and simplest recourse is to file and prosecute a reexamination at the PTO. Yet participation in such proceedings requires financial resources and access to legal expertise that are not readily available to developing countries and their inhabitants. Many indigenous and local communities in these countries are poor and isolated. Thousands upon thousands of villages have rich traditional knowledge systems attuned to local conditions, yet they lack communication facilities, access to information, and expertise.

"Moreover, the basis for reexamination is limited: examiners may only consider newly discovered prior art patents and printed publications in a reexamination proceeding. As a result, indigenous and local communities in developing countries have no opportunity to bring attention to unwritten knowledge, practices, and innovations that demonstrate lack of novelty or non-obviousness. This is a significant drawback because—given that many of these traditions are oral and poorly documented in the extant scientific literature—published accounts may not have existed at the time the original patent application was filed.

"In the turmeric case, a national scientific organization from a large developing country with a substantial scientific community intervened. The CSIR was able to pro-

duce a substantial body of publications that documented the long-standing use of turmeric by local communities in India. That fact demonstrated that (1) the examiner during the patent's original prosecution failed to investigate all of the available prior art relating to the subject matter and (2) the applicant failed to disclose adequately all of the information that was material to patentability.

"The growing sense in developing countries that patent systems are not fairly acknowledging contributions from their jurisdictions has led some developing countries to adopt restrictions on access to knowledge and biological resources. These restrictions could interfere with the very progress of science that patent law is supposed to encourage. The Philippines has enacted regulations strictly controlling access to biological specimens, which some critics complain has unnecessarily restricted scientific research and exchange. Two Brazilian states have adopted laws requiring foreign researchers to sign contracts requiring them to pay "bioroyalties" on any income they derive from local plants, and the Brazilian Congress is considering similar legislation.

"The controversy could affect international standards for intellectual property as well. For instance, an important policy goal of the United States is to promote multilateral agreement on the definition and enforcement of strong intellectual property rights systems worldwide. Major progress toward that goal is reflected in the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) which binds the 130-plus members of the World Trade Organization Agreement. However, the growing resistance on the part of many developing countries—based in part on perceptions among them that TRIPS standards facilitate the efforts of industrialized countries to misappropriate their traditional knowledge—has led to serious opposition to the implementation or strengthening of the Agreement."

"Our traditional medicine harmonizes the body and the soul. Our Ayahuasca is for many reasons an improvement over western medicine as it treats the spirit. We do not understand how it is that a non-indigenous person can appropriate something so important to the lives and existence of our peoples. Has he participated in the process of searching out the knowledge as our wise elders have done with Ayahuasca? How is it that, in an abusive way and without consultation, one can present a piece of paper claiming to have discovered a new species — when in fact our elders have identified and managed it through the ages?" — *Contained in the Declaration on Behalf of the Indigenous Peoples of the Amazon Basin on the Ayahuasca Patent*

In November 1999, the PTO revoked the controversial patent, acknowledging that the Amazonian shamans and CIEL had demonstrated that the strain of *B. caapi* described in the patent was not distinguishable from strains of *B. caapi* growing in the wild, and that, therefore, the strain was not patentable. Although the PTO has not yet responded to CIEL's comments on the PTO's procedures and practices for identifying prior art, CIEL attorney Glenn Wiser sees the ayahuasca challenge as having successfully raised the important question of "... whether or not developing countries should have the right to restrict patenting in their countries and, in turn, whether transnational interests in developed countries should be allowed to obtain monopoly rights, in the form of intellectual property, based upon genetic resources and traditional knowledge obtained from indigenous peoples."

Wiser further observes, "The importance of the case is that it gives indigenous peoples confidence that they can challenge patents wrongly issued or patents that improperly use their traditional knowledge. This case provides a signal to would-be patent holders who intend to patent materials or knowledge they have obtained from indigenous peoples that indigenous peoples will use the legal process to fight back." ❑

Ayahuasca, *Banisteriopsis caapi*.
Photo © 1999 Mark Blumenthal.

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FDA's New Structure/Function Claims Regulations Affirm DSHEA – Not Dietary Supplement Safety and Effectiveness

by Anthony L. Young

Elsewhere in this issue, Loren Israelsen and Mark Blumenthal describe the Food and Drug Administration's January 6, 2000, dietary supplement structure/function claim regulations. The fact that these regulations affirm the intent of the Dietary Supplement Health and Education Act of 1994 (DSHEA), and do not, as was the case with FDA's April 1998 proposal and attempted redefinition of "disease," seek to narrow this law to fit FDA's pre-1994 model, was a surprise to all. With this affirmation of DSHEA comes added responsibility to assure the safety and effectiveness of botanical products.

Three years after DSHEA became law, a number of industry leaders met to discuss safety substantiation. At that meeting, one representative noted that many companies viewed DSHEA as having affirmed and substantiated the safety of dietary supplements. There had been so much talk about the fact that DSHEA places the burden of proving a dietary supplement unsafe on the FDA that many in the industry had translated that to mean our products have been declared to be safe by Congress. Obviously, DSHEA did no such thing. Every manufacturer must assure that its products are not adulterated under the Federal Food, Drug, and Cosmetic Act and the common law of every state requires manufacturers to assure the safety of their products prior to marketing. What is the lesson here? Like DSHEA and product safety, FDA's new structure-function claim regulations do not declare dietary supplements to be effective for the claims that FDA has now said are not disease claims.

If products don't work, it only hurts the industry as a whole.

Dietary supplement industry detractors have expressed concern that these new regulations put the public at serious risk. The Health Research Group's Dr. Sidney Wolfe was on national television two days after their publication on January 6, arguing that FDA is risking another thalidomide disaster by allowing supplements to treat common morning sickness of pregnancy, the principal purpose for thalidomide, which caused serious birth defects when it was prescribed in Europe (it was never approved in the U.S.). According to Dr. Wolfe, the fact that there is no pre-approval scheme for dietary supplements puts the unborn at risk. (No one in the herb industry requested these claims. In response to concerns in the medical community, FDA has advised manufacturers not to make any pregnancy-related claims based on the agency's new rule.)

While Dr. Wolfe uses extreme examples, the fact that dietary supplements may now be sold—if they are not adulterated and their claims are substantiated, for common conditions that affect adolescents (non-cystic acne), and the elderly (presbyopia, decreased sexual performance due to aging, hair loss, etc.)—should cause those in the dietary supplement industry to re-examine how they substantiate the safety and efficacy of their products. There are many reasons to do this but the main one is that the industry can only be sustained if it markets safe products that truly do what they claim to do.

If one looks on page 183 of the *American Herbal Products Association's Botanical Safety Handbook*, one will see four columns of botanicals, by their common name, that are not to be used in pregnancy. Fully one-third of the botanicals discussed in this book bear this caution. The handbook, published by the trade association of the botanical industry, sets the standard of care with respect to whether a botanical should be labeled against use in pregnancy.

Recently, one national pharmacy chain, CVS, announced that it will be providing customers with information about potential dietary supplement, OTC drug, and herbal preparation interactions with prescription drugs. For this reason, and the fact that the elderly, a potential new market expansion, are big users of prescription drugs, the dietary supplement industry is going to need to pay more attention and to enhance its research efforts on this important issue.

The FDA noted in the regulation preamble that DSHEA mandates that manufacturers possess substantiation to show their claims are truthful and not misleading. In addition, FDA for the first time states that it is the agency's position that manufacturers must be prepared to demonstrate to the court that they have substantiation for each of their claims. Of course, if products don't work, it only hurts the industry as a whole. A product that doesn't work may get one-time sales but it will not build consumer confidence or a franchise. Senior citizens groups especially will be monitoring new products and asking for efficacy substantiation. So, if a manufacturer intends to bring out a botanical product in the new claim venues of FDA's regulation, it should do itself and the industry the favor of assuring that claims are substantiated.

Potentially, FDA's new regulations expand the botanical franchise substantially. They also have the potential of contracting the franchise if products that don't work or promise too much are rushed to market. In short, now that FDA has recognized what DSHEA allows, let's be careful out there and show the public that there is a place for responsible commerce in botanicals and other dietary supplements. ❑

Anthony Young is a partner in the law firm of Piper & Marbury and is legal counsel for the American Herbal Products Association. He wrote "Forget About Disease: Botanical Claims Under the DSHEA Paradigm" in HerbalGram 45, p. 29, in which he outlined AHPA's position that certain claims currently allowed by FDA for OTC drug products are in essence identical to the structure-function claims allowed for dietary supplements under DSHEA. This argument was the basis for AHPA's public comment to FDA under regulations proposed in April 1998. FDA accepted AHPA's position in the new rules published in January 2000, thereby allowing new claims for supplements.

FDA Issues Final Rules for Structure/Function Claims for Dietary Supplements Under DSHEA

By Loren D. Israelsen and Mark Blumenthal

SUMMARY AND BACKGROUND

On January 6, 2000, the Food and Drug Administration (FDA) issued its final regulations on structure/function (SF) claims for dietary supplements (DS) under the Dietary Supplement Health and Education Act of 1994 (DSHEA).[1] The full text is available on the Internet.[2]

These new rules represent a significant shift from those of April 1998[3] when FDA published proposed regulations that included a highly controversial redefinition of the word "disease" in what was viewed by many industry and consumer groups as an attempt to restrict the scope of the SF claims under DSHEA.[4] Since then FDA has received 235,000 comments from the public about this measure: 213,000 as form letters circulated by consumer and trade groups, and 22,000 as individual letters from consumers, members of industry, and other interested parties. In response, FDA held public meetings in July and August 1999 to receive further public comments and extended the comment period for further written comments.

Cranberry, *Vaccinium macrocarpon.*
Photo © 2000 Steven Foster.

FDA's new rules also comment on recommendations made in the report by the White House Commission on Dietary Supplement Labels (CDSL).[5,6]

Of interest to many in the herb industry is the expansion of SF claims to include many conditions previously allowed for over-the-counter (OTC) drugs. FDA has enlarged the range of SF claims by agreeing with the comments by the American Herbal Products Association (AHPA) that some drug claims currently permitted in the OTC drug monographs are not disease claims but are instead claims that deal with the structure or function of the body. Thus, FDA agrees with AHPA that these claims should be allowed for DS as well, without such claims constituting drug labeling. Thus, DS will be able to make claims for antacid, digestive aid, short-term laxative, and other uses previously off limits to DS.

ANALYSIS OF THE NEW RULES

Definition of Disease. In the new rules FDA has withdrawn its previously proposed definition of disease, which was:

> "Any *deviation from, impairment of, or interruption* of the normal structure or function of any part, organ, or system (or combination thereof) of the body that is manifested by a characteristic set of one or more signs or symptoms, including laboratory or clinical measurements that are characteristic of a disease." [emphasis added].

Instead, FDA will now use the pre-existing definition of "disease or health-related condition" which was issued as part of the Nutrition Labeling and Health Act of 1990 (NLEA) final regulations on health claims:

> "*Damage* to an organ, part, structure, or system of the body such that it does not function properly (e.g., cardiovascular disease), or a state of health leading to such as (e.g., hypertension); except that diseases resulting from essential nutrient deficiencies (e.g., scurvy, pellagra) are not included in this definition." [emphasis added].

It was this issue of the expansion of the meaning of disease to include conditions that did not constitute damage to the body or an organ that concerned many consumers and industry members, motivating the large number of letters to the agency protesting the proposed definition. Under DSHEA, DS "intended for use in the diagnosis, cure, mitigation, treatment or prevention of disease" are considered drugs; by proposing to expand the definition of disease, FDA automatically would reduce the range or number of those claims under DSHEA. The final rule lays out a series of disease- or health-related conditions and how they will be regulated. FDA also offers

important perspectives on collateral issues, most of which are summarized in the body of this article.

Effect on Disease or Class of Diseases. Under the old proposal, a statement would be considered a disease claim if it explicitly or implicitly claimed an effect on a specific disease or class of diseases. FDA included these examples of disease claims: (1) *Express Claims*: "Protective against the development of cancer"; "reduces the pain and stiffness associated with arthritis"; "decreases the effects of alcohol intoxication"; "alleviates constipation." (2) *Implied Claims*: "Helps promote urinary tract health"; "helps maintain cardiovascular function and a healthy circulatory system"; "helps maintain intestinal flora"; "promotes relaxation."

Of interest to many in the herb industry is the expansion of structure/function claims to include many conditions previously allowed for over-the-counter (OTC) drugs.

In a development that will surely result in new product marketing for herbal products, FDA has stated that certain constipation claims should *not* be treated as disease claims. Therefore, "For relief of occasional constipation" would not be considered a disease claim. The labeling of a product that claimed to treat occasional constipation should make clear, however, that the product is not intended to be used to treat *chronic constipation,* which may be a symptom of a serious disease.

Signs or Symptoms of Disease. Under the new rules FDA may look to medical texts and other objective sources of information about disease to determine whether a label implies treatment or prevention of disease by listing the *characteristic signs and symptoms* of a disease or class of diseases, whether they are printed in technical or lay language. This standard will focus on whether the labeling suggests that the product will produce a change in a set of one or more signs or symptoms characteristic of the disease. Example #1: FDA would not interpret "improves absentmindedness" as implying treatment of Alzheimer's disease, because absentmindedness is not as serious as the type of memory loss usually suffered by Alzheimer's patients. Example #2: FDA believes "inhibits platelet aggregation" is an implied disease treatment/prevention claim. Inhibiting or decreasing platelet aggregation is a well-recognized therapy for the prevention of stroke and recurrent heart attack and is the mechanism of action of a number of drug products approved for the treatment of stroke and heart attack. Thus, the agency would consider a claim to inhibit normal platelet function to be an implied claim to treat and prevent these disease conditions. Example #3: FDA believes "joint pain" is characteristic of arthritis. *The Merck Manual* notes joint tenderness as the most sensitive physical sign of rheumatoid arthritis. The claim "helps support cartilage and joint function" is, however, acceptable because it relates to maintaining normal function rather than treating joint pain. Another example: Labeling claiming a product "prevents bone fragility in post-menopausal women" clearly implies that the product prevents osteoporosis and thus is an unacceptable disease claim.

Effects on Abnormal Conditions Associated with a Natural State or Process. FDA believes that many claims concerning the maintenance of "normal" or "healthy" structure or function do not apply to disease prevention in the context of DS labeling unless other statements or pictures in the labeling imply prevention of a specific disease or class of diseases. Statements should not be made that products restore normal or correct abnormal function when the abnormality implies the presence of disease. Example #1: a claim to "restore" normal blood pressure when the abnormality implies hypertension. Example #2: "maintains healthy lungs in smokers" would imply prevention of tobacco-related lung cancer; however, "maintains healthy lung function" alone is an acceptable SF claim. Example #3 deals with a major area of herbal supplements: cholesterol levels. A claim that a DS helps maintain cholesterol levels that are already within the normal range does not necessarily imply disease treatments. FDA has concluded, however, that references to "healthy" cholesterol may be misleading to consumers. FDA continues to believe that "lowered cholesterol," however qualified, is an implied disease claim. FDA will review all cholesterol claims to determine whether the labeling as a whole implies that the product is intended to lower elevated cholesterol levels; in such cases, FDA will consider the labeling to create an implied disease claim. FDA has concluded that an appropriate SF claim for maintaining cholesterol would be, "helps to maintain cholesterol levels that are already within the normal range."

Conditions Associated with Natural States. In its April 1998 notice, FDA had proposed to treat abnormal conditions such as toxemia of pregnancy, premenstrual syndrome, hot flashes, presbyopia, decreased sexual function, and Alzheimer's disease associated with aging as disease states. FDA has reconsidered this position and has concluded that it is not appropriate under DSHEA to treat certain common non-serious conditions associated with natural states as diseases. There are a wide variety of conditions representing impaired function of an organ or system that are associated with particular states of life or normal physiologic processes, including adolescence, the menstrual cycle, pregnancy, menopause and aging.

Thus, mild conditions commonly associated with particular stages of life or normal physiological processes will not be considered diseases. However, a statement *will* be considered a disease claim if it claims that the product "has an effect on an abnormal condition associated with a natural state or process, if the abnormal condition is uncommon or can cause significant or permanent harm." Ordinarily, FDA agrees that conditions associated with a stage of life or a normal physiological process are considered common if they occur in more than one half of those experiencing that stage or process.

In a ruling that will have significant impact on the herb industry, FDA has stated that benign prostatic hyperplasia (BPH) should not be considered a consequence of aging. Even if BPH were considered a direct consequence of aging, claims to treat or prevent it would still be treated as disease claims, because failure to obtain effective treatment can cause significant or permanent harm. Consequently, "Helps to maintain normal urine flow in men over 50 years old," is considered an implied disease claim. The average or normal state in men over 50 years old is diminishing urine flow, in most cases due to BPH, so that the apparent "maintenance" really represents a claim of improvement (treatment).

Examples of allowed claims are shown in Table 1. Disallowed claims are shown in Table 2; these remain disease claims.

EFFECTS ON A DISEASE OR DISEASES THROUGH ONE OR MORE OF THE FOLLOWING FACTORS

Name of the Product. The proposed rule argued that a statement would be considered a disease claim if it claimed explicitly or implicitly to have an effect on diseases through one or more factors including the name of the product. Examples include: Carpaltum (carpal tunnel syndrome); Raynaudin (Raynaud's phenomenon); Hepatacure (liver problems). Acceptable names suggested were Cardiohealth and Heart Tabs. Under the final rule ads could be called "Heart Tabs" if the claim was to "maintain healthy circulation" or some other role related to the structure/function of the heart that did not imply treatment or prevention of disease. If, however, the product name was not qualified by any further claim on the labeling, the product would be considered as treatment or prevention of cardiovascular disease. The name of a product should not contain the name or recognizable portion of a name of a disease. Also, the name should not use terms such as "cure, treat, correct, prevent" or other terms that suggest treatment or prevention of disease. Thus, Carpalhealth and Circucare would be considered disease claims. "Soothing sleep" could be considered a claim to treat insomnia unless the labeling made clear the product was intended only for *occasional sleeplessness*. HepataCare and HepataHealth could also be considered disease claims because "Hepata" could be read as a reference to hepatitis unless the labeling made clear that the product was intended for general liver health and not intended to treat or prevent hepatitis. FDA will issue for public comment a draft guidance to provide clarification and examples of claims and product names that would and would not be considered disease claims under the final rule.

Product Formulation. Listing a dietary ingredient in the ingredient list of a DS will not be considered to imply an effect on disease unless the ingredient is one that has been regulated primarily as a drug and is well-known to consumers for its use or claimed use in preventing and treating a disease. In those cases where a manufacturer does add a drug ingredient to its product that is well-known to treat or prevent disease and label its presence, FDA may consider it a disease claim. This also pertains to a dietary ingredient found in common foods whose biological activity is first characterized in a food context but which is subsequently approved as a drug, i.e., indol-3-carbinol (I3C), a compound discovered in broccoli and other vegetables. The question arises: If I3C were to be approved as a breast cancer drug, would a claim that a vegetable-based DS product con-

Table 1: Examples of Allowed Conditions and Statements for which Structure/Function Claims Can Be Made under DSHEA

- Abstentmindedness and mild memory problems associated with aging
- Antispasmodic
- Appetite suppressant and weight loss (if no link to obesity)
- As part of diet to maintain healthy blood sugar levels
- Leg edema associated with pregnancy
- Treats/prevents nocturnal leg muscle cramps
- Helps support cartilage and joint function
- Promotion of digestion
- Maintainence of cholesterol levels that are already within the normal range
- Hair loss associated with aging
- Hot flashes
- Immune system function
- Maintenance of intestinal flora
- Healthy lung function
- Laxative (occasional constipation)
- Minor muscle pain during exercise
- Morning sickness associated with pregnancy (rescinded by FDA on Feb. 9, 2000)
- Noncystic acne
- Premenstrual syndrome (PMS) and normal, healthy attitude during PMS
- Support for menopausal women
- Presbyopia (inability to change focus from near to far, and vice versa, associated with aging)
- Mild mood changes, cramps and edema associated with the menstrual cycle
- Other signs of aging on the skin, e.g., liver spots, spider veins
- Smoking alternative, reduced desire to smoke, mimics oral sensations of cigarette smoke
- Inceases stamina
- Relief of stress and frustration
- Tonic
- Wrinkles

tains I3C be permitted as a structure/function claim? Where an ingredient has been approved as a drug, DSHEA prohibits marketing of the ingredient as a DS, unless the ingredient itself was previously marketed as a food (including a DS), or unless a food containing the ingredient was previously marketed *for the presence of the ingredient*. In this example, the isolated ingredient I3C could not be marketed as a DS unless a food containing I3C had been marketed for the presence of I3C before the drug was approved or was the subject of substantial investigations that had been made public. For purposes of this section, the agency may consider as a disease claim a claim that the product contains an ingredient that has been regulated by FDA as a drug, whether marketed OTC or by prescription, and that is well known for its use in preventing or treating disease. This is the so-called Cholestin® "provision" referring to the case of a product composed of Chinese red yeast rice that contains a naturally-occurring compound that has also been approved as a drug, i.e., lovastatin, for the reduction of cholesterol levels.

Citation of Publication Titles. FDA agrees that in enacting DSHEA, Congress intended to encourage the dissemination of scientific research and truthful, non-misleading information. FDA also agrees that consumers can benefit from reviewing the scientific support used to substantiate a statement for a DS. In keeping with these goals, FDA has modified the law to narrow the circumstances under which citation to a scientific reference will be deemed a disease claim. Citation of a title referring to a disease will be treated as a disease claim if, in the context of the labeling as a whole, the citation implies treatment or prevention of a disease. One element that the agency will look at is the prominence of the citation in the labeling. If, for example, the citation is simply listed in the bibliography section of the labeling among other titles, it generally will not suggest an implied disease claim. On the other hand, highlighting, bolding, using large type size or prominent placement of the citation that refers to a disease use in the title could suggest the product has an effect on disease. The agency will also consider whether the cited article provides legitimate support for an SF claim that appears in the labeling of the DS. Enhancing the bibliography with citations to scientific references that refer to a disease in the title that have no reasonable relation to the SF claim will be considered a disease claim. FDA will also consider whether citations are to *bona fide* research. FDA encourages manufacturers to cite references that provide a balanced

Saw Palmetto, *Serenoa repens*. Widely used in herbal products promoted for use in maintaining normal prostate function. Photo © 2000 Steven Foster.

Table 2: Examples of Conditions and Statements that Remain Disease Claims; Not Permitted under DSHEA

Alzheimer's disease and other senile dementia
Antibiotic
Antiinflammatory
Anticonvulsant
Arteriosclerotic diseases in coronary, cerebral or peripheral blood vessels
Benign prostatic hyperplasia (BPH)
Promotes low blood pressure
Bronchodilator
Relieves crushing chest pain
Lowers cholesterol
Chronic constipation
Expectorant
Maintains well being during cold and flu season and dietary support during cold and flu season
Cystic acne
Decreases effect of alcohol intoxication
Controls blood sugar in persons with insufficient insulin
Glaucoma
Headache tension
Prevents irregular heart beat
Maintains healthy lungs in smokers
Nasal decongestion
Osteoporosis
Maintains normal bone density in post-menopausal women
Prohibits bone fragility in post-menopausal women
Inhibits platelet aggregation
Hyperemesis gravidarum of pregnancy
Acute psychosis of pregnancy
Toxemia of pregnancy
Severe depression associated with the menstrual cycle
Deters bacteria from adhering to the wall of the bladder and urinary tract
Helps maintain normal urine flow in men over 50

discussion of the evidence supporting a SF claim. If specific information about an unlabeled use of a product is requested by a consumer and the request is not solicited by the manufacturer, providing articles that are responsive to the request will not be considered a disease claim.

In an interesting development affecting supplement manufacturers who fund scientific research on their own products, FDA states that third party literature provisions of DSHEA do not apply to the citation of titles in product labeling, because the third-party literature exemption applies when only when the publication does not promote a particular manufacturer or brand of DS. Therefore, if the reference or the title of the reference was disseminated by a manufacturer of the DS discussed in the reference, FDA concludes that this use promotes the manufacturer's brand, and that the third party literature exemption would not apply. Further, such publications must be displayed or presented with other such items to present a balanced view of the available scientific information. A citation to an article alone could not meet these requirements.

The name of a product should not contain the name or recognizable portion of a name of a disease.

Use of "Disease" or "Diseased." The terms "disease" or "diseased" classify a statement as a disease claim. FDA agrees that general statements about health promotion and disease prevention may be acceptable as long as the statements do not imply that a specific product can diagnose, mitigate, cure, treat or prevent disease.

Pictures, Vignettes, and Symbols. FDA agrees that in most cases a picture of a healthy organ would not be considered a disease claim if the labeling as a whole does not imply treatment or prevention of disease. The heart symbol, however, is widely recognized for disease treatment/prevention, and its use constitutes an implied disease claim. A picture of a healthy EKG tracing is also an implied disease claim. Also, the heart symbol has become so widely associated with the prevention of heart disease that its use in the labeling of DS would ordinarily be considered an implied heart disease prevention claim.

Membership in Product Class. Previously, the proposed rule provided examples of "class names" that would imply disease, treatment or prevention and were not allowed. These included the terms antibiotic, laxative, analgesic, antiviral, diuretic, antimicrobial, antiseptic, antidepressant, and vaccine, among others. Acceptable examples included energizer, rejuvenative, revitalizer or adaptogen. Now FDA has decided that claims for relief of occasional constipation are not disease claims; thus, the term "laxative" is not considered a disease claim. The claim "appetite suppressant" is an acceptable SF claim because obesity is a disease, not overweight. An appetite suppressant may be intended for ordinary weight loss, rather than a treatment for obesity. Therefore, such a claim may be appropriate in context. The claim "tonic" is not a disease claim. FDA does not consider the term "antispasmodic" to constitute a disease claim because it is not closely associated with treatment or prevention of gastrointestinal disease. The term "anti-inflammatory" is a disease claim because it is strongly associated with treatment of certain serious gastrointestinal diseases. However, a term considered a substitute for disease therapy would be a disease claim if it explicitly/implicitly claimed that a DS was a substitute for another product that is a therapy for disease. "Herbal Prozac" and "Herb Phen-fen" are examples.

Augmentation of Therapy or Drug for Disease. FDA agrees that DS may be useful in providing nutritional support. Associating such statements with an express or implied claim that a DS augments therapy or drug action, however, implies the DS has a role in treating or preventing the disease for which the drug or therapy is used. Example: "Use as part of your diet when taking insulin to help maintain a healthy blood sugar level" is a disease claim. However, "Use as part of your diet to help maintain a healthy blood sugar level" is acceptable. Deleting the reference to insulin removes the implication that the DS is augmenting the insulin to treat, mitigate, prevent, or cure diabetes. The terms "strengthen, reduce, improve, modify, inhibit, protect" or "defend" may be appropriate terms in some contexts, i.e., when the statements do not suggest disease prevention or treatment use. If however, these terms imply that the DS augments a particular therapy or drug action or suggests an effect on disease, FDA will consider these statements disease claims.

Role in Body's Response to Disease or Disease Vector. Under the final proposed regulation, the statements "supports the body's antiviral capabilities" or "supports the body's ability to resist infection" are disease claims. However, "supports the immune system" is acceptable. A claim that a product supports the body's antiviral capabilities represents a claim of treatment or prevention of a specific class of diseases, those caused by viruses (e.g., colds, hepatitis, or HIV infection) and is therefore not allowed for a DS.

Treatment/Prevention of Adverse Events. Because this final rule uses a different definition of disease than FDA had proposed in its earlier ruling in 1998, this section has been revised to state that claims about adverse events are disease claims *only "if the adverse event constitutes disease."*

Claims that a product is useful because it counterbalances the effect of a drug in depleting a nutrient or interfering with the metabolism of a nutrient are acceptable SF statements. However, if a claim expressly or implicitly suggests that a DS is intended to augment a specific drug, drug action, or therapy for a disease or serve the same purpose as a specific drug or therapy for a disease, then the statement may be considered a disease claim. Example: "Helps individuals using antibiotics to maintain normal intestinal flora" is a disease claim, but "Helps maintain intestinal flora" is acceptable. Rationale: The statement "helps individuals using antibiotics to maintain normal intestinal flora" does not explicitly refer to a disease, but there is an implicit claim that use of a DS while taking antibiotics will prevent or mitigate a disease. Why? Persons using certain antibiotics are at risk of developing overgrowth in the gut of a pathogenic organism, because along with fighting the target organism in the body, the antibiotic can suppress normal intestinal flora that are

used to prevent infection in the gastrointestinal tract. Thus, in FDA's view, this statement would make an implied disease prevention claim.

Otherwise Affects Disease. Under the final rule, a statement would be a disease claim if it suggests an effect on a disease or class of diseases in a manner other than those specifically set out in the first nine criteria mentioned above. This is the "catch-all" provision. In the comments, FDA was asked to comment on the following statements: "Provides nutritional support for women during premenstruation by promoting proper fluid balances and breast health." "Ginger supports the cardiovascular system by inhibiting leukotriene and thromboxane synthesis, substances associated with platelet aggregation." These do not appear to FDA to constitute drug claims.

Specific Claims Not Mentioned in the Proposed Rule. FDA allows that some minor pain relief claims may be appropriate SF claims for DS. A claim that a product is intended to treat minor pain without referring to other conditions, symptoms, or parts of the body that would imply disease treatment or prevention would be acceptable SF claims, because minor pain by itself can be caused by a variety of conditions, not all of them disease related. FDA did not, however, agree that general well-being or health maintenance claims would encompass such pain claims. Pain is not a normal state, nor are there "normal pain levels." While the claim to maintain or support joints is appropriate, use of the claim in conjunction with a name that includes the term "pain" renders this a disease claim. Acceptable SF claims could be made, however, for pain associated with non-disease states (e.g., muscle pain following exercise).

In other areas, FDA said that the statements, "boosts stamina, helps increase muscle size, helps enhance muscle tone" are acceptable SF claims because they do not refer to any disease. "Deters bacteria from adhering to the wall of the bladder and urinary tract" is not acceptable, as it implies prevention of bacterial infection. The claim, "dietary support during the cold and flu season" and "promotes general well-being during the cold and flu season" are disease claims and are not acceptable, i.e., the products will prevent colds or flu or will mitigate the symptoms of those diseases. FDA agrees that certain smoking alternative claims may be acceptable if they do not imply treatment of nicotine addiction. "Smoking alternative," "temporarily reduces your desire to smoke" and "mimics the oral sensations of cigarette smoke" may be acceptable if the context does not imply treatment of nicotine addiction.

Allowance of Some OTC Drug Claims. In an important ruling that might result in the blurring of the line between a DS and an OTC drug, FDA agreed that inclusion of a claim in an OTC monograph does not preclude its use as an SF claim; FDA agrees that some OTC drug claims may be acceptable SF claims, but others are disease claims. Examples: Relief of sour stomach and upset stomach (from the OTC antacid monograph) are acceptable SF claims because they refer to nonspecific groups of conditions that are not disease related. Occasional heartburn and occasional acid indigestion can also be considered nonspecific symptoms and therefore appropriate SF claim areas. By contrast, recurrent or persistent heartburn and acid indigestion can be signs of significant illness and are therefore disease claims. "Alleviates the symptoms referred to as gas," "alleviates bloating," "alleviates pressure," "alleviates fullness," and "alleviates stuffed feeling" are all acceptable SF claims (OTC anti-gas monograph). "For the prevention and treatment of the nausea, vomiting and/or dizziness associated with motion" is a permitted SF claim (anti-emetic monograph). "For the relief of occasional sleeplessness" is acceptable (nighttime sleep aid monograph). "Helps you fall asleep if you have difficulty falling asleep," or "helps to reduce difficulty falling asleep" are disease claims as they imply treatment of insomnia, a disease. "Helps restore mental alertness or wakefulness when experiencing fatigue or drowsiness" is acceptable (alertness aids monograph) because occasional fatigue and drowsiness are not characteristic symptoms of a specific disease or class of diseases. Chronic fatigue or daytime drowsiness can be symptoms of chronic fatigue syndrome or narcolepsy and are disease claims. "Occasional simple nervous tension," "nervousness due to common, everyday overwork and fatigue," "a relaxed feeling," "calming down and relaxing," "gently sooth away the tension," "calmative," "resolving that irritability that ruins your day," "helps you relax," "restlessness," "nervous irritability," "when you are under occasional stress" and "helps you work relaxed" are all acceptable SF claims, because all suggest occasional rather than long-term or chronic mood changes (daytime sedative monograph). "Nervous tension headache" is a disease claim, because tension headache meets the definition of disease. (See Table 3.)

"Arouses or increases sexual desire and improves sexual performance" is acceptable (aphrodisiacs monograph) because it does not imply treatment of a disease. "Helps restore sexual vigor, potency and performance," "improves performance, staying power and sexual potency," "builds virility and sexual potency" are disease claims because they use the term "potency" which implies treatment of impotence, a disease. If, however, these claims make clear that they are intended solely for increased sexual function associated with aging, they could be acceptable SF claims.

To relieve the symptoms of benign prostatic hypertrophy, e.g., urinary urgency and frequency, "excessive urinating at night and delayed urination" is a disease claim because BPH meets the definition of disease. "Relieves excessive secretions of the nose and eyes" is a disease claim as it refers to the characteristic signs or symptoms of hay fever. "Digestive aid," "stool softener," "weight control" and "menstrual" are, by themselves, acceptable SF claims if the labeling does not otherwise imply treatment or prevention of disease. "Nasal

Table 3: OTC Drug Monographs Containing Claims Now Allowed as Structure/Function Claims under DSHEA

Antacid
Antigas
Anti-emetic (Nausea)
Aphrodisiacs
Daytime sedatives (stress, tension)
Digestive aid
Laxative
Nighttime Sleep-aid
Stimulant
Stool softener
Weight control

decongestant," "expectorants," and "bronchodilator" are disease claims because nasal decongestant is a treatment for a characteristic symptom of colds, flu, and hay fever; expectorant is a treatment for a characteristic symptom of colds, flu and bronchitis; and bronchodilator is a treatment for bronchospasm, a characteristic symptom of asthma. "Treatment and/or prevention of nocturnal leg muscle cramps, i.e., a condition of localized pain in the lower extremities usually occurring in middle life and beyond with no regular pattern concerning time or severity" is an appropriate SF claim (nocturnal leg muscle cramp monograph). Nocturnal leg cramps do not meet the definition of disease.

Regarding safety of DS making an allowed OTC claim, in a statement that is likely to increasingly obscure the line between a DS and an OTC drug, FDA also noted that in light of the statutory requirement that DS bear all information that is material in light of consequences that may result from use of the product or representations made about it, DS that contain or are labeled as containing ingredients covered by an OTC monograph and that are being sold for the claims covered by the monograph may be misbranded to the extent that they omit material information required under the monograph. That is, information on contraindications or potential adverse side effects required in an OTC drug monograph now appears to be required for a DS label if the product contains an ingredient approved as an OTC drug and is marketed as a DS for the same indication in the OTC drug monograph. For example, if the OTC monograph required a label statement that products containing a particular ingredient should not be used by a person taking a prescription MAO (monoamine oxidase) inhibitor, a DS containing that ingredient would be misbranded if its label did not include such a statement.

Substantiation of Claims. FDA does not believe that the new rule is the appropriate venue to address substantiation requirements. The CDSL included guidance on what quantity and quality of evidence should be used to substantiate SF claims. The commission also provided guidance on the content of the substantiation files for such claims including the 30-day notification letter to FDA, identification of the product ingredients, evidence to substantiate the claim, evidence to substantiate safety, assurances that GMPs were followed, and the qualifications of the persons who reviewed the data on safety and efficacy. FDA has stated that it agrees with the guidance of the commission and encourages DS manufacturers making SF claims to follow this guidance. Contrary studies should be considered when deciding whether to make and how to word a SF claim to assure that any statements made are truthful and not misleading. In a rule that affects the "phytoequivalence" issue of herbal products, FDA says that there is no specific statutory requirement that the studies substantiated in the statement be performed using the actual marketed formulation. However, many ingredients and factors influencing the formulation can affect the safety and effectiveness of the DS. These variations from the marketed product should be considered before using a study to substantiate a claim made for a particular product.

Structure/Function Claims for Conventional Foods. A large area of activity in the market has developed in the area of claims for conventional foods, where manufacturers have added herbs and other supplement ingredients to foods and then made SF claims for them. FDA has stated that this rule applies to claims for DS only. FDA advises, however, that for consistency, FDA is likely to interpret the dividing line between SF claims and disease claims in a similar manner for conventional foods as for DS.

Relationship Between Structure/Function Claims and Health Claims. Structure/function claims are not a subset of health claims as defined in NLEA. To be a health claim, a claim must refer to the relationship between a food substance and a disease or health-related condition. FDA interprets "health-related condition" to mean a state of health leading to disease. This rule makes clear that only SF claims that do not assert health claims may be made.

Implementation Plan. All manufacturers will have 11 months after the effective date of the final rule (February 7, 2000) to come into compliance. Small business will have 17 months after the effective date of the final rule. ❑

Loren Israelsen is president of LDI Group, a consulting firm specializing in the regulation and marketing of DS. He was heavily involved in the development and passage of DSHEA. Mark Blumenthal is editor of HerbalGram and executive director of ABC.

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FDA Issues Proposed Regulations on Foreign Marketing Data for OTC Drug Approvals

Rules Would Affect "Botanical Drug Substances"

by Stuart M. Pape, Daniel A. Kracov, and Paul D. Rubin

On December 20, 1999, the Food and Drug Administration issued a proposed rule[1] that would establish procedures to expand the Over-the-Counter (OTC) Drug Review to include botanical ingredients that have been marketed in OTC drug products in foreign countries—but have not been historically marketed in the United States as OTC drug ingredients.

The proposal is a response to petitions filed with the FDA in the early 1990s by the European-American Phytomedicine Coalition (EAPC)[2] and other entities requesting that botanical ingredients sold in European countries for a "material time" and to a "material extent" be considered "*old drugs*" under the OTC Drug Review—instead of being termed "*new drugs*" and therefore requiring extensive and expensive new drug applications (NDAs) before they can be approved by FDA for marketing in the U.S. For example, petitions submitted to the FDA requested that ginger be included in the antiemetic OTC drug monograph,[3] and valerian included in the nighttime sleep-aid OTC drug monograph,[4] based upon their marketing history in Europe rather than the United States for these indications. [Previously, *HerbalGram* published articles on these petitions and their implications to the U.S. herbal industry.[5,6]]

It is expected that most herbal companies will bypass the OTC Drug Review and market their products as dietary supplements as long as similar claims for herbal products can continue to be made under the more lenient rules afforded to dietary supplements.

The proposal applies to two categories of ingredients: (1) botanical ingredients (referred to by FDA as "botanical drug substances"), marketed in foreign countries with OTC drug indications, which are currently marketed in the United States as dietary supplements rather than drugs; and (2) drug ingredients that have been marketed under NDAs approved after May 11, 1972 (the technical start date of the OTC Drug Review). Although the proposed rule applies to both categories of ingredients, this article only summarizes the potential impact of the proposed rule on the first category of ingredients (i.e., botanical ingredients currently marketed in the U.S. as dietary supplements rather than drugs).

Under the proposed rule, FDA attempts to limit the number of the "botanical drug substances" that would be eligible under the OTC Drug Review by defining the term in a restrictive manner. Specifically, FDA defines a "botanical drug substance" as "a drug substance derived from one or more plants, algae, or macroscopic fungi, but does not include a highly purified or chemically modified substance derived from such a source." Comments in response to FDA's proposal must be provided to the agency by March 22, 2000.

BACKGROUND

FDA established the OTC Drug Review in 1972 in order to evaluate the safety and efficacy of ingredients included in OTC drug products in the U.S. The OTC Drug Review was structured to ensure that ingredients found to be safe and effective for a particular indication could be marketed in the U.S. without the need to submit, and have FDA approve, an NDA. In order to accomplish this result, the agency had to determine that ingredients found to be safe and effective under the OTC Review were not "new drugs" under the Federal Food, Drug, and Cosmetic Act (FFDCA).

Consequently, one problem FDA faced was how to interpret the "new drug" definition under the FFDCA. The "new drug" definition contains two prongs, and defines a "new drug" as including a drug "not generally recognized as safe and effective for use under the conditions prescribed" or a drug that "*has not been used to a material extent or for a material time under such conditions.*"

With regard to the second prong, in 1972 the FDA established a policy whereby it would interpret this provision as requiring the marketing of an ingredient for a material extent or for a material time *in the United States* in order to be eligible for inclusion under the OTC Review. This interpretation was not directly supported by statutory language or legislative history, but rather was established by FDA to limit the number of ingredients it would have to evaluate under the OTC Drug Review. By interpreting the statute in such a restrictive manner, the FDA effectively blocked the inclusion of many botanical ingredients in the OTC Review that were primarily marketed with OTC drug indications in countries outside of the U.S. and, therefore, did not have an established marketing history in the U.S. before the initiation of the OTC Review.

IMPACT OF THE PROPOSED RULE

The proposed rule published in December would for the first time permit ingredients to be evaluated under the OTC Review based upon foreign marketing history. In other words, many ingredients previously prohibited from inclusion under the OTC Review may now be eligible for OTC drug marketing.

Although the requirements established under the proposed rule are complex, the following brief overview provides an indication of the issues and approaches FDA intends to use:

1. Eligibility Criteria — Material Time: The ingredient must have been marketed for an OTC "condition" for a minimum of five continuous years in the same country or countries, in order to have sufficient duration of use to detect infrequent but potentially serious adverse drug experiences.

2. Eligibility Criteria — Material Extent: The agency will evaluate a variety of factors, including, but not limited to, the number of dosage units sold, marketing exposure (e.g., race, gender, ethnicity) to ensure that usage can be extrapolated to the U.S., and the use pattern of the ingredient (e.g., how often it is intended to be used, and for how long, under labeled indications).

3. Procedures:

(a) A company must submit a complete "time and extent application" (TEA) that contains appropriate background information on ingredient eligibility.

(b) FDA will evaluate the TEA application. If the ingredient is found to be eligible for the OTC Review (no time-frame for FDA's review is established), FDA would publish a *Federal Register* notice requesting the submission of safety and efficacy data from all interested parties under traditional OTC Drug Review standards and practices. If the ingredient is found ineligible, FDA would explain its rationale.

c) Interim marketing would not be permitted. Marketing of the ingredient under the OTC Drug Review would only be permissible after a final OTC drug monograph is published—and the ingredient is subject to a monograph in the *United States Pharmacopeia/National Formulary*, to ensure that officially developed identity and quality-control standards are available.

"INSUFFICIENT INCENTIVE"?

FDA's proposed rule does not appear to provide sufficient incentive for herbal companies to pursue OTC drug marketing of botanical ingredients – particularly if the anticipated indications are already authorized for dietary supplement use. Now that the agency has published final rules on structure-function claims that can be made for dietary supplements under the Dietary Supplement Health and Education Act of 1994 (DSHEA), and has authorized claims that heretofore were only available under the OTC Review (e.g., antacid, anti-gas, anti-nausea, night-time sleep aid, mild laxative, etc.), there is little incentive for herbal companies to seek OTC drug status based upon the costs and lengthy time-frame associated with the OTC drug route. (See related article on page 32.)

Due to the parity between dietary supplement claims and OTC drug claims for certain categories of products, it is expected that most herbal companies will bypass the OTC Drug Review and market their products as dietary supplements as long as similar claims for herbal products can continue to be made under the more lenient rules afforded to dietary supplements. Whether herbal manufacturers will attempt to file for OTC drug status under the proposed "material time/material extent" rules, assuming the rules are finalized as proposed, will likely depend on the nature of the specific claim (i.e., whether the claim is available to dietary supplement products) and the market climate over the next few years. ❑

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Self Regulatory Initiatives by the Herbal Industry

by Michael McGuffin, President of the American Herbal Products Association

The By-Laws of the American Herbal Products Association (AHPA), as revised in January, 1998, define "Obligations of Membership" to include "adherence to all policies and business practices as outlined in the Code of Ethics." The Code of Ethics, as amended in February, 1997, establishes a procedure whereby "The Board of Trustees may issue a trade recommendation which becomes an amendment to the Code." Any recommendation of the Board is thus automatically considered as a revision to the Code, requiring compliance from all members in good standing. The current recommendations are listed here.

NOTE: Certain of these recommendations are in need of revisions to conform to regulatory modifications that have occurred since their adoption. It is nonetheless expected that members comply with the implied intention of all trade recommendations.

1. LADY'S SLIPPER (JULY, 1988; REVISED NOVEMBER, 1999)

Whereas the roots of Lady's Slipper, *Cypripedium* spp. (notably *Cypripedium acaule, C. pubescens* and *C. parviflorum*) have historically been traded as wild botanicals and given the recognition of the threatened status of these and other orchids (resulting from extirpation for commercial purposes and other causes);

AHPA hereby encourages and requests its members and all other businesses and individuals in the horticultural and herb trade to refrain from trade in wild-harvested Lady's Slippers.

AHPA further encourages its members and others in the herb trade to support research in ecology, demographics, and cultural methods, plus sexual and asexual propagation of *Cypripedium* species.

2. *HERBS OF COMMERCE* (1992; REVISED NOVEMBER, 1999)

AHPA recommends the use of the standard common names listed in *Herbs of Commerce* (1992) to comply with the federal labeling requirements for identification of ingredients in foods and in dietary supplements by their common or usual names, as such requirements are specified in 21CFR§101.4(a)1 and 21CFR§101.4(h).

3. CHAPARRAL (JANUARY, 1995)

In the interest of consumer education and well being, the AHPA Board of Trustees recommends that, if member companies choose to sell chaparral (*Larrea tridentata*), all consumer labeling contain the following informational language, as well as the phone number shown below for reporting unusual conditions associated with the ingestion of chaparral:

"Seek advice from a health care practitioner before use if you have had, or may have had, liver disease. Discontinue use if nausea, fever, fatigue or jaundice (e.g., dark urine, yellow discoloration of the eyes) should occur. (To report unusual conditions, call (301) 588-1171)."

4. STIMULANT LAXATIVES (JULY, 1995)

With the exception of those products containing senna, cascara sagrada, or aloe that are labeled in accordance with the Tentative Final Monograph for OTC laxatives, or the leaf gel of *Aloe vera*, any product that contains as an ingredient any of the herbs listed below should include the following information on its label:

1. The standard common name and plant part should be listed on all labeling and literature as follows:

Botanical Name	Common Name	Plant Part
Aloe spp.	aloe	dried latex
Rhamnus catharticus	buckthorn	fruit
Rhamnus frangula	frangula	bark
Rhamnus purshiana	cascara sagrada	bark
Rheum officinale	Chinese rhubarb	root
Rheum palmatum	Chinese rhubarb	root
Senna spp.	senna	leaf
Senna spp.	senna	fruit or pod

NOTE: Senna was formerly listed in the genus *Cassia*, including the following species: *Cassia angustifolia, C. obtusifolia, C. senna,* and *C. tora*. Bulk raw materials labeled as a species of *Cassia* should be identified on finished consumer packages as "senna."

2. The following statement should be included on the label of all products which contain any of the above ingredients in sufficient quantity to warrant such labeling:

NOTICE: Do not use this product if you have abdominal pain or diarrhea. Consult a health care provider prior to use if you are pregnant or nursing a baby. Discontinue use in the event of diarrhea or watery stools. Do not exceed recommended dose. Not for long-term use.

NOTE: The State of California has established labeling requirements that supercede the AHPA recommendation for products sold in California. All dietary supplements that contain any amount of the above listed ingredients are required to bear the following label:

NOTICE: This product contains (name of substance(s) and common name(s) if different). Read and follow directions carefully. *Do not use if you have or develop diarrhea, loose stools, or abdominal pain because (insert common name) may worsen these conditions and be harmful to your health.* Consult your physician if you have frequent diarrhea or if you are pregnant, nursing, taking medication, or have a medical condition.

5. EPHEDRA (MARCH 1994; REVISED SEPTEMBER, 1995)

a. *Labeling*

The following statement is to be included on the labels of all finished consumer goods which contain any species of *Ephedra*, unless such product is documented to be free of all ephedra alkaloids or is labeled in conformity with relevant OTC monographs:

Seek advice from a health care practitioner prior to use if you are pregnant or nursing, or if you have high blood pressure, heart or thyroid disease, diabetes, difficulty in urination due to prostate enlargement, or if taking an MAO inhibitor or any other prescription drug. Reduce or discontinue use if nervousness, tremor, sleeplessness, loss of appetite or nausea occur. Not intended for use by persons under 18 years of age. Do not exceed recommended dose. KEEP OUT OF THE REACH OF CHILDREN.

b. *Dosage*

Members' products are not to contain in excess of 25 mg of total ephedra alkaloids per dose; usage instructions should limit daily consumption to 100 mg of total Ephedra alkaloids.

c. *Herbs of Commerce Conformity*

Label identification must be in conformity with the standard common name listed in *Herbs of Commerce*, that is: "ephedra." It is acceptable to list *ma huang* as an additional or parenthetical common name, but not as an alternative to "ephedra."

d. *Synthetic ingredients*

Raw material suppliers of ephedra and preparations of ephedra and manufacturers of consumer goods containing ephedra will refrain from selling or using any ingredients that contain added synthetically derived ephedra alkaloids.

6. PYRROLIZIDINE ALKALOIDS (JUNE, 1993; REVISED JULY, 1996)

The AHPA Board of Trustees recommends that all products with botanical ingredients which contain toxic pyrrolizidine alkaloids[1] bear the following cautionary statement on the label:

For external use only. Do not apply to broken or abraded skin. Do not use when nursing.

[1] Including but not limited to: *Alkanna tinctoria* (alkanet), *Anchusa officinalis* (bugloss), *Borago officinalis** (borage), *Crotalaria* spp., *Cynoglossum* spp., *Erechtites hieraciifolia, Eupatorium cannabinum* (hemp agrimony), *Eupatorium purpureum* (Joe Pye), *Heliotropium* spp., *Lithospermum officinale* (European gromwell), *Packera candidissima*, *Petasites* spp. (e.g., Butterbur), *Pulmonaria* spp. (e.g., lungwort), *Senecio jacobaea* (European ragwort), *Senecio vulgaris* (groundsel herb), *Symphytum* spp. (comfrey), and *Tussilago farfara* (coltsfoot).

* Borage seed oil is specifically exempt from the above label recommendation.

7. KNOWN ADULTERANTS (JULY, 1997)

The Board of Trustees recommends that appropriate steps be taken to assure that the following raw materials are free of the noted adulterant:

Herb in Commerce	Adulterant
1. Siberian Ginseng root (*Eleutherococcus senticosus*)	1. *Periploca sepium* root
2. Plantain leaf (*Plantago lanceolata*)	2. *Digitalis lanata* leaf
3. Skullcap herb (*Scutellaria lateriflora*)	3. Germander herb (*Teucrium chamaedrys*)
4. Stephania root (*Stephania tetranda*)	4. *Aristolochia fangchi* root

AHPA's Standards Committee is in the process of establishing appropriate testing methods to differentiate between each of the above listed herbs and its known adulterant. Also, the AHPA Botanical Raw Materials Committee has initiated the development of a *Botanical Adulteration Manual* that will provide information on all herbs in trade for which adulteration is known to be an issue.

8. KAVA (SEPTEMBER, 1997)

The Board of Trustees recommends the following dosage and labeling for products containing kava (*Piper methysticum*):

1. Products containing kava should be formulated and labeled to limit consumption of total kavalactones to 300 mg per day;

2. Labels of all products containing kava should bear the following statement:

Caution: Not for use by persons under the age of 18. If pregnant, nursing or taking a prescription drug, consult a health care practitioner prior to use. Do not exceed recommended dose. Excessive consumption may impair ability to drive or operate heavy equipment. Not recommended for consumption with alcoholic beverages.

9. GOLDENSEAL (MARCH, 1998)

The Board of Trustees recommends that AHPA members refrain from labeling or marketing products that contain Goldenseal (*Hydrastis canadensis*) in any manner that suggests that the product masks drug testing.

10. *BOTANICAL SAFETY HANDBOOK* (JULY, 1998)

The Board of Trustees recommends that any products that contain herbs classified in the *Botanical Safety Handbook* in Class 2b or 2c be labeled according to the labeling classification for those classes. Class 2b is defined as not for use in pregnancy unless otherwise directed by an qualified expert; Class 2c herbs are those that are not to be used while nursing unless similarly otherwise directed.

11. CONSTITUENT DECLARATION

Whereas the federal labeling regulations for dietary supplements require that all ingredients of a dietary supplement list all ingredients in order of predominance, AHPA recommends, for any botanical raw material, whether sold as a botanical or as a concentrate, metabolite, constituent, or extract of a botanical, that:

- the ingredient declaration of bulk botanical raw material declare all ingredients by their common or usual name and in order of predominance, including but not limited to botanical extractives, excipients, fillers, binders, solvents that have not been removed, and added constituents;
- specification sheets for bulk botanical raw materials indicate for each such ingredient the percentage, or range of percentages, of the entire raw material represented by the ingredient, so that finished product manufacturers can determine the order of ingredients in a finished product containing the raw material;
- the common name of a botanical raw material to which a constituent has been added be in the form of: botanical; plant part; form; "with added" constituent, e.g.; "guarana seed extract with added caffeine"; "goldenseal leaf powder with added berberine";
- manufacturers and marketers of finished products containing any botanical raw material as described here label such products to include all ingredients as described here in order of predominance. ❑

Nephropathy Associated With the Use of *Aristolochia*

by John K. Chen, Ph.D., Pharm.D., O.M.D., L.Ac.

There has been considerable concern in recent months over the potential of some Chinese herbal formulas to produce a pathological kidney condition known as nephropathy. The issue of nephropathy associated with the use of Chinese herbal remedies was first reported in Belgium in the early 1990s in a group of women taking a weight-loss preparation that contained a combination of conventional drugs and herbs. The formula contained fenfluramine, diethylpropion, cascara sagrada bark (*Frangula purshiana (DC.)* Cooper (Rahmnaceae), belladonna extract (from *Atropa bella-donna* L., Solanaceae), acetazolamide, and the Chinese herbs *Stephania tetrandra* S. Moore (Menispermaceae) root (known in Chinese as *han fang ji*), and *Magnolia officinalis* Rehder & E. H. Wilson (Magnoliaceae) bark (*hou po*). Of all who ingested this preparation, 33 cases of nephropathy [an abnormal state of the kidney, associated with another condition or pathological process] were reported initially.[1] To date, more than 100 cases of nephropathy have been reported. The cause of nephropathy was attributed to the substitution of *Aristolochia westlandii* Hemsl. (Aristolochiaceae) root (also known by its Chinese name, *guan fang ji*) for *Stephania tetrandra* (Chinese, *han fang ji*). *Aristolochia westlandii* contains a substance called aristolochic acid, which is a known nephrotoxin.[2]

The nephrotoxicity of aristolochic acid was documented in a clinical trial when it was tested for cancer therapy.[11] Later research has shown its in vitro genotoxicity and carcinogenicity.[12]

All these cases of nephropathy can be traced to the ingestion of the herbal drug preparation produced by the same clinic, containing the incorrect substituted herbal ingredient, *A. westlandi*.[3]

These unfortunate incidences of nephropathy occured because there was poor handling of Chinese herbs. In this case, the prescribed herb was *S. tetrandra*, but was incorrectly substituted with *A. westlandi*. These are two different herbs with distinct physical appearances and laboratory presentations. *Aristolochia westlandii* root is round, 8-15 cm in length, and 1.5-4.5 cm in diameter. The root has a thick and rough outer layer that is greyish-brown in color. (See photo.) In contrast, *S. tetrandra* root is round or cylindrical, 3-5 cm in length, and 3.5-5 cm in diameter. The outer layer of the root is dirt-brown in color with numerous pores.[4] (See photo.)

In August 7, 1999, *The Lancet* reported two additional cases of end-stage renal failure associated with the use of Chinese herbal remedies. Case one was a 49-year-old white female who took a Chinese herbal remedy for her eczema for two years. After complaining of headache and hypertension, she was screened for renal function and was found to have acute renal failure. She began dialysis immediately and subsequently received a cadaveric renal transplant. Case two was a 57-year-old white woman who took a Chinese herbal remedy for her eczema for six years. After a six-month history of anorexia, lethargy, nausea, and weight loss, she was admitted to the hospital with end-stage renal failure. She began dialysis immediately and was reported to be on the waiting list for renal transplant. In both cases, *A. manshuriensis* Kom., was the common ingredient in the herbal remedies. *The Lancet* reported that the investigation for other potential causes of renal failure were negative.[5]

In this case, nephropathy occurred because there was a lack of proper botanical verification in the preparation of the herb-drug mixture, resulting in the inadvertent use of *A. manshuriensis*. According to the *Pharmacopoeia of the People's Republic of China*, the herb *mu tong* may be derived from the following species of plants: *Clematis armandii* Franch. (Ranunculaceae) (*chuan mu tong*), *C. montana* Buch.-Ham. Ex DC. (*chuan mu tong*), or *A. manshuriensis*.[6,7] Due to the toxicity associated with aristolochic acid in *A. manshuriensis*,[8] *C. armandi*i or *C. montana* are now used as the preferred sources of *mu tong*.[9]

With respect to visual inspection, *A. manshuriensis* is long and round, approximately 100 cm in length and 1.5-3 cm in diameter. The outer layer is greyish-yellow or light brown in color. It has enlarged joints in between parts of the plant and a distinct camphor-like odor. In contrast, *C. armandii* or *C. montana* is long and round, 50-100 cm in length, and 2-3.5 cm in diameter. The outer layer is light to dark yellow/brown in color. (See photo.) It has no joints and no odor.[9]

PREVIOUS REPORTS OF KIDNEY PROBLEMS WITH ARISTOLOCHIA

Nephropathy associated with the use of *A. westlandi* and *A. manshuriensis* is not an isolated incident. It has been documented in China, Belgium and England. Proper precautions must be taken to avoid such inappropriate substitutions and the resulting adverse reactions. Correct identification of the herb is imperative for safe and effective use of the herbs. Physical inspection is the most commonly used method of identification. However, it is not 100 percent accurate or reliable. In the Belgian incident, an incorrect substitu-

Stephania tetrandra, *han fang ji.*
Photo © 1999 John Chen.

Clematis armandii, *chuan mu tong.* Photo © 1999 John Chen.

tion was used. In the English incident, there was a lack of verification for the safest herb. Since *mu tong* is derived from herbs in the genera *Clematis, Akebia* (Lardizabalaceae), or *Aristolochia*, the "preferred source" is one that is most effective and has least adverse side effects. *Clematis* is usually considered the "preferred source" and *Aristolochia* the least desirable. Therefore, it can be concluded that visual inspection is insufficient for correct identification as the macroscopic physical appearances of the herbs are often indistinguishable. Laboratory techniques such as high performance liquid chromatography, thin-layer chromatography, and liquid-column chromatography must be used to confirm qualitative and quantitative analyses of the various herbs' chemical profiles. Furthermore, such examinations must be performed on every batch of herbs: random examinations will not ensure the safety of all herbal preparations. It is the ethical and legal responsibility of the herbal manufacturer to establish the most stringent quality control measures to ensure the safety of herbal products, and it is the duty of practitioners to purchase and dispense herbs from manufacturers who meet such criteria. It should be noted that the Belgian formulation was a "standard preparation." The English formulations were herbal teas custom-made for the individual patients.

According to proper quality control measures and good manufacturing practices (GMPs), certificates of analysis should accompany all lots of *S. tetrandra* and *C. armandii*, as well as other herbs manufactured in the U.S. Certificates of analysis offers documentation on the safety and purity of the herbs. Items routinely examined include heavy metal content, bacterial content, purity and positive identity of the herb.[10]

There has been some misreporting of these incidents in the literature. According to an article[13] in an Australian herb school newsletter by Debbie Shaw, a pharmacist, research scientist, and Head of the Traditional Medicine Project with the Medical Toxicology Unit at Guy's and St. Thomas Hospital Trust in London, reporters have confused the matter by equating renal failure and renal biopsies with fatality. "This has resulted in inaccurate reports of 30 deaths in Belgium (and even two deaths in the recent UK incident) which have not been confirmed by the reporting doctors. Such misreporting causes unnecessary alarm amongst the patients and the public."[13] Shaw adds that due to some confusion as to the cocktail of conventional drugs that were administered in the Belgian incident, along with possible serotonin injections, "It seems most likely that an interaction between the herb and the combination of drugs used contributed to the extreme nephrotoxicity."[13] However, she points out, subsequent reports of nephrotoxicity associated with *A. fangchi* Y.C. Wu ex L.D. Chow & S.M. Hwang, have been reported in Japan and Belgium with no association with simultaneous use of conventional drugs.[14,15] She states, "Despite the large number of recent cases, it has not been possible to identify whether there is a toxic dose of aristolochic acids, or if chronic use of low concentrations has a cumulative effect.[11] This is apart from the herb/drug interactions increasing toxicity." ❑

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1. Fractional denomination. a) obverse - silphium fruit: b) reverse - head of Zeus (?) in incuse. **2.** Tetradrachm, ca. late 6th cent. to early 5th cent. B.C.E. a) obverse - silphium plant with fruit at 5 o'clock: b) reverse - silphium seed with two dolphins. **3.** Tetradrachm, ca. 525-480 B.C.E. a) obverse - silphium plant with lion head. Fruit at 6 o'clock. b) reverse - eagle head.
Photos © American Numismatic Society

Coinage of Greek Cyrenaica, the Silphium Economy, and Exaggerated Advertising

by Henry C. Koerper, Ph.D., and Daniel E. Moerman, Ph.D.

An all-but-forgotten plant was heavily used in ancient Greek medicine and overharvested to extinction. Are there lessons for us today?

Anyone involved in the modern herb trade knows that some fragile species—like goldenseal (*Hydrastis canadensis*), American ginseng (*Panax quinquefolius*), or blue cohosh (*Caulophyllum thalictroides*)—are sometimes over-collected, and even threatened with extinction. A number of organizations and other wildcrafting groups have come up with practical recommendations for collectors, e.g., the United Plant Savers (UpS) with its list of "at risk" herbs and the Rocky Mountain Herbalist's Coalition manual on *Ethical Wildcrafting*. Some states have established regulations for collecting threatened species: Montana has passed legislation on the collection of wild echinacea species (*Echinacea* spp.) while the U.S. Fish and Wildlife Service has instituted controls on the harvest of wild American ginseng root (*Panax quinquefolius* L.) since the late 1970s. Missouri has seasonal limits on collecting several important wild plants. But what many people do not know is that such overexploitation is not a new problem, but one which occurred long ago in the ancient world.

In this lies an obvious lesson — uncontrolled short-term commercial gain may threaten biodiversity and preclude long-term economic benefits.

From the vast Greco-Roman pharmacopeia, ancient healers attributed more therapeutic benefits to silphium than to any other medicinal plant, so much so that after only several hundred years of overseas marketing, the plant was collected to extinction. Silphium was a member of the genus *Ferula*, of the Apiaceae or carrot family, which grew only in a small region of the coast of what is now Libya. Various species of *Ferula* were widely used to treat matters of fertility and fecundity. For instance, the gum resin of silphium was widely known to promote contraception and abortion, and, while no contemporary texts explicitly identify any silphium product as an aphrodisiac, circumstantial evidence suggests that Mediterranean peoples may have sought this giant fennel as a sexual restorative, especially for men who wanted to improve their sexual performance. The most compelling evidence for this inference revolves around depictions of giant fennel on coins issued by the city states of Cyrenaica, now Libya, where Greek colonists from Thera tended the semi-cultivated plant within the small area[1] where it grew on the Mediterranean coast.

Legend has it that the silphium plant sprang into existence only seven years before the first colonists arrived in about 630 B.C.E.[2] Since the idyllic Greek island of Thera was severely overcrowded, Battus, the founder of Cyrenaica, led an expedition of Therans to settle first the coastal island of Plataea and soon after the Libyan mainland, with its favorable climate, bountiful water supply, beautiful countryside, and rich soils. In this propitious environment, three bountiful crop harvests were staggered during an eight-month period, first from the coastal

4. Tetradrachm. Ca. 525-480 B.C.E. Kyrene seated and touching silphium plant. Photo © The British Museum.

plain, then up the hilly flanks, and finally from the plateau. Athens and other important Mediterranean city-states imported large quantities of grain from the region, as well as other valuable agricultural products including barley, rice, onions, garlic, cumin, wild cucumber, grapes, olives, and wild artichokes.

Selling silphium at monopoly prices significantly helped the city-states of Cyrenaica achieve remarkable wealth. Little wonder then that, soon after the adoption of coinage in the 6th century B.C.E., representations of the silphium plant and its seed-vessel appear on the coins of Cyrene, Barce, Euhesperides, and Teuchria. [Teuchria not shown on map.]

Comparison of other extant species in the genus *Ferula* with numismatic representations of the long-extinct silphium reveals that the coin motifs often enhanced the thickness of the stalk and exaggerated the density of the flowery head, stylizations which, in the opinions of the authors, were designed to evoke images of an erect penis. The seed pods gracing the Archaic coins of Figs. 1-3 (see sidebar on page 48) look like testicles—sometimes they look rather realistic, but sometimes more heart-shaped—yet no extant member of the carrot family possesses fruits so formed. Calculated artistic license, it seems, played to the sympathetic, or imitative principle in ancient medicine, linking silphium to amorous performance. Circulated widely via coinage, this advertising ruse seems to have promoted "Cyrenaic juice" as an effective ingredient of love potions, an easy subterfuge since overseas consumers purchasing the processed product were unaware of what the plant really looked like.

An important theoretical principle underlies this use of silphium as an aphrodisiac that is, "Like Produces Like," a basic premise of imitative magic in many societies; this is akin to the sympathetic principle formalized in the Doctrine of Signatures of medieval European medicine. This principle was stretched a bit as marketers exaggerated the relevant portions of the plant, much as merchants today may exaggerate the way that a ginseng root represents the anatomy of a human patient. This principle supported the supposed efficacy of several other aphrodisiacs of antiquity that were prepared of plant parts resembling male genitalia. For example, not only were the bulbous roots of the orchid (from the Greek for scrotum) sought for their presumed aphrodisiacal effect, but so too were onions, beets, and garlic, all of whose bulbs may bear some resemblance to testicles. In the Old Testament, there are references to mandrake as an amatory drug (Genesis 30:14-17; Song of Solomon 7:13), its restorative powers deriving from its phallic appearance, or "man-likeness," to borrow Plutarch's terminology. According to Xenocrates (369 – 314 B.C.E.), a physician who lived in Cilicia at the time of the emperor Tiberia: "The seed [mallow] sprinkled on the genitals will increase sexual desire in males to an infinite degree." Xenocrates clearly did not believe in understatement. Among other common garden plants, the carrot and the houseleek were also held in great esteem. That the Greek word for the carrot was "philtron" is immediately suggestive of the role it may have played in love potions. We should now return to Pliny who related that the carrot was an ingredient of love potions.[3]

Coins Show History of Silphium

An enormous variety of coin designs characterizes the mintage of ancient polities within the orbit of Greek culture. Patron cities, symbols associated with deities, mythical creatures, natural objects, or commercial products for which a region was known were all possibilities for coin-types. Occasionally a symbol provided a pun to help identify the city-state.

It was not uncommon for ancient coins to be struck with images of plants or plant parts. An ear of barley, a major commercial product, graced the issues of Metapontum in Greek Italy. The wild celery leaf was a punning symbol for Silinus, a Greek city in western Sicily, and the pomegranate badge of Side in Asia minor was also a punning signet. Many Athenian coins displayed an olive branch, the olive tree being Athena's gift to mankind. The prominence of silphium in the economy of Cyrenaica explains the plant and its fruit depicted on a variety of denominations.

Some of the most charming pieces are Archaic silver coins dating to the late 6th and early 5th centuries B.C.E. Fig. 4, the four-drachma specimen, is from the British Museum collection, and it shows a female figure seated on a backless throne. Her outstretched right hand touches the leaf of a silphium plant growing at her feet. This may be the nymph Kyrene whose son by Apollo was the beneficent god Aristaeos, protector of crops and domesticated animals.

The Archaic specimens in Figs. 1-3 are from the American Numismatic Society and also date to the late sixth and early fifth centuries B.C.E. Fig. 2, a tetradrachm, features on its obverse the silphium stalk and a fruit at 5 o'clock. On the reverse, the fruit is central between two swimming dolphins. Fig. 3 shows a lion head, mouth wide open, with a fruit below but with the plant to the left. The coin reverse features the head of an eagle whose beak holds a writhing snake. Fig. 1, the Archaic fractional piece, illustrates on the obverse a heart-shaped fruit, while the reverse is an incuse square with an unknown design at the center.

A magnificent head of Zeus Ammon, Fig. 5, graces the reverse of a mid-5th century tetradrachm, while a stylized silphium, dense stalk and flowery head, is seen on the obverse. Fig 4, a tetradrachm dating to around the late 5th-early 4th century B.C.E., renders Zeus Ammon in Classic style with the silphium plant highly stylized.

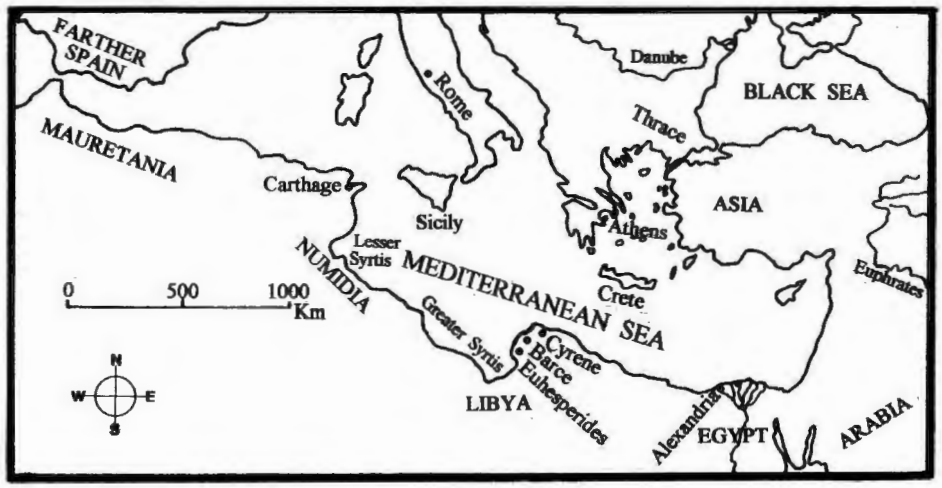
5a.

5b.

6a.

6b.

5. Tetradrachm, ca. late 5th cent. to early 4th cent. B.C.E. a) obverse - Zeus Ammon: b) reverse - Silphium plant.
6. Tetradrachm, ca. 5th cent. B.C.E. a) obverse - silphium plant: b) reverse - Zeus Ammon framed by dotted circle.
Photos © American Numismatic Society



Location of Cyrene, Barce, and Euhesperides.

And other close relatives of silphium were also important. For example, the hollowed stem—the "thyrse"—of Giant Fennel, *Ferula communis* L., was tipped with a pine cone and as such became the "thyrsus," the staff, of Bacchus and his worshipers; and the same hollowed tube was said to have been the vessel in which Prometheus brought fire to earth from heaven.

A rich reference to association of silphium with sexual power occurs in the poetry of Catullus. In "Catullus 7," written about 50 B.C.E., the Roman poet told of indulging his mistress Lesbia with as many "kisses" as there were "grains of sand on Cyrene's silphium shores." With "kisses" as metaphor for carnal pleasures and "grains of sand" symbolizing endless quantity, Cyrenaic silphium offers the vehicle for Catullus's fantastic staying power.

More recent descriptions of silphium as an aphrodisiac derive from the work of a 10th and 11th century (C.E.) Persian scholar, Avicenna (ibn Sina), who broadened the definition of silphium by including the more widespread *Ferula assa-foetida* L. The Persian's attribution of sexual powers to the eastern substitute, also called silphium, probably reflected the earlier reputation of "Cyrenaic juice," presumably the "real thing."

The waning fortunes of the silphium economy provide the epilogue to the story connecting pictures on coins, silphium as aphrodisiac, and exaggerated advertising. Representations of silphium first appear on coins issued about 570 B.C.E. but the once popular symbol disappears toward the early third century B.C.E., falling into disuse during the reign of Ptolemy III (246-221 B.C.E.). Clearly, Cyrenaic silphium was being replaced in the commercial trade following Alexander the Great's conquests in the East. The eastern substitutes flowing into Greek markets were undoubtedly one or more related species of *Ferula*, much of it probably *F. assa-foetida*.

Most likely, a number of factors spurred the further decline of North African silphium, which was no longer exported at all by the start of the third century C.E. The plant became virtually extinct by the fifth century C.E. While the geographer Strabo (63 B.C.E. – 3 B.C.E.) blamed destruction of silphium fields on mean spirited nomadic barbarians who spitefully dug up the roots,[1] Pliny faulted the "publicani," or tax farmers, whose sheep over-grazed the land (publicani were rather like Western ranchers who lease public land for private use).[2]

The various governments of Cyrenaica had at one time prescribed both the amount of silphium that could be harvested and the manner in which the juice was extracted. Specific rules described how root and stock were to be tapped to collect the sap, and a formula incorporating previous cuttings and current supply determined the amount of juice that was allowed. However, deregulation occurred when Cyrenaica became part of a Roman senatorial province whose succession of governors forsook long-term eco-

What seems possible today has surely already happened in the past as exploitation of valuable but rare resources has led to the extinction of important species of useful plants.

nomic policies that had formerly maintained high but stable prices for silphium. Generally serving at each colonial posting but one year and deriving income from provincial revenues, these magistrates embraced short-term economic strategies to reap immediate profits by granting unrestricted leases on silphium tracts, a formula for overexploitation. In this lies an obvious lesson—uncontrolled short-term commercial gain may threaten biodiversity and preclude long-term economic benefits. What seems possible today has surely already happened in the past as exploitation of valuable but rare resources has led to the extinction of important species of useful plants. ❑

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Silphium in Poetry

Gaius Valerius Catullus, perhaps the greatest Roman lyric poet, is best remembered for his erotic verse. Born in Verona, around 84 B.C., Catullus lived only to about the age of 30. Little is known of his family or his education, but he considered Rome his home. Not counting fragments, only 113 of his poems survive, of which 25 are concerned with his affair with Lesbia, whose real name was Clodia Metelli, wife of Q. Metellus Celer, a prominent politician. It is in Catullus 7 where one finds reference to Cyrenaic silphium. Many translations are available, but here we have chosen that of Charles Martin (*The Poems of Catullus*, 1990, The John Hopkins University Press).

"My Lesbia, you ask how many kisses would be enough to satisfy, to sate me! As many as the sand grains in the desert near Cyrene, where silphium is gathered, between the shrine of Jupiter the sultry & venerable sepulchre of Battus! As many as the stars in the tacit night that watch as furtive lovers lie embracing: only to kiss you with that many kisses would satisfy, could sate your mad Catullus! A sum to thwart the reckoning of gossips & baffle the spell-casting tongues of envy."

BEAUTY IN PERIL—
THE STOLTMANN WILDERNESS

by Suzanne Diamond, M.Sc.

Like the tropical rainforests of the Amazon, the rare and precious old growth rainforests of British Columbia, Canada, are magnificent treasures to be protected at all costs.

THE AMAZON OF THE NORTH

The 500,000 hectare (1.25 million acres) Stoltmann Wilderness is a rare, pristine region of rainforest valleys, soaring mountains, and massive glaciers. Located a few hours' drive northwest of Vancouver, B. C., this lush temperate rainforest of the Elaho Valley is named for Randy Stoltmann, a young wilderness conservationist and author who died in an avalanche in 1994, shortly after he proposed that this area be protected for the future.

The evolution of more than 10,000 years has resulted in an intricate biodiversity. For example, a small section of a tree trunk from the lushest areas of the Stoltmann is home to 30 different species of mosses, liverworts and lichens.

Explorers first arriving from Europe in the late 1700s found a lush tree-garden with a canopy more than 200 feet high—the future site of downtown Vancouver. As John Clarke, a famous Vancouver mountaineer, photographer, and environmental educator, explains during his captivating slide shows of the B.C. coastal forests, exceptional Douglas firs (*Pseudotsuga menziesii* (Mirbel) Franco, Pinaceae) reached 250–300 feet and some even topped 340 feet—making a dense canopy with Western red cedar (*Thuja plicata* Donn ex D. Don, Cuppressaceae), which grows 175–225 feet. At that height, the old forest canopy was taller than the buildings of downtown Vancouver today. A 315-foot-tall Douglas fir still stands in the Coquitlam River watershed at Meech Creek. Many red cedars and Douglas firs had trunk diameters so enormous that only one could fit onto the bed of a train car! Darius and Tabitha Kinsey visited the early logging camps, photographing with a 100-pound camera, in the early 1900s. Their photographs of giant trees are reminders of the biological wealth that flouished in the Pacific Northwest.[1] One of the last giant red cedars near Vancouver—with a trunk diameter of 14 feet; circumference equaling 44 feet—was cut down in the Capilano watershed area in 1993.

In general, these trees were sound to the core, meaning that they could have lived untold years longer, if left alone. In fact, a yellow cedar (*Chamaecyparis nootkatensis* (D. Don) Sudw., Cupressaceae) cut down on the Sunshine Coast in the 1980s was dated at over 1,835 years old. A cross-section of this tree can be seen at the Western Canada Wilderness Committee office in Vancouver. Today it takes at least three hours of driving to find anything even remotely resembling the forests that greeted the first Europeans. Areas like the Stoltmann are only a pale comparison to what this region once was. Logging companies just now are reaching the Stoltmann, after harvest-

View from Bug Lake, Stoltmann Wilderness, B.C. Canada. Spring 1997. Photo © 1997 Suzanne Diamond.

ing more accessible areas. Unfortunately, clearcutting destroys the complexity of these unique forests. The maps of the B.C. coast shown in Figs. 1 and 2 compare the extent of old growth forests in 1860 and 1996. The scarcity of green in 1996 indicates the rarity of the ancient forests in southwestern B.C. and the need for complete protection of those remaining.

WHAT IS TAKING PLACE NOW?

The Stoltmann Wilderness is one of the last remnants of a magnificent, old-growth forest of the south coast of British Columbia. Aggressive clearcut logging practices by International Forest Products (InterFor) are quickly liquidating these valley bottom forests with all of their biological diversity. Swept away with the forests are rare species of plants and animals, including arthropods and insects that have yet to be documented, and potential medicines that may be lost forever. There is little pretense of sustainability to the logging practices—it is purely fiber extraction with minimal regard to wildlife, proximity of roads to stream beds, or aesthetic regard for spectacular waterfalls and breathtaking mountain peaks. In these headwaters, the provincial government makes logging profitable by reducing stumpage rates to offset the timber's declining value as loggers blast more expansive roads into the extreme headwaters. Preservation of the remaining wilderness needs no justification other than to maintain its existence. These forests store the memory of every natural event since the last ice age and, most importantly, they contain the "genetic signature" of this landscape before European newcomers arrived.

PRESERVATION OF THE REMAINING BIODIVERSITY NEEDS NO JUSTIFICATION OTHER THAN TO MAINTAIN ITS EXISTENCE.

WHY SAVE RAINFORESTS ANYWHERE?

Tropical rainforests, which hold between two fifths to one half of all species on the planet, contain an average 250 species of trees per hectare compared to only 10 per hectare in temperate lands.[2,3] These tropical forests once occupied 14 percent of Earth's land mass, but within the last 50 years have been reduced to less than seven per cent.[3] In his 1989 lecture tour, environmental economist Norman Myers, Ph.D., author of *The Primary Source: Tropical Forests and Our Future*[2] and *Gaia: An Atlas of Planet Management*,[4] explained several economic incentives for saving the world's tropical rainforests. Myers noted human's lives are tied to rainforests through the many foods and medicines that have originated in them. These include cocoa, coffee, corn, potato, tomato, avocado, bananas, papaya, guava, mangoes, citrus fruits, pineapple, soy beans, peanuts, mung beans, wing beans, cashew nuts, Brazil nuts, rice, millet, yams, taro, cassava, protein-type low calorie sweeteners, vanilla, tranquilizers, anesthetics, cancer treatments, contraceptives, quinine, curare, and cocaine—just to name a few.

Myers stressed that the indigenous peoples of these regions—who have shared these gifts of nature—are quickly being swept aside in a manner similar to the way native peoples were treated in North America. Brazilian Amazonia, for example, had 230 native groups with an estimated six million people (conceivably several times more) only five centuries ago. By 1900 they had dropped to probably one million and today only half as many such groups survive. As the tribal people and their lifestyles disappear, so too does their knowledge of the gifts of the forest environment.

In *The Primary Source*, Myers explains another important reason to preserve old-growth forests: wild plants' genetic resources. A story of wild corn illustrates the point. Wild gene support came to the developed world from a small patch of montane forest in south-central Mexico, from a weedy-looking form of wild teosinte (*Zea diploperennis* Iltis, Doebley, & Guzman, Poaceae), the closest relative of corn. This was the first known perennial teosinte with the same chromosome number as corn, allowing it to cross with annual varieties of corn. [Ed. Note: Peer reviewers have suggested that the closest teosinte to corn is *Z. mays* subsp. *parviglumis*.] This one tropical corn species was on the brink of extinction when it was found at the edge of a desolate forest—it also resists seven major

diseases and withstands harsher weather than any other corn species. Ultimately, this one wild plant may extend the range where corn can be grown by one tenth (many million hectares) translating into billions of dollars per year. This one discovery has implications for common food products (corn flakes, popcorn, preserves, salad dressing, catsup, soft drinks, beer, and bourbon) and might provide an excellent alternative to genetically modified foods containing non-vegetable genes.

Another example comes from sugarcane (*Saccharum officinarum*). Myers explained how, in the 1920s, sugarcane production in the U.S. deep south fell from 180,000 tons per year to only 43,000 tons when growers ran into trouble with a mosaic virus. Fortunately, mosaic-tolerant varieties of wild sugarcane species saved the industry. Wild sugarcane species have since supplied resistance to red rot, gummosis, and other pathogens that plague sugarcane growers. Myers pointed out that all our crops are dependent upon regular infusions of genetic material from wild relatives. Protecting the diversity of our wild plants will determine our future.

Another tropical plant, a huge water lily (*Victoria amazonica* (Poepp.) Sowerby, Nymphaeaceae),[5] is claimed to support the weight of an adult human. Its complex and intricate internal structures inspired metal-beam architecture—the construction basis for modern high-rise buildings. Fast-growing softwood trees in tropical forests, such as the giant ipilpil (*Leucaena leucocephala* (Lam.) De Wit, Fabaceae), also known as white leadtree, grow four meters high in six months, almost 10 meters in two years, and more than 15 meters in six years.[2] *L. leucocephala* can sustainably yield up to 50 tons of wood per hectare each year—experimentally up to three times more—that can be used for pyrolysis into liquid fuels or directly for electricity generators and industrial boilers. Myers explains many other uses of these soil-building, leguminous trees. One experimental plantation in Hawaii harvests the ipilpil trees after only four years, when they are about five inches in diameter. This brings about 250 tons of wood per hectare; the foliage, mechanically removed, is worth $150 per ton as a high-nitrogen animal feed. As for hardwoods, a plantation of eucalyptus can generate 10 times as much sustainable harvest as can a patch of virgin forest, but it costs $1,000 per hectare to establish, let alone maintain.[4] Myers says globally organized sustainable development funding should promote such development.

Many important anticancer drugs, such as the Madagascar rosy periwinkle (*Catharanthus roseus* (L.) G. Don f., Apocynaceae), also come from tropical forests. This plant drug has made remission of non-Hodgkin's lymphoma and soft-tissue sarcoma increase from a one-in-10 chance before its discovery, to a nine-in-10 today. Using the active alkaloids, vincristine and vinblastine, in combination chemotherapy has resulted in 80 percent remission in Hodgkin's disease, 99 percent remission in acute lymphocytic leukemia, 80 percent remission in Wilm's tumor, 70 percent remission in gestational choriocarcinoma, and 50 percent remission in Burkitt's lymphoma.[6] The rosy periwinkle, which has turned out to be the most important and effective cancer treatment to date, was not among the folk cancer remedies (it was a folk remedy for diabetes) so ably listed by Jonathan Hartwell of the National Cancer Institute, and it did not show any activity on NCI's screening programs. Unfortunately, 95 percent of Madagascar's rainforests have been destroyed.

Another effective treatment—for cancers of the ovaries, breast, uterus, prostate, and testes, and other hormone-related cancers—is Taxol® or Paclitaxel® from the Pacific yew tree (*Taxus brevifolia* Nutt., Taxaceae) of British Columbia and elsewhere in the Pacific Northwest—that grows in temperate rainforests such as the Stoltmann Wilderness. Yew trees have grown for thousands of years in these forests until modern-day clearcut logging practices. In fact, the eastern half of a block in Sims Creek of the Stoltmann Wilderness once had a high concentration of yew trees, before its destruction.

TREASURE DESTROYED FOR WHAT?

Despite the valuable gifts from the world's tropical rainforests, many of these teeming jungles—usually only tropical—are clearcut for short-sighted reasons: packing crates, construction, cattle ranching, and slash-and-burn agriculture by peasants forced off their traditional crop lands by a rich elite. Sustainable development options, such as rubber tapping, Brazil nut gathering, and ecotourism are often overlooked. According to Myers, who is also a respected world economist, scientists and others know exactly how to save the virgin forests of the world. Myers claims that stopping this destruction would cost only $1.3 billion each year for the next 10 years and sustainable use of the forests would thereafter be self-financing. Compare $1.3 billion per year with the more than $14 billion spent on military activities every week in 1989.[3,4] Myers suggests third world loans from the World Bank, never to be repaid but to be flat-out forgiven, be converted into sustainable development projects such as establishing national parks (making possible the cataloguing and subsequent use of unknown species), more tree farms, more fuel wood lots, plantations of fast-growing trees, broad scale irrigation systems, creation of wells, education, and, of course, land reform to redistribute crop lands (e.g., 80 percent of the land in Brazil is owned by only four percent of the people).[3]

Fortunately, various countries have preserved several large areas of tropical rainforest for their valuable edible and medicinal

plants. For example, Costa Rica, which boasts the highest number of per capita botanists in the world, established its National Parks System in 1970 to protect wilderness areas. Now 12 percent of the country is protected as national parks and a further 16 percent as Indian reserves, biological reserves, wildlife refuges, and wildlife corridors. This means that more than a quarter of Costa Rica is set aside for conservation.[7] Can, and more importantly, will the Canadian government follow this lead by protecting the Stoltmann Wilderness?

Visitors to the Stoltmann often call it "Better than the Bahamas." Sims Creek offers gorgeous sandbars to camp on in the middle of its turquoise colloidal-mineral-rich waters. The Stoltmann still has some of the freshest air and water possible to experience anywhere. Mountain climbers who have traveled the world say that the Stoltmann is as beautiful as the most spectacular places they have ever seen. Our current challenge is to keep it that way! (For more information on how to participate in the preservation of this temperate rain forest, see the Stoltmann website <www.wildernesscommittee.org/stoltmann-edu97.htm>.)

WITNESSING THE STOLTMANN WILDERNESS

A healthy thousand-year-old red cedar near Sims Creek was called *"The Hollow Tree."* Sixteen people once fit inside that tree. This author once went inside with a group of Witness Program[18] visitors to the Stoltmann Wilderness.

Shamans and medicine men of the Peruvian Amazon believe that while being inside one of these ancient giants the energy from the tree's spirit is strongly healing. It is said that there is a 'light' emanating from the tree that can be seen only by those who have eyes to see. Anyone, however, is able to perceive the uplifting effect, if they choose! Some, however, chose not to see the light: one logger, upon learning the Ministry of Forests planned to assess The Hollow Tree for protection, immediately cut this magnificent life form down. "Now let them try to save it," became the big joke among the loggers in Squamish. ❑

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IMPORTANT POTENTIAL MEDICINES OF THE STOLTMANN WILDERNESS

Many plants of the Stoltmann Wilderness hold great promise as powerful phytomedicines of the future. Most need full research into their active ingredients. For example, preliminary studies on dried blueberries and mountain bilberries—including *Vaccinium alaskaense* T. J. Howell, *V. membranaceum* Dougl. ex Torr., and *V. ovalifolium* Sm., Ericaceae—show anthocyanin levels three to five times greater than that of the European bilberry, *V. myrtillus* L., which is used in Europe and North America.[8] A 25 percent anthocyanin (blue flavonoid) extract of *V. myrtillus* is a major phytomedicinal product with indications for treating retinal eye disorders, capillary fragility, poor circulation, varicose veins, cataracts, menstrual disorders, edema, peptic ulcers, skin and connective tissue disorders, inflammatory conditions, atherosclerosis, and diabetic microangiopathy.[8, 9, 10, 11] The potential economic value of these and other plants from the region are disregarded by the provincial government which instead subsidizes the forestry industry. The ecosystem of the Sims Creek and Upper Elaho Valley, where most of the research has been carried out, includes stands of thousand-year-old red cedars, yellow cedars, and Douglas firs.

FIR CLUBMOSS, *Huperzia selago*

Research has shown that compounds isolated from a member of the *Huperzia* genus (*H. serrata*) from mainland China are possibly an effective treatment for Alzheimer's disease (dementia). These compounds, two potent cholinesterase inhibitors (huperzine A and B), enhance memory.[13] The *H. serrata* plant was traditionally used as a tonic for the elderly in China and from this knowledge, pharmacological screenings were conducted.[14] In British Columbia and in the Stoltmann Wilderness, clubmoss occurs in habitats as diverse as exposed cliffs, talus slopes, sphagnum bogs, swamps, meadows, and open forests in addition to old growth areas. (*Huperzia* was formerly classified under the genus *Lycopodium*.)

DEVIL'S CLUB

Oplopanax horridus

A powerful blood cleonser and tonic used by virtually all aboriginal peoples within its range, its aqueous extract has shown strong anti-tuberculosis activity in vitro.[15] The inner bark is best used as a tea; it is not necessary to use the root, as harvesting the root can kill the plant. This spiny relative of ginseng has been used for cleansing, colds, rheumatism, arthritis, digestive tract ailments, diabetes, and more.[15, 16]


Photo © 1997 Dwayne Himmelsbach

AMERICAN REISHI
Ganoderma applanatum

Like Japanese reishi (*Ganoderma lucidum*), this bracket fungus is considered a powerful immune stimulant and strengthening tonic. There are several known active ingredients including ganoderic acids (triterpenes which have a molecular structure similar to steroid hormones), polysaccharides, and ergosterols.[17] Wild populations, such as those in the Stoltmann Wilderness, have yet to be studied to determine whether they contain higher levels of active ingredient or more powerful pharmacological action. American reishi and related species of this genus are valued by AIDS sufferers for the many reported benefits, though these have yet to be substantiated by clinical trials.

BLACK HUCKLEBERRY OR MOUNTAIN BILBERRY, ***Vaccinium membranaceum***

Like bilberries, these huckleberries are full of anthocyanins (2.8 percent) that help improve vision, circulation, varicose veins, spider veins and skin disorders.[8] According to C.F. Timberlake, Ph.D., of Bristol, England, "Early humans, whose diet was largely based on wild fruits ond berries, probably consumed large quantities of anthocyanins, more than consumed today, no doubt attracted by their vivid and brilliant colors. Humans are thus well acclimatized to ingesting anthocyanins. One could argue that the modern diet with its increasing dependence on processed foods (with artificial colors and flavors) may have now become deficient in anthocyanins."[23]


Photo © 1997 Dwayne Himmelsbach


Photo © 1997 Dwayne Himmelsbach

ALASKAN BLUEBERRY,
Vaccinium alaskaense

Recent research shows that blueberries are one of the most important healing foods, in fact they are loaded with "the Forgotten Vitamin P."[18] Anthocyanins and proanthocyanidins were originally referred to as vitamin "P" because they help maintain the normal permeability and reduce the fragility of capillaries and blood vessels by acting as potent antioxidants and strengthen the entire vascular system.[19] According to extensive research done by Professor Jacques Masquelier of France, these compounds aid collagen repair, strengthen blood vessels and capillaries ond prevent histamine release through protection of immune cells against degradotion by enzymes (i.e., collagenase, elastase, hyaluronidase) thereby alleviating allergies and hay fever.[20] The therapeutic value of certain blue anthocyanins for improving vision was first discovered during WWII when Royal Air Force pilots noticed a definite advantage over the enemy on night flights after they consumed bilberry jam or pie.[8] Bilberries are a blue/black type of blueberry found throughout Europe and in parts of B.C. Alaskan blueberries from the Stoltmann actually contain higher levels of the active anthocyanins, 3.4 percent, compared to only 0.7 percent for European bilberry (based on dry weight).[8] Anthocyanins improve circulation, strengthen the membranes of blood vessels and capillaries, reduce inflammation, improve eyesight and night vision, improve skin elasticity and tone, increase flexibility of connective tissues, reduce edema (water retention), and treat ulcers and diabetic circulation problems.[9] Research in North America by the leading cardiac specialist, Dr. J. Folts (Department of Medicine, University of Wisconsin-Madison Medical School, Madison, Wisconsin) has concluded that these colorful flavonoids and their colorless precursors (also concentrated in red wine, though in lower levels than in blueberries) are the most powerful heart medicines known and are better and safer than aspirin for thinning the blood.[11, 21]


Photo © 1997 Suzanne Diamond

RED HUCKLEBERRY,
Vaccinium parvifolium

Not only are these berries delicious to eat but they can improve health dramatically. Decoctions of leaves and bark are gargled for sore throats and inflamed gums.[16] All types of blueberries (*Vaccinium* spp.) are high in iron and minerals, regulate bowel action, and stimulate appetite.[24]


Photo © 1997 Dwayne Himmelsbach

RUNNING CLUBMOSS OR GROUND PINE, ***Lycopodium clavatum***

Recognized as a medicine in Germany for treating kidney and bladder complaints and as a diuretic,[25] clubmoss tea has been used for postpartum pains, fever, and weakness by aboriginal peoples of North America.[26] This plant was also listed as an official herb in the *U.S. Pharmacopoeia* from the 1860s to the 1940s.[27] Closely related species are used as traditional medicines in China. Caution: The plant contains a toxic alkaloid that if used above recommended dosages has strong laxative and emetic properties.


Photo © 1997 Dwayne Himmelsbach

OVAL-LEAVED BLUEBERRY, ***Vaccinium ovalifolium***

This blueberry contains two percent anthocyanins with the same anthocyanin spectrum as European bilberry.[8] It has been well recognized that cranberry and blueberry anthocyanins are effective treatment for bladder and urinary tract infections; they can eliminate the need for using antibiotics for these recurring conditions.[22]

Photo © 1997 Dwayne Himmelsbach

KINNIKINNICK, BEARBERRY, OR UVA URSI

Arctostaphylos uva-ursi

The berries are edible and quite mealy but can be used in jams and preserves. Kinnikinnick leaves are a source of the urinary antiseptic compaund called arbutin and teas made from them have some urinary tract antiseptic properties.[25] The tea has an alkaline effect on the body and turns urine from pale yellow to pale green as it alleviates bladder and urinary tract infections. The tea was used traditionally to treat kidney infections as well. According to German research, this tea is not a diuretic.[25]

TWINFLOWER

Linnaea borealis

Few flowers have a sweeter fragrance than twinflower, common throughout British Columbia on a wide range of sites from dry ridges to mossy hummocks of swamps and bogs. Some First Nations peoples historically used the plant tea as a tonic for pregnancy and in difficult or painful menstruation; also for children's cramps and fevers.[26]

Photo © 1997 Dwayne Himmelsbach

Photo © 1997 Dwayne Himmelsbach

ONE-SIDED WINTERGREEN

Orthilia secunda

The leaves of this plant contain acids that are effective in the treatment of some skin problems. A maceration of the leaves of this plant and several related species has been used traditionally by herbalists as skin salves or poultices for snake and insect bites.[16] Shinleaf (*Pyrola elliptica* Nutt., Pyrolaceae) and pink wintergreen (*P. asarifolia* Michaux.), also found in these forests, have much more showy flowers and can be used similarly as a poultice for sores and bruises.

Photo © 1997 Dwayne Himmelsbach

PIPSISSEWA

Chimaphila umbellata

Pipsissewa leaf tea was traditionally used for backaches, coughs, bladder inflammations, stomachaches and kidney ailments. The plant is considered a blood purifier, diuretic and astringent. Physicians formerly used leaf tea for bladder stones, kidney inflammation (nephritis), and prostatitis. Research has documented its use as a diuretic and urinary antiseptic with antibacterial activity.[26] The name comes from the Cree word *pipisisikweu* meaning 'it-breaks-into-small-pieces', with reference to the use of the leaf tea for dissolving kidney stones.[16]

Photo © 1997 Suzanne Diamond

BRACKEN FERN

Pteridium aquilinum

The fiddleheads (young fronds) of this widespread fern have been traditionally used as a food. The root or rhizome was also used as a food by virtually all coastal groups, and several interior groups (Nlaka' pamux, Lillooet, Carrier) of British Columbia, as well as by the Malecite of New Brunswick and Maine as a major source of vegetable protein and carbohydrate.[30] The soft part of the root was processed into flour and bread. The root tea treated stomach cramps, diarrhea, and intestinal worms. This tea was also used as a wash to promote hair growth. Recently, there have been reports of carcinogens as well as cyanide-releasing glycoside, prunasin, and thiaminase, an enzyme that reduces the body's thiamine reserves. Bracken has caused many livestock deaths, so because of the risk of consuming bracken fern fiddleheads it is not recommended that people eat this food in any appreciable quantities until further research is done.[30, 33]

SIBERIAN MINER'S LETTUCE OR CANDY FLOWER,

Claytonia sibirica

In the Portulacaceae or purslane family, the leaves of this plant contain good amounts of carotene, vitamin C. niacin, riboflavin, thiamin, calcium, iron, potassium manganese, phosphorus, and fiber; some oxalate is present so they should not be consumed excessively.[28,29]

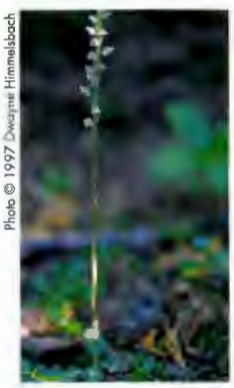
Photo © 1997 Dwayne Himmelsbach

Photo © 1997 Dwayne Himmelsbach

WILD GINGER

Asarum caudatum

Wild ginger tastes and smells much like cultivated ginger. The aroma of the crushed leaf is quite pleasant and sweet and could be used as an uplifting and invigorating aromatherapy treatment as there are few other plants that can compare for this use. The root tea was used by many aboriginal peoples for stomach pain and tuberculosis and contains antimicrobial compounds.[16] However, asarone is listed as a potential carcinogen, related to safrole.[34] Wild ginger was listed in the *U.S. Pharmacopoeia* from the 1820s to the 1880s.[27] Wild ginger also contains aristolochic acid,[26] a toxic compound associated with kidney disorders and certain cancers.[32]



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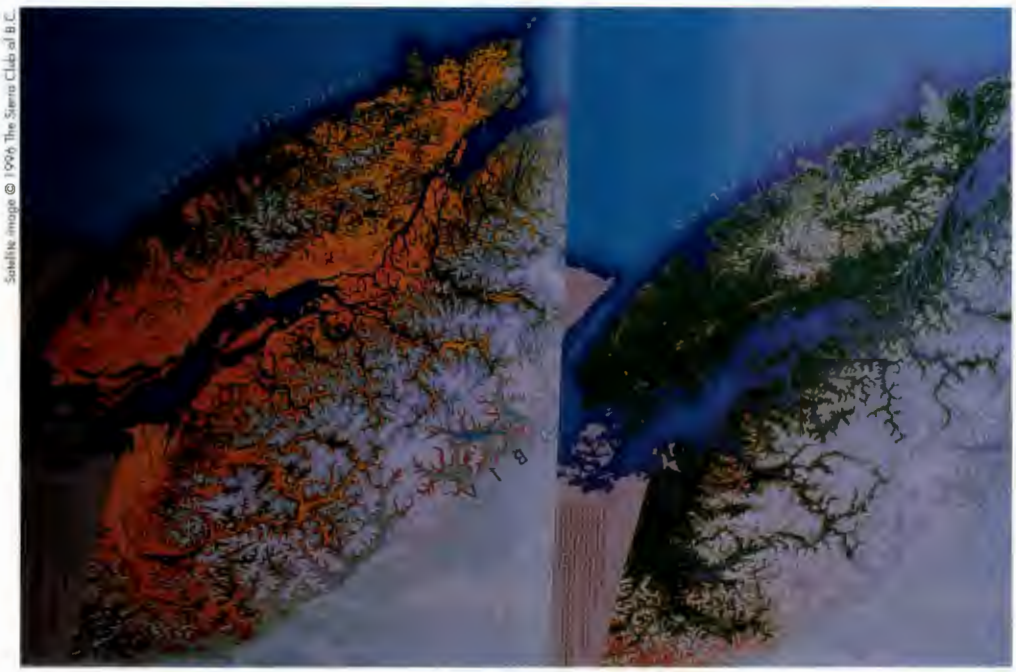
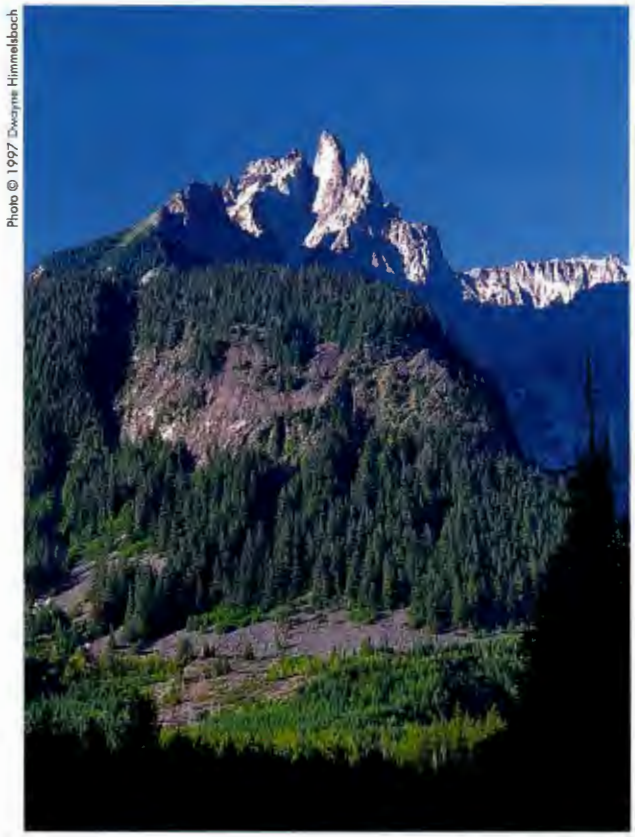
RATTLESNAKE-PLANTAIN

Goodyera oblangifolia

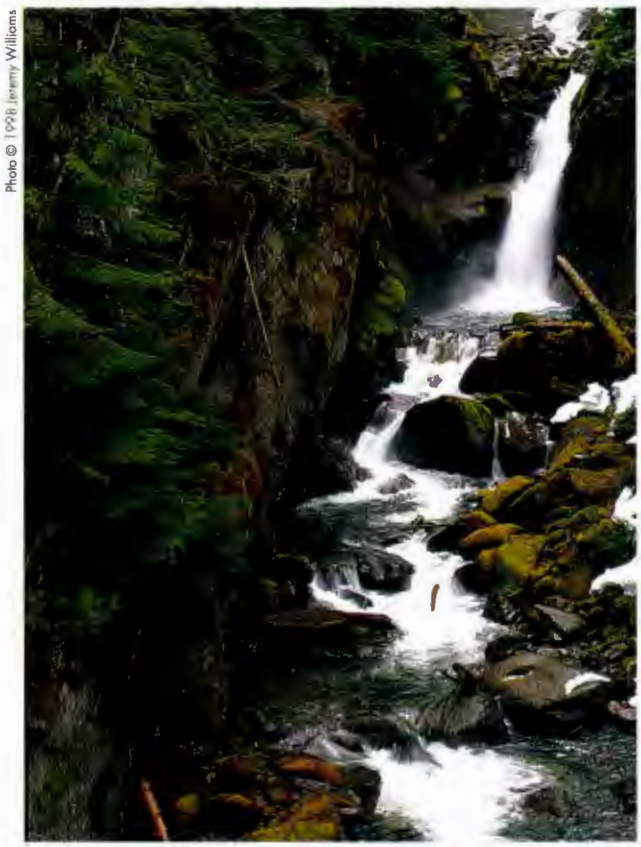
Like aloe vera, the moist inner part of the leaves can be used as a poultice for cuts and sores. First Nations peoples from the interior plateau of British Columbia used the plant as medicine for childbirth.[16]



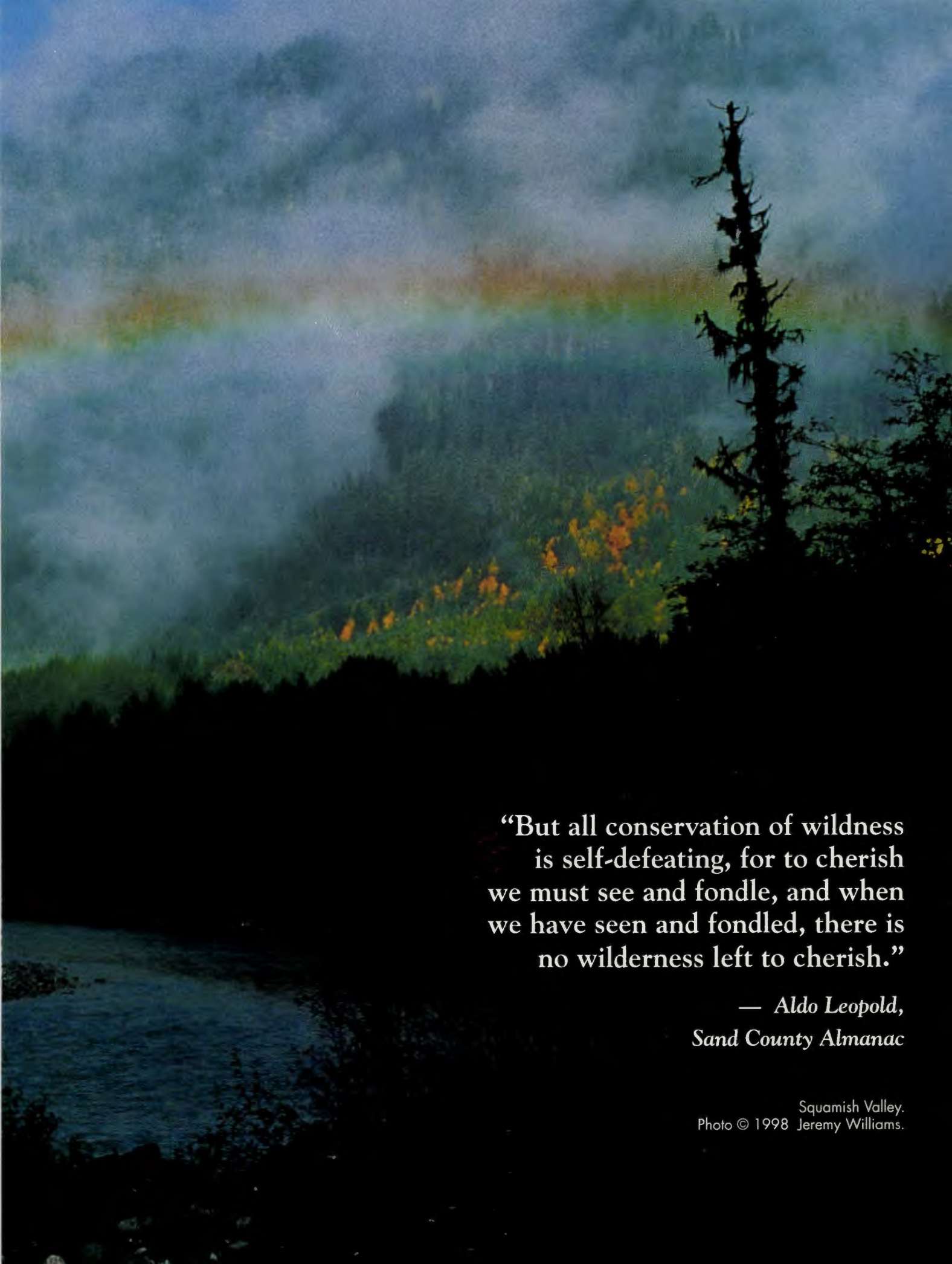
Old-growth forests around Vancouver coast:
Comparing 1860 to 1996—yellow indicates cut areas, green indicates old growth.



It's a Castle! The Stoltmann's very own Fairyland Castle greets visitors along the road to the Stoltmann Wilderness. The spires of this majestic volcanic mountain are the only unclimbed peaks of the region.



Cascading waterfalls of Outrigger Creek: This water is pure and clean and alive. It is loaded with colloidal minerals.



"But all conservation of wildness is self-defeating, for to cherish we must see and fondle, and when we have seen and fondled, there is no wilderness left to cherish."

— *Aldo Leopold,*
Sand County Almanac

Squamish Valley.

Photo © 1998 Jeremy Williams

Above: Elaho Magic Grove where the Hollow Tree used to be

Below: Peaches Creek Waterfall (Spring 1998): Native face profile in the rock at the upper right top of falls.

Photo © 1998 Dwayne Himmelsbach

Photo © 1997 Suzanne Diamond

Above: Jason Latremoille at Sims Creek Waterfall (Summer 1997)

Photo © 1997 Suzanne Diamond

Above: Dwayne Himmelsbach drinking from Sims Creek:
The peoples of the world who live to the ripest old age, over 120 or so, in total health, like cultures who live in the Himalaya mountains, often attribute their health to the glacial water they drink. Although the water of Sims Creek, sometimes referred to as glacial milk, is loaded with colloidal minerals, these will settle out of the water, are not absorbed by the human body any better than minerals contained in food and no proof of efficacy has been found.[34]

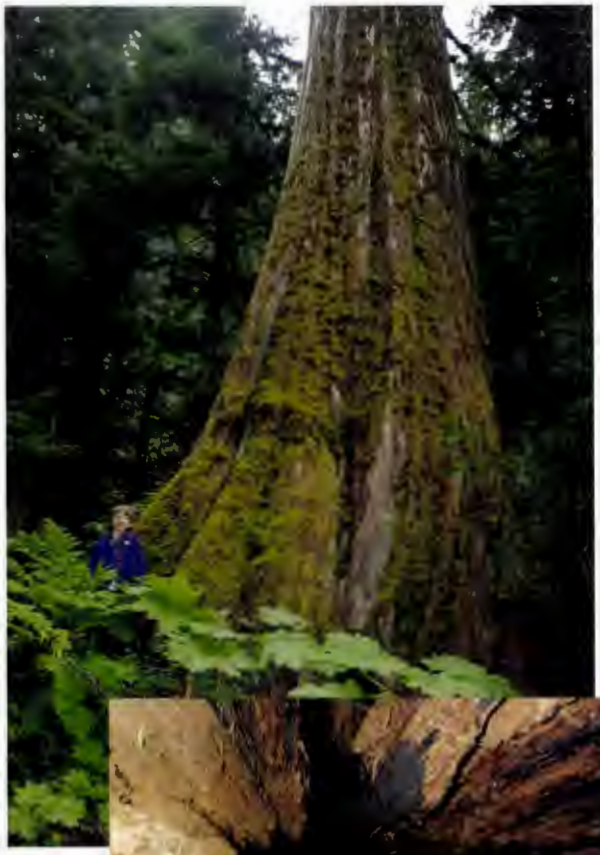


Photo © 1997 Suzanne Diamond

Left: Montana and the Hollow Tree: This giant red cedar was one of many thousand-year-old trees recently lost to clearcut logging in the Stoltmann Wilderness.

Left inset: Inside the Hollow Tree looking up

Photo © 1997 Jason Lotenmoille

Photo © 1998 Jeremy Williams

Above: Elaho Canyon

Photo © 1998 Graham Osborne

Above: clearcut in the upper Elaho Valley at the edge of the Stoltmann Wilderness

Below: Witnesses at Sims Creek Waterfall (1998): First Witness Training weekend

Photo © 1998 Dwayne Himmelsbach

Photo © 1999 John Clarke

Above: The Rainforest

Photo © 1998 Jeremy Williams

Above: Sims Creek area

Photo © 1999 Jeremy Williams

Above: Witness Weekend (1999)

Photo © 1998 Dwayne Himmelsbach

Above: Sims Creek area at the margin of destruction

Photo © 1997 Dwayne Himmelsbach

Right: Refreshing!
Author Suzanne Diamond and friend Monica at one of the Witness Weekends

Scientific Studies and Reports in the Herbal Literature: What Are We Studying and Reporting?

by Albert Leung, Ph.D.

Albert Leung

There is a whole new field of modern scientific endeavor that is stuck in an intellectual twilight zone. I am referring to the research in herbs as applied to modern health care. Unlike research in other areas, such as drugs and chemicals, research in herbs has a unique difference: herb research lacks a uniform set of criteria for evaluating its research materials. Researchers investigating herbs frequently have no idea what they are studying. They have heard about ginseng, so they study "ginseng." Or they find herb XYZ fascinating, so they study what is purported to be XYZ, without actually having any idea what XYZ is. Many published research and clinical studies on herbs are based on this approach. It appears that medical and pharmaceutical researchers are often quite proud of their scientific protocol and yet pay little attention when the test materials relate to natural products. If a pharmaceutical or medical scientist undertakes to study acetylsalicylic acid (aspirin) and is provided acetaminophen as the chemical to be studied, he or she will immediately notice the error. But if the same researcher were studying "ginseng," any of several different herbs known as "ginseng" could be provided and chances are the researcher would not question its identity before beginning the research project. This is analogous to one who studies an "analgesic" without determining the type of analgesic. The past couple of decades have witnessed a rapid accumulation of published research data on herbs, much of it largely meaningless.

So what do we do? We keep disseminating these data as if they were valid. I believe there are two main reasons: (1) these data fit our bias; and (2) many of us can't tell the difference between meaningful and meaningless herb research data. The most infamous publication of this type immediately comes to mind—the so-called "ginseng abuse syndrome" article published in the *Journal of the American Medical Association* (Siegel 1979). To this day, it is quoted by some researchers and writers who may be knowledgeable in their own fields, although not in herb research! I can't understand how anybody can draw conclusions from studies on "ginseng" that could have been any herb product with the word "ginseng" on its label, which, in those days, could have been sawdust! Is that science? Or is it preconceived bias against herbs? Maybe it is ignorance.

I wish I had time to go over some of the original papers that have now been cited as the authority for numerous herbs. I'll bet many of the materials studied, with results already published, have not been correctly identified.

In any event, the following are three recent publications from three countries (I don't want to pick on any one country), two of which were forwarded to me by an esteemed colleague. These are, sadly, typical of the research being carried out on herbs whose results continue to be widely disseminated by non-discriminating writers and the gullible popular press.

1. "Placebo-controlled, double-blind study of *Echinaceae pallidae radix* in upper respiratory tract infections" (Dorn *et al.*, 1997). The trial, performed by German and British scientists, demonstrated a highly significant effect of *Echinacea pallida* root over placebo in reducing the length of the illness. There is no *clear* indication in the paper what kind of extract was used. In the introduction, it says, "a liquid form of *Echinaceae pallidae radix* extract," then nowhere does it describe the extract used in the clinical study. An alcoholic extract is quite different from an aqueous extract; depending on the percentage of alcohol present, aqueous alcoholic extracts are not all the same. The authors seem to have left a clue under "Methods," in which they describe the placebo as "a coloured aqueous alcoholic solution that mimicked and was indistinguishable from the real treatment." But under "Results," they refer to "...900 mg *Echinaceae pallidae radix* (per day)...." Chances are they mean an amount of extract that represents 900 mg of the crude herb, but they might also mean 900 mg of the liquid extract. Based on the other "clues" left by the researchers, they most likely mean an "aqueous alcoholic extract of *Echinacea pallida* root." However, a scientific publication should be precise; the reader is not supposed to guess what the authors mean. Besides, even an aqueous alcoholic extract is not defined clearly enough. For example, does it contain 25 percent alcohol or 75 percent alcohol? The two solvent mixtures extract quite different active components from the same herb. Science has to be precise, otherwise it is not science. I was once accused by a co-author of being too picky when it comes to reporting research data. But to me, sloppy research only perpetuates the continued dissemination of misinformation or meaningless information. And someone who quotes this paper without finding out precisely what the researchers used in their clinical trial will disseminate misinformation.

2. "Ginseng Therapy in Non-Insulin-Dependent Diabetic Patients" (Sotaniemi *et al.*, 1995) is another one of those publications probably already being widely quoted by ginseng proponents as support for "ginseng's" beneficial effects such as elevating mood, improving psychophysical performance, and reducing fasting blood glucose and body weight. The study was undertaken

by Finnish scientists. However, this paper has a flaw. The authors do not specify what type of ginseng they used, other than identifying the material as "ginseng" tablets (quotes are mine) from a Copenhagen drug company. There is no indication whether the material being studied was American (*Panax quinquefolius*) or Asian ginseng (*P. ginseng*), or for that matter, a Panax material at all. Nor is there any indication whether the "ginseng" used was an extract or crude root powder. I am sure the researchers took great pains in designing and following standard medical research protocols such as randomization, double-blinding, and placebos. But what good is your research or publication when you don't even know or specify what you are investigating or reporting on? Unless further identified and specified, "ginseng" can be anything, I mean, anything. In its present form, the above-cited paper is meaningless and useless to other scientists unless the "ginseng" tablets are clearly identified.

3. "Anti-epileptic Effect of *Ciwujia* (Eleuthero or Siberian Ginseng)" (Wang *et al.*, 1998). This paper reports the treatment of 45 children with primary epilepsy, using *ciwujia* tablets or drink, with remarkable results. However, no characterization of the "*ciwujia*" is given. Again, the Chinese doctors, like their Western counterparts above, treat the test material as if it were a pure chemical drug readily identified by name alone. They don't give any clue as to what kind of eleuthero (crude herb, alcohol extract, water extract, or hexane extract?) they used. They could be using *Periploca sepium* Bunge, any of several other *Eleutherococcus* spp., or anything the local people call "*ciwujia*." I am not as concerned about herbs in typical traditional Chinese herbal formulas for the following reason: Even though there may be an occasional substitution of one or two herbs in these formulas that often contain up to 24 to 36 herbs, the damage to the formulas will only be partial. In contrast, with single-herb usage (rare in traditional practice anyway), any wrong substitution constitutes 100 percent damage. Fortunately, in the present case, since the article is in Chinese, its chances of contributing to the misinformation data pool outside of China are slim. And I will try my best to make sure it does not get there.

In addition to the above three papers, here are two abstracts that are totally meaningless for citation purposes. These were provided to me by a colleague who in turn obtained them through NAPRALERT (a natural products database). Whether these are NAPRALERT's own abstracts or from one of the major abstract services is not clear.

1. "Echinacea-associated anaphylaxis" (Mullins, 1998). This abstract gives no indication as to which species of *Echinacea* and what types of extracts or preparations were being used. So this basically would cover any commercial product called "echinacea," which is, of course, of little use to anyone other than marketers.

2. "Cytokine production in leucocyte cultures during therapy with *echinacea* extract *(Echinacea angustifolia* Compositae)" (Elsasswe-Beile *et al.*, 1996). The abstract gives a dose of 3.0 ml/day, but no information of the type of extract the researchers used. Was it a water extract, alcohol extract, aqueous alcoholic extract, or even an alcohol solution of the residue of a hexane or acetone extract? Without the above information, this kind of abstract is useless. The problem is that people are going to cite it and the misinformation will pass through the database mill to add to the already cluttered and contaminated information network.

The only way to avoid meaningless abstracts like the above entering the scientific and medical databases of the world is to require abstractors to follow a set of abstracting guidelines (in addition to existing ones) that specify criteria for reporting or evaluating herbal materials used by authors and researchers. Minimal information should include plant species (Latin binomials), part(s) used, product form (powdered crude herb, aqueous extract, ethanol extract, or aqueous alcohol extract with stated proportions of water to alcohol, specifically extracted fractions, etc.), and clearly expressed quantities or concentrations. Such information, and whether it is included in an abstract, would allow fellow researchers and readers to decide whether the abstract in question is useful and worth citing. To help them to conduct research and report findings that will be meaningful, we need to provide guidelines on minimal standards for accepting or rejecting test materials and manuscripts for publication.

Here is what I propose. There are enough credible scientists out there who are knowledgeable about herbs; some also have insight into how traditional herbal medicine works. They can establish a set of criteria for characterizing research materials in all their forms and then present it to those of the scientific community who intend to study herbs. These criteria can provide guidelines for scientists doing research on herbal materials or for journal editors or reviewers to evaluate submitted papers. If the research subject materials do not meet the established criteria, they should be rejected. Or if a submitted paper contains herbal materials as subject of the research that do not meet minimal criteria set forth in the criteria, the paper should be rejected for publication. Once we establish this uniform set of criteria for accepting botanical materials for research, we will eliminate a major part of our current problems. This will also save the world a lot of resources wasted in transporting meaningless research data back and forth, in trying to settle arguments when none should have been started in the first place, and in correcting misinformation or debunking meaningless research. ❑

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Prevention Magazine Assesses Use of Dietary Supplements

A telephone survey, conducted between April 27 and May 16, 1999 by *Prevention* Magazine and Princeton Survey Research Associates of a nationally representative sampling of 2,000 adults, resulted in the following findings:*

AMERICAN HEALTH CARE MARKET

- The number of adults in the age group 45 to 64 will grow 51% by the year 2010.
- Health care expenditures increase 39% when the head of household turns 55.
- Consumers are dubious of the health care system; 47% think their plan is more concerned about making money than providing care.
- The market is characterized as a self-care market, not an alternative care nor supplements market.

CONSUMER USE OF HERBAL REMEDIES

According to the survey the following statistics were developed:

- 49% (91,147,209) use of an herbal remedy in the past 12 months.
- 24% (44,643,531) regular use of an herbal remedy.
- Regular use of herbal remedies; garlic, 13%; ginseng, 8%; ginkgo, 7%; St. John's wort, 4%; echinacea, 3%.
- Use of herbal remedies as needed: garlic, 6%; ginseng, 6%; ginkgo, 4%; St. John's wort, 4%; echinacea 2%.
- Common reasons for using herbal remedies: ensure good health (75%); improve energy (61%); prevent/treat colds and flu (58%); improve memory (43%); reduce anxiety (41%); ease depression (35%); prevent/treat serious illnesses (29%).
- Length of time consumers will use herbal remedies without results: week or less (18%); 2-3 weeks (20%); about a month (28%); two or more months (23%).
- How consumers use herbal remedies: instead of prescriptions (36%); with prescriptions (31%); instead of OTC products (48%); with OTC products (30%).
- Reasons for using herbal remedies instead of a prescription: prefer natural/organic products (43%); fewer side effects (21%); more effective (14%); allowed me to treat myself (11%); less expensive (8%); more gentle/mild (6%).
- Reasons for using herbal products instead of OTC products: prefer natural/organic products (47%); fewer side effects (17%); more effective (17%); less expensive (10%); more gentle/mild (8%).

CONSUMER USE OF DIETARY SUPPLEMENTS

- Where consumers learn about herbal dietary supplements: friends and family (51%); product labels (41%); magazines (43%); doctor (28%); books (38%); advertising (39%); pharmacist (23%); health food store (28%); alternative medicine practitioner (19%); the Internet (13%); 1/800 number (10%).
- Reading labeling information on dietary supplements: always (79%); most of the time (10%); sometimes/never (10%).
- Top items "always" looked for on dietary supplements labels: recommended dosage (86%); expiration date (71%); weight/number of capsules in package (68%); possible side effects (63%); product warnings (63%); possible interactions (58%).
- Confidence in accuracy of dietary supplement labels: very (32%); somewhat (55%); not too/not at all (10%).

DIETARY SUPPLEMENTS AND THE FEDERAL GOVERNMENT

- Federal government regulates supplements to ensure safety: don't know (16%); no (50%); yes (34%).
- Perceptions of the safety of dietary supplements: very safe (26%); somewhat safe (53%); unsafe (9%).
- Remember FDA disclaimer on herbal remedy labels: yes (65%); no (35%).
- Consumer and FDA disclaimers on herbal remedy labels: Makes more skeptical about benefits of product (31%); Makes less likely to purchase the product (24%).

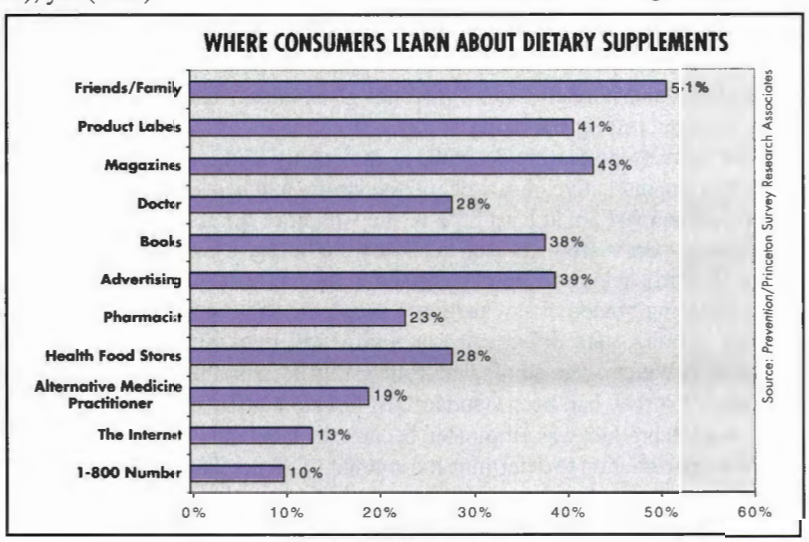
SUMMARY

- Widespread use of dietary supplements: 44.6 million Americans use herbal remedies regularly.
- This is a self-care market, not a dietary supplements market: 74.4 million are more likely to treat themselves first; many use herbal remedies instead of or with OTC products and prescriptions.
- Consumers purchase from large stores: pharmacies, chain drug stores, discount stores like Kmart and Wal-Mart, and grocery stores, not health food stores or Internet.
- Producers can build their market by increasing consumer confidence: low confidence in labeling information; low confidence in product safety; FDA disclaimer not currently helping confidence.

— *Barbara A. Johnston* ❑

*Margin of error of +/- 2%age points.

[Extrapolated from *Prevention Magazine's 1999 National Survey of Consumer Use of Dietary Supplements*, April/May 1999 (unpublished); used with permission of *Prevention* Magazine.]



Two-Thirds of Canadians Say Natural Herbal Supplements Are as Effective as Prescription Drugs or Over-the-Counter Remedies

More than two-thirds of Canadians agree that natural herbal supplements can be as effective as prescriptions or over-the-counter remedies in the maintenance, prevention, and treatment of health problems, according to a national consumer survey. The survey was conducted by Gallup Canada for Traditional Medicinals of Sebastopol, California, a leading maker of medicinal herbal teas since 1974.

The results indicate that those persons surveyed believed that:

- herbal supplements are now more accepted by consumers (94%).
- the medical community has become more accepting of herbal supplements (62%).
- medicinal tea has health benefits (37%), including 44% of the women surveyed.
- they were "very likely" or "somewhat likely" to take an herbal supplement to treat a cold (51.4%).
- echinacea is a good way to treat a cold (33%).
- they were "very likely" or "somewhat likely" to take an herbal supplement to combat stress or sleeplessness (38%).
- they were more likely to consider buying herbal supplements if labels provided information explaining health benefits (68%).
- natural herbal supplements can be as effective as prescription or OTC drugs: agreed strongly (20%); agreed somewhat (46.8%); neither agreed nor disagreed (12%); disagreed somewhat (13.6%); disagreed strongly (4.6%).
- it is all right to go to and have been to a complementary and alternative medical (CAM) practitioner such as a naturopathic physician, a medical herbalist, or a homeopathic doctor (20%).
- among the reasons given for not consulting CAM professionals: person does not get sick (22%); health insurance does not pay for this type of service (17%). Chiropractors and acupuncturists were not included in the CAM practitioner category in this survey.

The survey defined herbal supplements as herbs marketed as nutritional supplements in tablets, capsules, tonics, or teas, and not those sold as flavorings or spices. Telephone interviews with 1,003 adult Canadians were conducted between September 16 and 23, 1999. The survey is considered accurate within a 3 percentage-point margin of error, 19 in 20 times. — *Barbara A. Johnston* ❑

[Traditional Medicinals Gallup Survey, 1999, Oct. 14]

ConsumerLab.com Tests Ginkgo and Saw Palmetto Products

ConsumerLab.com, an independent testing company, has released the results of its tests on two commercial herbal product categories: ginkgo extract *(Ginkgo biloba)* and saw palmetto extract (*Serenoa repens*). The results for the ginkgo products were posted on its website (www.ConsumerLab.com) in mid-November, 1999; the saw palmetto results were released in late January 2000.

Of the 32 ginkgo products tested, 25 have passed ConsumerLab.com's criteria, based on levels of ginkgo terpene lactones (ginkgolides and bilobalide) and flavonol glycosides, as determined by German testing standards.

The saw palmetto tests were designed to detect fatty acids and plant sterols that are indicative of saw palmetto extracts and berries. According to ConsumerLab, at least 85% of the weight of the specific saw palmetto extract products used in clinical studies have been composed of the fatty acids and sterols targeted in the CL tests. CL purchased 27 leading brands of saw palmetto supplements in retail stores, on-line retailers and direct sales or multi-level marketing companies. Five products were eliminated from testing because their labels indicated that they had been standardized to fatty acid levels below 85%. A sixth product was eliminated because its label did not reveal adequate information to determine the amount of SP per dose. Of the 21 remaining products that CL has analyzed in two labs by blind samples, 17 passed the test for the 85% minimum level of the fatty acids. As indicated on the website, "To constitute a pass in the testing, a saw palmetto extract product had to meet or exceed its label claims and meet or exceed the minimum percent weight for total and individual fatty acid and sterol components. For products containing berry powder only and no extract, the total and individual constituents were calculated as 10% (weight to weight) for fatty acids and plant sterols." (Only one of these products passed ConsumerLab's criteria.)

The company chose the ginkgo and saw palmetto products having the largest sales, widest availability, or both, in the U.S. Companies whose products were not selected for testing are still able to be tested via ConsumerLab's Ad Hoc Testing Program, by paying a nominal fee for the testing.

According to CL's policies, companies that pass the CL test can qualify for the ConsumerLab.com flask-shaped seal of approval. Test results of other herb and dietary supplement categories will be posted to the company's website at a rate of about one per month. On February 7, the *Los Angeles Times* ran an article about the company, and published both the passes and fails of the saw palmetto tests. For more information, see the ConsumerLab.com website or contact Lisa Sabin, vice president for business development at 201/261-5616. — *Mark Blumenthal* ❑

Herbal Medicine into the New Millenium — Envisioning a New Dawn For Herbal Medicine

by Monique Lewis[1], and Robert B. Longmore[2]

Southern Cross University, located in Lismore, on the Far North Coast of New South Wales in Australia, hosted the "Herbal Medicine into the New Millennium" conference in June 1999.

The conference, organized as an international forum on the science, regulation, production, and clinical application of medicinal plants, was international in its focus, featuring an impressive program of 27 world-class speakers from the United States, Britain, Italy, Mauritius, South Africa, Australia, and the Pacific. Presenters included the distinguished pharmacognosist, Professor Varro Tyler, Purdue University, U.S.; Dr. James Duke, renowned American ethnobotanist, lecturer on pharmacy ecotours in the Amazon, and author of many books; Simon Mills, of the Centre for Complementary Health Studies at the University of Exeter and Secretary of the European Scientific Cooperative on Phytotherapy, UK; Mark Blumenthal, Executive Director of the American Botanical Council; and Professor Peter Waterman, one of the world's leading phytochemists, now the Chair of Phytochemistry and Director of the Centre for Phytochemistry at Southern Cross University.

Lismore is situated in the attractive Northern Rivers part of sub-tropical New South Wales, in an area known as the "Rainbow Region." Replete with tropical fruit, nut, and tea tree plantations, fertile volcanic soil and stretches of lush rainforest, the district provides the perfect backdrop for the university's specialization in phytomedicines. Southern Cross University's School of Natural and Complementary Medicine introduced Australia's first university-accredited Bachelor of Naturopathy degree program. The university has also established its Centre for Plant Conservation Genetics and Centre for Phytochemistry, and has some industry groups located on the Lismore campus, including the Blackmores Research Institute and the Australian Tea Tree Oil Research Institute (ATTORI). (See sidebar on page 70.)

ATTORI's Pilot Batch Manufacturing Machine on campus at Southern Cross University. The machine is for the manufacturing therapeutic goods.

Attendees included growers, manufacturers, distributors, practitioners, academics, and plant scientists.

Mark Blumenthal spoke about "creating the vision" for herbal medicines of the new millennium, pointing out the ways in which consumer attitudes and market conditions have made the herbal industry a mainstream phenomenon in the Western world. He asked, "When can science be borrowed?"—highlighting the problems that can arise when competing manufacturers use the positive results from clinical trials undertaken by other manufacturers of proprietary products to make claims about their own products. Citing some of the leading herbs and phytomedicines in Western Europe and the U.S., Blumenthal compared the best-researched European brands to some of the U.S. brand counterparts.

In his paper, "Recognizing the Challenges," Kerry Bone, herbal practitioner, manufacturing consultant, CEO and technical director of MediHerb Australia, and writer, provided a perspective on the needs for proof of efficacy and the intertwining relationship of traditional and folklore uses with those from scientific study. Bone questioned commonly held beliefs regarding side effects and adverse reactions, and was of the opinion that these beliefs needed to be viewed in the context of amounts of use and actual incidence. He conceded that side effects occur, but claimed they were generally minor, not major. He advocated the need for well formulated clinical trials of herbal activity and accorded anecdotal information, as used by many multi-level marketing programs, the lowest priority information of all on efficacy. Bone reminded his audience of the need to properly evaluate herb activity *in vivo* rather than extrapolate from "remote" *in vitro* in-

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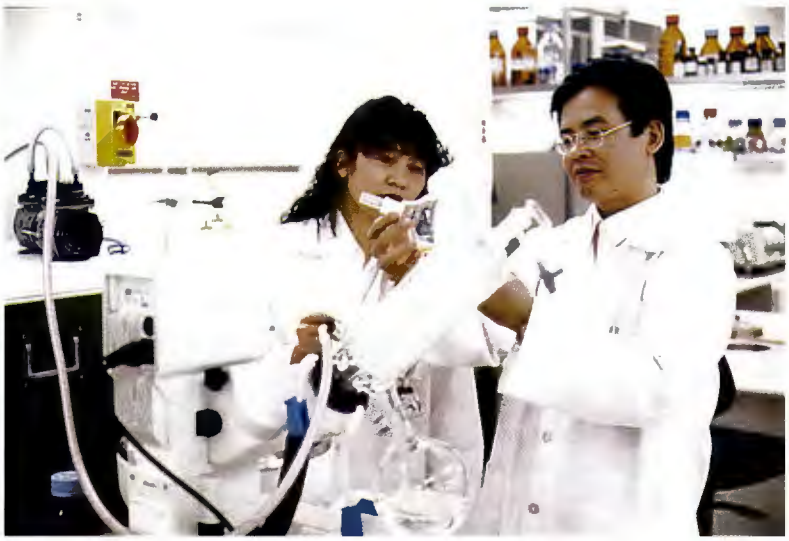
[2] School of Pharmacy, Curtin University of Technology, GPO Box U1987, Perth, Western Australia 6001.



Southern Cross University is already a hub of research activity into natural and complementary medicine with its on-campus centres and institutes: ATTORI, Centre for Phytochemistry, Centre for Plant Conservation Genetics and the School of Natural and Complementary Medicine.

terpretations of data. He provided many instances of challenges, including aspects of safety, over-regulation, economic sustainability, herb quality, and human disease prevention. The presentation was a thorough review of the challenges herbal medicine development faces.

Professor Emeritus Varro Tyler delivered a considered presentation, continuing the theme of "recognizing the challenges." After first philosophizing on history repeating itself in "starting the entire process of drug development again," he affirmed the need for well designed, randomized, double-blind, placebo-controlled clinical trials of herbal medicines. If small companies could not afford the sponsored trials of the larger companies, perhaps "a cooperative system could share the costs and benefits of such studies." Tyler opined on matters of phytoequivalence, bioavailability, quality standards, and approached his final theme of the challenges facing herbal medicine in eventually forming a partnership with mainstream medicine.

The program presented an array of other speakers of several nationalities, including Ameenah Gurib-Fakim, M.D., a lecturer in organic chemistry at the University of Mauritius, who spoke on the utilization and conservation of medicinal plants in Mauritius, which correlated traditional use of native herbs with demonstrable antimicrobial activities. She noted that indigenous flora faced many threats in her country, including over-exploitation and loss to other economic activities in the region, such as deforestation and land clearance by burning. Dr Gurib-Fakim described her survey of endemic medicinal plants in use in Mauritius, in which she was able to correlate the uses of plants against diseases, and to generally note the superiority of endemic plants in such actions.

Professor Basil Roufogalis, of Sydney University's Herbal Medicines Research and Education Centre, examined the potential of traditionally used Australian plants to provide cardiovascular agents, using human erythrocyte plasma membrane Ca^{2+}, ATPase as the target monitor, and identified novel bis-resorcinols such as striatol from *Grevillea striata* as being of particular interest.

Lise Alschuler, N.D., from Bastyr University, delivered a presentation on herbal approaches to menopause, highlighting the fact that the treatment of menopausal symptoms represents one of the major health concerns of women using herbal remedies today.

Only about 15 percent of American women were said to be using Hormone Replacement Therapy (HRT). In weighing the risks and benefits of conventional HRT and herbal therapy, Dr. Alschuler emphasized the need for individualized therapy to take into account the patient's personal experiences and needs. Her top herbs list included red clover, soy, licorice, and dong quai. Alschuler seemed less convinced about the use of black cohosh despite its obvious popularity. Licorice was well indicated and merited attention, in her opinion, for its particular benefit in persistent cases of menopausal urinary tract infections. A word of caution is necessary here: the patient's blood pressure must be monitored before commencing licorice, and certainly every so often after commencement. Decreased potassium, increased sodium levels, and edema have been observed, albeit less commonly, in 5 to 10 percent of users, due to the mineralcorticoid activity of the glycyrrhizin and glycyrrhetinic acid content.

Professor Piergiorgio Pietta, from the National Council of Research in Milan, Italy, raised concerns regarding quality aspects of herbs, and specifically, validation of efficacy. His use of various chromatographic procedures detected adulteration of herb samples and provided quantification of important components such as flavonoids. He reported on his determination of the *in vitro* comparative antioxidant potential of medicinal plants using a spectroscopic decolorization procedure and on how such results may be related to the more important *in vivo* activity of the herbs.

Simon Mills, of the Centre for Complementary Health Studies, University of Exeter, UK, and author of *The Complete Guide to Modern Herbalism*, negotiated the legal minefield of the regulatory landscape for herbal products in Europe.

The recruitment of Peter Waterman as first Chair and Director of Phytochemistry at Southern Cross University is considered

Cellulose Valley Technology Park is based in Lismore, Northern New South Wales and is the world's first technology park for natural plant products. Currently under construction, the Park development is based on principles of sustainable development and ethical business practice.

by many a win for the institution. Formally Director of Natural Products Research at the Strathclyde Institute for Drug Research, Glasgow, Scotland, Waterman looked at the problems of quality assurance and standardization of herbal products. He emphasized the use of recent approaches to analysis, including his preference for liquid chromatographic (LC) techniques coupled with photodiode-array, mass spectral or ^{1}H-nuclear magnetic resonance spectroscopic detection.

Captured by the legend of being the inspiration for Sean Connery in the film *Medicine Man*, Dr. Jim Duke's arrival created something of a media frenzy in Australia. Chief of the Medicinal Plant Resources Laboratory of the United States Department of Agriculture (USDA) for some 30 years, he is Senior Science Advisor to Nature's Herbs. Commencing his presentation with "Now, Sean Connery I ain't," he highlighted aspects of the side effects and contraindications of a typical set of well known herbs, including echinacea, St. John's wort, and ginkgo.

Duke is well known for his many anecdotes and sayings, and they certainly add color to his text: "[The conventional view is] if a herb helps, it's an anecdote, if it hurts it's fact." His emphasis is on the natural:

> If my love had breast cancer genes
> I'd rather she took a bowl of beans
> something that her genes have seen
> *They've never seen raloxiphene.*

Francesco Di Pierro, Ph.D., from Indena Scientific Department, one of the world's largest suppliers of botanical extracts, spoke about "reaping the benefits" from the herbal medicine industry, citing the tremendous contribution herbal medicine has made to commercial drug preparations, i.e., salicin (the original source of salicylic acid, later converted by orthodox science to its well known pro-drug aspirin) from willow bark, ephedrine from ma-huang, and reserpine from Indian snakeroot. Di Pierro also pointed out the role edible plants have played for herbal medicine, identifying bilberry and soy as good examples. He elaborated on the proven efficacy of bilberry (*Vaccinium myrtillus*), whereby studies were initiated fol-

lowing observations that World War II Royal Air Force pilots taking bilberry jam reported seeing unusually well in low light. Di Pierro also outlined several clinical studies undertaken using bilberry extract in the cases of patients with myopia, diabetic retinopathy, peripheral venous insufficiency, and chronic primary dysmenorrhea, all of which conditions displayed measurable improvement following use of bilberry extracts.

Associate Professor Stephen Myers, from Southern Cross University, emphasized in his presentation that researchers and regulators of herbal medicine products should allow herbal medicine to be researched within its own paradigm. As head of Southern Cross University's School of Natural and Complementary Medicine, and a medical doctor and naturopath, Myers pointed out ways in which the evidence currently being developed for medicinal plants is generally reductionist, often failing to reflect the craft or traditional practice of herbal medicine.

He highlighted the ways in which many scientists often fail to acknowledge that the basis of all scientific endeavor rests on systematic observation, that traditional medicine is one of the few disciplines with a consistent record of systematic observation dating back to antiquity.

Myers also cited the example of St. John's wort *(Hypericum perforatum)*, which has been given great acclaim over the past decade for its use in the treatment of depression, and for which there is accumulating scientific evidence to prove its efficacy in treating this problem. The name of the herb derives from the Greek, meaning "over an apparition," a reference to the belief at that time about the benefit of the herb in driving away evil spirits. This was a time when mental illnesses were considered to be possessions by evil spirits and *Hypericum* was then the remedy of choice. It was also used in pulmonary complaints and to treat dysentery. Myers suggested that we cannot stop with the research on depression and be satisfied that we have plumbed the depths of *Hypericum*. He commented that its full role will not be understood until all of its traditional uses have been investigated and its interaction with other herbs with which it was traditionally combined have been explored.

CREATING THE WORLD'S CENTER FOR HERBAL MEDICINES

"Herbal Medicine into the New Millennium" coincided with the University's launch of Cellulose Valley Technology Park, which claims to be the world's first technology park for herbal medicines.

Cellulose Valley is a result of the increasing research activity being fostered between Southern Cross University, representatives of the medicinal plants industry, growers of medicinal plants, and natural medicine practitioners. While the name of the project playfully refers to the famous American "Silicon Valley," the Cellulose Valley project's objectives are no less cutting edge. The project is in the process of establishing Australia's first herbal medicine region, and building the world's first natural plant products technology park.

There is a distinct difference between "Cellulose Valley" and the Cellulose Valley Technology Park. The "Valley" is the "big picture," intended to position the region as the global hub of production, manufacturing, and research for medicinal plant products.

The Technology Park, currently under construction, is the place where research and commercial development of natural plant products will be undertaken, to be enhanced by the clustering of companies, institutions, and activities on-site, which will help to support the ethical growth and competitive advantage of the herbal medicine industry in Australia and internationally.

The park model follows the guiding principles of sustainable development, permaculture, and ethical business practices. The development is being guided by a strong ethical charter that prohibits animal testing and genetic engineering, promotes preserving and enhancing biodiversity, and stresses care of the environment. ❑

ATTORI

The Australian Tea Tree Oil Research Institute Ltd (ATTORI) was established on the campus of Southern Cross University, Lismore, in late 1996 with the primary aim of conducting fundamental research into tea tree oil (*Melaleuca alternifolia*), and developing value-added products based on a better understanding of its properties and mode of action. The Institute's longer-term aim is to investigate the pharmacological properties of other natural products, particularly Australian native plants.

George T. Murdock 1917 - 2000

George Thomas (Tom) Murdock, Sr., founder of one of America's largest herb companies, passed away January 4, 2000. He was born February 24, 1917, on an Indian reservation in Arcadia (Red Cap), Utah, now known as Ioka. He grew up in Utah and Phoenix, Arizona and married his sweetheart, Ellora Lalovi Fish, in 1940.

As a Stake Missionary of the Church of Jesus Christ of Latter-day Saints, he taught thousands over the years and wrote and distributed missionary literature sent all over the world. He loved music, had a beautiful voice and enjoyed singing at many occasions.

Tom had a great love for people evidenced by his greeting to everyone, "Howdy, Neighbor!" He also had tremendous compassion for those in need, reaching out daily to lend a helping hand wherever one was needed.

Tom was fearless as well as innovative. As an entrepreneur he started numerous businesses of various kinds. He pioneered air conditioning in Arizona during World War II. With his son Ken, he founded Nature's Way Products in 1969 as a result of his searching for a treatment to relieve his wife, Lalovi, who was suffering from cancer. During the 1970s and 1980s, Nature's Way became one of the largest and most innovative herb companies in the U.S. He has been acknowledged as a pioneer of the natural and holistic movement in America leading the renaissance of botanical medicines in the 1970's.

He is survived by his five children: Carolyn Hastings of Gilbert, AZ; George Thomas Murdock Jr. of Orem; Ken Murdock of Springville; Madelyn Mrykalo of Provo; Marlene Black of Springville; 30 grandchildren and 24 great-grandchildren; two sisters: Alice Burton of Hemet, CA; Lurrene Childs of Littleton, CO. — *Barbara A. Johnston* ❑

Photo by Peter Skoberne courtesy of *Plant Talk*.

Cyrille De Klemm 1927 – 1999

Cyrille De Klemm, an environmental lawyer and plant conservationist often described by his peers as "a giant of ecology," died suddenly in Paris in April 1999. De Klemm was born in Switzerland, took a law degree in Aix-en-Provence, France, and made further legal studies at the Sorbonne in Paris. He never practiced as a lawyer, but worked as a professional interpreter between French and English, and soon became interested in conservation. From the 1960s on, he was a member of the International Union for Conservation of Nature and Natural Resources' (IUCN-World Conservation Union) influential Law Commission. As his life progressed, he spent more time as a consultant on environmental law and less as an interpreter. He was deeply involved in all stages of most of the conservation conventions. The 130-plus papers he wrote are almost all concerned with international treaties on conservation, including CITES (Convention in Trade in Endangered Species), the World Heritage Convention, the Ramsar (or Wetlands) Convention and the Migratory Species Convention. Particularly close to his heart was the Bern Convention, a European agreement on conservation of wildlife and habitats developed by the Council of Europe. In his final days, he prepared a draft strategy for plant conservation in Europe.

Perhaps his greatest achievement was on the Biodiversity Convention. He was the first to call for such a convention and the first to set out its basic design, starting with a resolution at the IUCN General Assembly in Christchurch, New Zealand (1981), calling for a Convention on Genetic Resources. Unfortunately, his idea that those who used biodiversity, whether as food, garden plants, or pharmaceuticals, should pay a small royalty towards the cost of conserving that biodiversity *in situ* did not survive the governmental negotiations. He compiled the Index of Plants (and animals) in legislation for IUCN and wrote the invaluable book, *Wild Plant Conservation and the Law* (IUCN, 1990). This book contains his blueprint on how to protect plants by law. Says Françoise Burhenne, IUCN Environmental Law Center, "The heart of his concerns was to define the obligations, and not only the rights, which we have towards nature. In doing so, he was one of the first in search of a legal theory for sustainable development." — *Barbara A. Johnston* ❑

Bastiaan J. D. Meeuse 1916-1999

Dr. Bastiaan Meeuse, a botany professor retired from the University of Washington, died in Kirkland, Washington, in July. During five decades of research he focused on the voodoo lily (*Sauromatum guttatum* (Wall.) Schott. Araceae), a plant with one of nature's foulest floral odors, seeking to unlock some of the mysteries about a plant that generates heat along with stench. Its huge, smelly flowers, which can weigh up to a half-pound and get as hot as 108 degrees inside, made it "a wonderful botanical guinea pig," according to Meeuse. He said that his work in the lab at times shrouded him in "an odor that would drive skunks away. Even my cat, Blackie," he once said, "won't come near me when the smell of the lily is on my clothes." His research advanced understanding of the oxidation process in the cells and tissues of plants and animals and pollination of plants. He wrote the textbook, *The Story of Pollination* (1961), and co-authored, with Sean Morris, *The Sex Life of Plants* (1984). Dr. Meeuse and a series of collaborators published about 200 papers on the voodoo lily over 50 years. In a paper in 1987 he identified the substance behind the heat-producing "respiratory explosion" as salicylic acid, related to aspirin and useful as a pain-killing analgesic, similar in action to the glycoside salicin in the bark of the white willow and wintergreen leaves. In the 1950s, he discovered a moss enzyme that burns oxalic acid. This enzyme has been used to regulate the blood of people whose circulatory systems overproduce oxalic acid, a condition that could result in a potentially fatal kidney disease.

Meeuse was born in Sukabumi, a small town on the island of Java, Indonesia, and at age 11, he and his family moved to Bogor, Indonesia. The boy's interest in nature was fostered by the famous botanical gardens in this colonial outpost and he decided to become a biologist. He earned his degree in 1936 at the University of Leyden and his doctorate in 1943 at the University of Delft. He joined the University of Washington in 1952 and became a full professor of botany in 1960. — *Barbara A. Johnston* ❑

[*New York Times*, Aug. 9, 1999.]

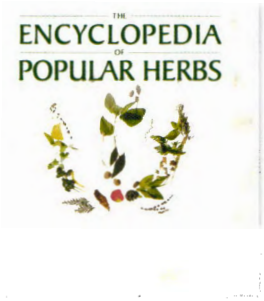
Catherine Brandel 1943 - 1999

Catherine Brandel, illustrator, chef, forager, and mentor to other chefs, was a leading expert in wild edible plants and a staunch supporter of small family farms. She opened and championed farmer's markets throughout the San Francisco Bay area, lobbied on behalf of organic growers and helped create a conduit from several thousand small-scale farmers to top restaurants nationwide. She gathered wild fruits, nuts, and greens for the famous Chez Panisse restaurant in Berkeley, California, and, with Julia Child, organized the Great Chefs of France cooking program at the Robert Mondavi Vineyards. "Catherine was an original," said Alice Waters, owner of Chez Panisse, "She could find anything, cook anything, teach anything." Throughout her life Brandel was a teacher and, when she left the restaurant in 1994, helped create the two branches of the Culinary Institute of America on the West Coast and in Hyde Park, New York. — *Barbara A. Johnston* ❑

TOP TEN SELLERS IN ABC'S HERBAL EDUCATION CATALOG

August 1999 through November 1999
Previous standing shown in ( )

1. *The Complete German Commission E Monographs—Therapeutic Guide to Herbal Medicines*: Blumenthal, Busse, Goldberg, Hall, Riggins and Rister, eds., Klein and Rister, trans. (1)
2. *Herb Contraindications and Drug Interactions*: Brinker (2)
3. *Herbs for Your Health*: Foster (5)
4. *Botanical Safety Handbook*: McGuffin, Hobbs, Upton and Goldberg (3)
5. *Rational Phytotherapy*: Schulz, Hänsel, and Tyler (4)
6. *Encyclopedia of Herbal Medicine*: Bartram (6)
7. *Women's Herbs, Women's Health*: Hobbs and Keville (new listing)
8. *Cancer and Natural Medicine*: Boik (9)
9. *Phytotherapy in Paediatrics*: Schilcher (new listing) tied with *Herbal Medicines: A Guide for Health-Care Professionals*: Newall, Anderson and Phillipson (back after a short absence)
10. *Medicinal Herbal Therapy: A Pharmacist's Viewpoint*: Ottariano (new listing) tied with *A Field Guide to Medicinal and Useful Plants of the Upper Amazon*: Castner, Timme and Duke (new listing)



The Encyclopedia of Popular Herbs—An Authoritative Guide to 40 Leading Medicinal Plants *by Rob McCaleb, Evelyn Leigh, Krista Morien. Prima Publishing, Rocklin, CA. 2000. 576 pp. Hardcover. $29.95. ISBN 0-7615-1600-X. ABC Catalog #B398.*

This book is written by Rob McCaleb, cofounder and president of the Herb Research Foundation and cofounding editor of *HerbalGram*, and his two associate editors, Evelyn Leigh and Krista Morien, writers of many of the "Research Reviews" in *HerbalGram* and colleagues of McCaleb's at the Herb Research Foundation. They have created one of the most lucid presentations on 40 leading herbs sold in the dietary supplement industry here in the U.S.

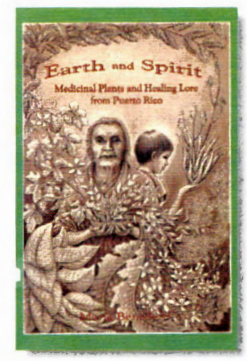
While many popular herb books often parrot information from other sources extensive files that McCaleb has been collecting at the Herb Research Foundation since the early 1980s.

The book is written in two parts: Introductory material and the monographs. Part I contains a lucid explanation of the world of herbs, their potential and actual role in healthcare and self-care and some excellent advice for consumers regarding safety, what to look for in herbal product labels, and related tips for increasing responsible use.

The larger portion of this book contains the monographs on the 40 popular herbs. One of the most useful innovations that this book offers, especially compared with other publications of this type, is a five star rating system in which the various types of literature are rated by McCaleb and his coauthors to give the reader an at-a-glance assessment of the depth and quality of the literature supporting (a) clinical research, (b) laboratory research, (c) history of use/traditional use, (d) safety records, and (e) international acceptance. International acceptance, of course, refers to use of these herbs in conventional as well as traditional systems of medicine quick look, the reader can in two or three seconds get a general overview regarding the status of each herb in the aforementioned areas.

Another useful aspect of this work is the section, Primary Uses, which introduces each monograph with up to four or more bullets showing the primary clinical and/or self-care uses of each botanical. Often this kind of information needs to be extracted from pages of text—a time-consuming process with some other books of this type. The monograph outline includes (aside from the five star rating system) history of the herb, international status, botany (including botanical descriptions and geographical locations), benefits, scientific support, specific studies (broken down by studies in various clinical areas or supporting specific indications), how it works, major constituents (chemistry), and safety (includes side effects, contraindications, and drug interactions, dosage, standardization, i.e., certain chemical parameters to which popular preparations may be standardized, either marker compounds and/or active compounds).

The number of references is relatively few, McCaleb having picked what he presumably considers to be primary references to support information. The number of references average about 11-19 per monograph, including original clinical studies and authoritative secondary publications (i.e., *The Complete German Commission E Monographs* and the AHPA's *Botanical Safety Handbook*). The book also contains cross-references for indications and other therapeutic data as well as a general index. It will become one of the best publications in the market for novices in the emerging herbal movement, while it provides useful information to the professional who is seeking a quick review of the most popular herbs in the market. — *Mark Blumenthal* ❑



Earth and Spirit *by Maria Benedetti. Verde Luz, Orocovis, Puerto Rico 1989. 268 pp. Softcover. $20. ISBN 0-9633440-1-3. ABC Catalog #B359.*

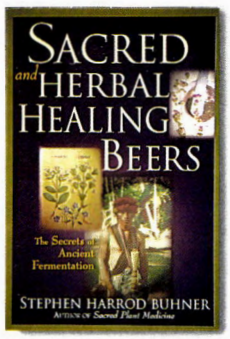
There are many herb books, but few address the healing systems of native people in such a respectful way. This book's style is unique in its approach to listing active herbs in the Puerto Rican pharmacopeia. The author uses dialogue—interviews with the local healers—to discuss curative properties and plants. It incorporates the traditional methods and attitudes that ultimately complement the effectiveness of the plants. Her interviews of local people discuss changes in the cultures yet she highlights current methods with past so as they travel into the future; there is no loss, only the integration of knowledge systems. For example, during her interview with the midwife they discuss breech births and the point when the midwife can massage the fetus so the head is down and when it is too late and the mother should go to the hospital. Another interview is with a farmer in which the organic, dynamic nature of farming is integrated into a small urban farming scene. From this the author weaves an environmental picture. In the epilogue she discusses the issue of how so many people are dependant on plants for healing while they, their cultures, and their environments are disappearing.

Sra. Benedetti allows her broader range of expertise to enter into areas of pharmacology, healing, and ecology as she offers the reader an integrative approach to the healing plants of Puerto Rico. This allows

the reader to believe and trust the writer.

One aspect of the book I liked was the ease of the references, glossaries, etc. so that the Latin and local herb names were interchangeable ensuring that the reader fully understands the foreign language. Being a short book, it is easy, within a few sittings, to travel to the Latino culture while learning how to heal the people and the earth. — *Trish Flaster.* ❑

Trish Flaster is an Ethnobotanist working for Botanical Liasons, Boulder, Colorado.



Sacred Herbal Healing Beers: The Secrets of Ancient Fermentation *by Stephen Harrod Buhner. Sires Books c/o Brewer's Publications, Boulder, CO. 1998. 534 pp. Softcover. $19.95. ISBN #0-937381-66-7. ABC Catalog #B373.*

I should probably recuse myself from reviewing this book. First, it covers one of my favorite subjects: herbs. Second, it covers one of my favorite subjects: beer. Combined, this book is a must-read for anyone who appreciates the long history of fermentation and the fact that peoples all over the world have used various plants to flavor and develop fermented beverages. Historians sometimes wonder which came first: beer or bread? After all, the word *bread* and the word *brew* both derive from the same Indo-European root meaning to "bubble," due to the fact that fermented products and leavened bread products both produce bubbles during their respective processes, being the product of water, grains, and (presumably, at least originally), airborne yeasts.

As this book beautifully portrays, humans have enjoyed the taste and benefits of fermented products, particularly meads, ales, and beers, for at least 8,000 years. Mead is basically fermented honey and water, ales are fermented grains, and later in Europe during the last millennium, the addition of hopped ale created what is now known as beer.

This book is unique. It is probably the best review of various types of beers from all over the world as they are brewed with various herbs used to flavor such products. The author writes with a reverential style, obviously an aficionado of both domains, with particular emphasis on the spiritual and sacerdotal qualities of these beverages. Hence, the title.

The plants in this volume include agave (source of tequila); barley (of course), a word derived from the Saxon *beerlec* (the primary grain in most Western beers), carrot, chamomile, dandelion, elder, ginger, hyssop, juniper, licorice, nettle, rice, rosemary, sassafras (root beer), St. John's wort, wintergreen, yarrow, and many more—approximately 75 in all.

The second part of the book includes short monographs on the various plants and interesting recipes, poems, quotations, and, overall, an incredibly eclectic amalgamation of interesting information. The book is peppered with black and white illustrations from various classic sources and contains four beautiful color plates in the center from Woodville's *Medical Botany* (1790). The chapters include an interesting journey into "Psychotropic And Highly Inebriating Beers," "Beers and Ales from Sacred and Medicinal Trees," and "Beers and Ales from Sacred and Medicinal Plants." The author includes indigenous beers like the chicha of Mexico and the masato or manioc beer of the Jivaro of South America. Whether you are an herbalist or beer lover or both, there is plenty here to provide useful and engaging information from which to imbibe. Various appendices deal with ancient brewing techniques, a resource list, and an extensive bibliography and index.

Hopefully, this book will stimulate a new level of microbrewery activity in which sacred herbs will be brewed into healing beers for consumption by the discriminating few. — *Mark Blumenthal* ❑

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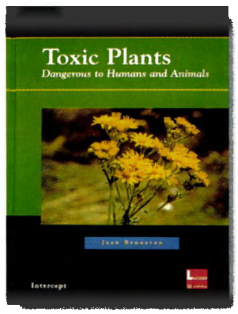

Toxic Plants: Dangerous to Humans and Animals *by John Jean Bruneton. Lavoisier Publishing Inc., Cachan Cedex, France. 1999. 545 pp. Hardcover. $163. ISBN 1-898298-62-9. ABC Catalog #B422.*

One of the oldest concerns of humans is being able to identify toxic plants. Ever since the dawn of humankind, people have had to differentiate, often by trial and error, between edible and poisonous plants. Of course, a common maxim of pharmacology is that dose makes the poison, and thus, potentially poisonous plants can also be medicinal, depending on dosage and mode of preparation. Many readers will immediately recognize the author as an authority in the field of medicinal plants, having written *Pharmacognosy, Phytochemistry, Medicinal Plants*—one of the consistent best-selling pharmacognosy reference books in the American Botanical Council's Herbal Education Catalog. Professor Bruneton is one of France's leading experts in the field of medicinal plants and this present volume attests to his expertise.

This book is one of the most up-to-date compilations of the issues related to toxicity associated with plants and plant-based products in the English literature. It contains over 1,300 references and recent epidemiological statistics covering over 50 botanical families with over 350 plant species organized in 100 monographs.

This work deals primarily with toxic plants that are reported by various poison control centers and related forms of pharmacovigilence. The book starts with general information regarding pharmacovigilence data from France, the UK, the United States, and other parts of the world. The second, larger part, deals with monographs on numerous medicinal plants organized by plant families: 48 families in the Angiospermae plus four gymnosperms and one in the pterodophyta (bracken fern). The book also contains appendices, including a glossary of botanical terms, information on phytochemistry, lists of illustrations, and an extensive general index. Each monograph begins with a black and white drawing of the plant.

The author states that the book's priority is to provide the reader useful statistical data to develop one's own judgment. Next is the qualitative aspect, circumstances surrounding the actual poisoning event, with particular emphasis on unsupervised self-medication with plants. In each monograph, case reports of adverse reactions are described, plus the presentation of symptoms, the proposed treatment, and, sometimes, toxic dosages are discussed. Extensive bibliographic information is provided for each chapter and monograph.

In the section of statistical data from the U.S., the author notes that regarding the annual reports from the American Association of Poison Control Centers (AAPCC), the data shows that although plants are "frequently incriminated, in most cases there are not consequences." Only 7.8 percent of the plant-related poisonings were managed by a healthcare facility versus 25.9 percent of all other poisoning cases. 12.6 percent of the cases resulted in minor effects (i.e., limited gastrointestinal symptoms, irritation of the skin or mucosas, transient cough, rapid heart beat without hypertension). In the U.S. with respect to major adverse effects associated with plant-related poisonings that are life-threatening to the patient—these were noted in only 0.023 percent of the cases reported in 1991. Of a total of 112,564 patients reporting adverse reactions to poison control centers from plants, four died. In six years (1987-1993) there were 11 deaths associated with plants, out of 699,232 recorded calls to the poison control centers—a percentage of 0.00157 percent! Accordingly, it is apparent that deaths associated with the ingestion of plants—all kinds of plants from toxic houseplants to dietary supplements—are exceedingly small, at least according to the data reported to the AAPCC. Other interesting statistics from the U.S., France, and the U.K. are also included. The conclusion drawn from the epidemiological data suggest the following: Plant poisonings are not rare; they usually affect very young children; they are generally without serious medical consequences; the potential medical consequences are usually digestive disorders in about half of the cases; fatal outcomes occur in only very few cases. (The author notes that of the 598 deaths by total cases of poisoning in children under the age of 10 reported over a 20 year period in Great Britain, only two of these poisonings were associated with plants.) The relative harmlessness of toxic plants as presumed by the epidemiological data is due to the fact that usually only relatively small quantities were ingested in the various incidents. Had larger quantities been consumed, the consequences would have been more serious.

Bruneton devotes several pages to "Risks Associated with Herbal Medicine and Traditional Medicines," including a section of side effects of medicinal plants and the difficulty in assessing such side effects. He asks the following question, which is more than rhetorical: "Is there a particular risk to the increasing popularity of herbal remedies?" Answer: Compared to the scope of the phenomena, the risk associated with the use of plants and plant-based products appears to be very low. Assessing this danger is difficult and cannot be done in a global fashion. However, European phytomedicines are given a relatively clean bill of health: "The nature of the risk is not the same with extract-based pharmaceuticals that have undergone clinical trials and safety testing ... and with phytomedicines. The risks differ for whole plants and extracts and depend [on] the route and form of administration."

This book is an important and necessary addition to the library of every herb company, poison control center, plant nursery, and anyone else interested in the issue of the potential toxicity of various ornamental and/or medicinal plants. — *Mark Blumenthal* ❑

MEDICINAL HERBS IN MEDIEVAL AZERBAIJAN

I read with great interest a few issues of your journal which I am sure is a terrific source of information on phytomedicine. Since 1987, I have been engaged in the work of identifying and analyzing the medicines described in medieval Azerbaijan manuscripts on medicine and pharmacology dating back to the 9th – 18th centuries AD. As a result of this work, 724 species of medicinal plants used in Azerbaijan during the Middle Ages have been identified. Data from the medieval manuscripts about medicinal properties of the plant species have been studied.[1,2,3] It has been established that these plants were used to treat numerous diseases including: infectious diseases of external tissues (150 species); urinary diseases (92); diseases of liver and biliary tract (73); pneumonia and pleurisy (71); cardiovascular diseases (63), etc.

The results of comparative analyses indicate that out of 724 species identified, 256 (60.7 percent) are no longer used in modern phytotherapy. I believe that these "forgotten" medicinal plants may be broadly applied in modern medicine once they have been clinically and experimentally tested.

Dr. Farid U. Alakbarov
Biomedical Historian
Institute of Manuscripts of the Academy of Sciences of the Azerbaijan.
370001, Baku - Azerbaijan.

1. Alekperov FU. Antixenobiotics in Traditional Phytotherapy of Medieval Azerbaijan. *ISSX Proceedings*. 1992, vol. 1, p. 72.
2. Alakbarov F. Written Sources of the 10-18th Century About Health Protection in the Medieval Azerbaijan. *Thesis Submitted for the Doctor's Degree in History*. Baku, 1998.
3. Williams D. When Nature Was the Rx. *The Washington Post.* Nov. 16, 1998:19A.

PHYTOMEDICINES AND SCIENTIFIC CREDIBILITY

Your recent research review on the study of hypericin in AIDS patients (*HerbalGram* #47), in which the compound showed no apparent benefits, highlights a number of issues in connection with phytomedicines. The disappointing results should come as no surprise to those who have advocated the administration of crude formulations rather than purified ingredients.

Hypericin is not the same as a Hypericum extract. In fact as I understand, AIDS patients who wish to try these products use crude extracts—not pure hypericin!

Unfortunately the medical profession cannot come to grips with the thought of using crude extracts, because to them hypericin is equivalent to a "drug", with which they can feel comfortable. The fact that this "drug" did not appear to work, at least in the short term, is sufficient cause for dismissal of Hypericum-associated products.

Another problem is the traditional tendency of phytochemists to equate bio-activity of an extract to the dominant species of chemical isolated. For years it was assumed that hypericum bioactivities were due to hypericin. We now know better, for even though hypericin itself has been shown in recent years to possess multiple biological activities in laboratory experiments, it is also clear that other bioactive ingredients are present too. To quote a personal example: in my laboratory, we have demonstrated that hypericin has light-dependent direct antiviral activity (including anti-HIV properties); however crude extracts of Hypericum contain both light-dependent and light-independent antiviral activities. Thus more than one compound is implicated.

The issues raised here, and in articles published in *HerbalGram* recently, indicate that we are a long way from establishing scientific credibility for herbal products; but until we do so the medical profession will continue to dismiss these products and their claims of efficacy. The problem is also compounded by our inability to acquire reasonable funding for appropriate scientific studies.

Jim Hudson, Professor
University of British Columbia

St. John's wort, *Hypericum perforatum.*
Photo © 2000 Steven Foster.

Dear Reader
continued from page 5

considered for OTC drug claims here in the US. This is based in part on a petition filed by the European-American Phytomedicines Coalition in 1992! But, in the words of an industry veteran, this action is probably "Too little, too late!" Now that FDA may be opening the door a bit for potential OTC drug status for a few select herbs, there is little incentive for herb manufacturers to try this route, especially since a limited range of OTC claims have been opened now to herbs sold as DS.

In a guest editorial veteran pharmacognosist Albert Leung weighs in on problems with reports on herbal research in medical journals. Also, pharmacist and oriental medicine expert John Chen demystifies the issue of kidney toxicity associated with a Chinese herbal formula containing aristolochea.

On the conservation side, our cover story shows the immeasurable beauty of the temperate rainforest of the Stoltmann Wilderness in the Pacific Northwest in Canada and the clearcutting that is destroying vast tracts of this wilderness. While many folks here in the U.S. decry the destruction of tropical rainforests, they may be unaware of the destruction of ancient, pristine biodiverse rainforests in our own back yard.

Also, a note about what's not in this issue: After providing a Market Report column for 46 issues of *HerbalGram*, this issue will be Landesless. Our veteran herb-spice guy Peter Landes's column is missing, due to Peter's having to take time to count burlap bags of burdock in his bulging warehouse. He'll be back next issue. ❑

Mark Blumenthal

ACCESS

In this department of *HerbalGram*, we list resources such as publications, organizations, seminars, and networking for our readers. A listing in this section does not constitute any endorsement or approval by *HerbalGram*, ABC, HRF, or the HRF Professional Advisory Board.

Comprehensive Training Program for Health Professionals, Special Training Course in Maharishi Vedic Medicine, with specific focus on Chronic Disorders, Part I and Part II. 3-day weekend format in six U.S. locations: Albuquerque, Atlanta, Boston, Chicago, Palo Alto, and Dallas. Dates vary from Feb thru May. Sponsored by Maharashi College of Vedic Medicine, Albuquerque, NM. Contact: Office of Graduate Medical Education at 888/349-8192. Fax 505/830-0538. Email <Srothmd@aol.com>. Website <www.maharishivedicmedicine.org>.

European Phytojournal, official newsletter of European Scientific Co-operative on Phytotherapy (ESCOP), available free on-line. Website hosted by PhytoNet, information resource for development, manufacture, regulation and surveillance of phytomedicines and herbals. From the Centre for Complementary Studies, University of Exeter. Website <www.ex.ac.uk/phytonet>.

Journal of Cannabis Therapeutics: Studies in Endogenous, Herbal, and Synthetic Cannabinoids, new quarterly journal. Editor, Ethan B. Russo, M.D. Current information on use of cannabis in treatments for neurological and other diseases, as well as latest research on endogenous and synthetic cannabinoids. Covering history of cannabis; its clinical application and components, and biochemical and pharmacological functions of cannabinoids. Available Spring 2000. Haworth Herbal Press, 10 Alice St., Binghamton, NY 13904-1580. Ph: 800/429-6784. Fax: 800/895-0582. Email <getinfo@haworthpressinc.com>. Website <www.haworthpressinc.com>.

Journal of Herbal Pharmacotherapy: Innovations in Clinical and Applied Evidence-Based Herbal Medicinals, new journal announcement. Editor, Lucinda Miller, PharmD. Offering peer-reviewed, scientifically based articles and original research. Available spring 2000. Haworth Herbal Press, 10 Alice St., Binghamton, NY 13904-1580. Ph: 800/429-6784. Fax: 800/895-0582. Email <getinfo@haworthpressinc.com>. Website <www.haworthpressinc.com>.

Middle Eastern School of Herbal Medicine, new school offering comprehensive training program in clinical herbalism. Classes meet 3 days/week, Sept 2000-Jun 2001. Semester 1: Materia Medica, Therapeutics, Anatomy and Physiology, Field Botany. Semester 2: Botanical Pharmacy, Clinical Diagnosis, Integral Formulation, History of (Herbal) Medicine. Taught by Western and Middle Eastern trained practicing Herbalists. Director: Barry Shapiro. Clinical Herbalist. Moshav Aviezer #7., D.N. 99860, Israel. Ph: 2 9997219. Email <bshapiro@netvision.net.il>.

National Center for Complementary and Alternative Medicine (NCCAM) Clearinghouse, developing and disseminating fact sheets, information packages, and publications to enhance public understanding about complementary and alternative medicine research supported by the National Institutes of Health (NIH). Publications currently available include a St. John's wort monograph, and *Complementary and Alternative Medicine at the NIH*, the NCCAM's quarterly newsletter. Information is currently free. Responds to inquiries for information by phone, fax, or mail. Ph: 888/644-6226. Fax: 301/495-4957. NCCAM Clearinghouse, P.O. Box 8218, Silver Spring, MD 20907-8218. Website <nccam.nih.gov/nccam/clearinghouse>.

Society of Ethnobiology, join or renew in 2000! Non-profit professional organization dedicated to the interdisciplinary study of the relationships of plants and animals with human cultures worldwide. Topics include paleoethnobotany, zooarchaeology, ethnobotany, ethnozoology, and other related areas in anthropology and biology. Hosts an annual conference; publishes *Journal of Ethnobiology*, semi-annually. Contact Virginia Popper, Society of Ethnobiology, Institute of Archaeology, Box 951510 Fowler A-210, UCLA, Los Angeles, CA 90095-1510. Ph: 310/206-7755. Fax: 310/216-4723. Email <vpopper@ucla.edu>. Website <www.ethnobiology.org>.

Society for Economic Botany, join or renew your membership online! Dedicated to scientific research, education, and related activities on the past, present, and future uses of plants, and relationship between plants and people. Publishes *Economic Botany*, a quarterly journal; hosts annual meeting. Contact: Economic Botany Business Office, P.O. Box 368, Lawrence, KS 66044. Website <www.econbot.org>.

Tibetan Plateau Project, a project of Earth Island Institute, promoting conservation of biodiversity and sustainable mountain communities in the Tibetan Plateau region through research, grassroots organizing, and public education. Programs include Endangered Species Protection and Medicinal Plant Conservation. TPP sponsors a newsletter on medicinal plant conservation and practice of Tibetan medicine, and Internet email discussion list. Contact TPP, 300 Broadway, Suite 28, San Francisco, CA 94133. Ph: 415/788-3666, ext.132. Fax: 415/788-7324. Email <tppei@earthisland.org>. Website <www.earthisland.org/tpp>.

Warning Letter Bulletin, the Inside Alert to FDA Enforcement Activities, Inspections and Compliance Programs. Enforcement trends and who's in trouble with the FDA. 24 biweekly issues per year. Washington Information Source Co., 6506 Old Stage Rd., Suite 100, Rockville, MD 20852. Ph: 301/770-5553 or 800/776-5105. Fax: 301/468-0475. Email <service@FDAINFO.com>.

CALENDAR

March 17-18: 5th Annual Herbal Forum at Round Top, A Celebration of Herbs!, Round Top, TX. Workshops, lectures, demonstrations, and more. Contact International Festival-Institute, Attn: Gwen Barclay, P.O. Box 89, Round Top, TX 78954-0089. Ph: 409/249-5283. Fax: 409/249-3828. Email <hill.barclay@juno.com>.

March 17-19: Ayahuasca: Amazonian Shamanism, Science, and Spirituality, San Francisco, CA. First conference devoted solely to ayahuasca, the visionary plant brew used by shamans in South America for healing and divination. Sponsored by the California Institute of Integral Studies. Contact Kathy Gower at CIIS, Ayahuasca Conference, 1453 Mission St., San Francisco, CA 94103. Ph: 415/575-6290. Fax: 415/575-1264. Email <kathyg@ciis.edu>. Website <www.ciis.edu/whatshot/ayahuasca.html>.

March 24-26: Herbal and Nutritional Supplements Used by Patients in Health Care, University of North Carolina, Chapel Hill. A review of the evidence, biological, and clinical effects. Contact Jane Radford, Continuing Medical Education. Ph: 919/962-7399. Email <jane_radford@med.unc.edu>.

March 27-28: 4th Annual Nutrimarket 2000, San Francisco, CA. Strategies for promoting nutraceuticals while meeting regulatory requirements. Featuring updates on FDA/FTC regulatory hurdles, consumer trend research, clinical trials, labeling and advertising, e-commerce, and structure/function claims. Presented by Institute for International Research, Nutraceuticals Division. Ph: 800/670-8200 or 914/951-7885. Fax: 941/365-2507.

March 29-April 1: Ethnobiology 2000, 23rd Annual Conference of the Society of Ethnobiology, Ann Arbor, MI. Contact: Dr. Richard Ford, Conference Organizer, Museum of Anthropology, 4009 Ruthven Museums Bldg., University of Michigan, Ann Arbor, MI 48109-1079. Ph: 734/936-2952. Fax: 734/763-7783. Email <riford@umich.edu>. Website <www-personal.umich.edu/~patrickl/ethnobot/frames.html>.

March 31-April 1: 2nd Annual Nutraceuticals and Medicine Conference, San Diego, CA. Sponsored by American Nutraceutical Association. Multi-disciplinary program for health care professionals. Develop competency in using nutraceuticals in practice. Awards 8 category 1 CME credits to physicians, and 8 contact hours CE to nurses, pharmacists, and dentists. Contact ANA, 22 Inverness Center Parkway, Suite 150, Birmingham, AL 35242. Ph: 800/566-3622 or 205/980-5710. Fax: 205/991-9302. Website <www.americanutra.com>.

April 1: Conservation and Cultivation of Native Medicinal Plants, Applegate Valley, Oregon. Workshops, herb walks, demonstrations and more, at the Herb Pharm Farm, a working organic herb farm, herbal education center, and native medicinal plant sanctuary in southern

Oregon. Presenters include Rosemary Gladstar, Christopher Hobbs, Richo Cech, Cascade Anderson-Geller, Ed Smith, Kathi Keville, Michael McGuffin, and more. Contact United Plant Savers, P.O. Box 98, East Barre, VT 05649. Ph: 802/479-9825. Email <nancy@plantsavers.org>. Website <www.plantsavers.org/confer.html>.

April 2-5: Natural Products from the Plants and Marine Organisms of the Mediterranean and Atlantic Seaboard: Isolation, Synthesis, and Industrial Applications, Lisbon, Portugal. Sponsored by Phytochemical Society of Europe. Presenting latest knowledge about natural products, their separation, characterization, synthesis, production, and technological applications. Contact PSE Meeting Secretariat, Maria Leonor Rodrigues, Edificio C1 - 5° Piso, Campo Grande, 1749-016 Lisboa, Portugal. Fax: 351 1 7500088. Email <PSE-Lisbon2000@fc.ul.pt>. Website <www.fc.ul.pt/PSE-Lisbon2000>.

April 4-6: Agribusiness in Sustainable Natural African Plant Products Roundtable, Cape Town, South Africa. Sponsored by U.S. Agency for International Development (USAID) and U.S. Department of Agriculture (USDA), and hosted by Herb Research Foundation and South Africa's Agricultural Research Council. Provides a forum of information exchange for African natural products producers and international herb buyers. Contact Margaret Blank, Herb Research Foundation. Ph: 303/449-2265. Fax: 303/449-7849. Email <mblank@herbs.org>.

April 8-9: Southwest Conference on Botanical Medicine, Tempe, AZ. Naturopathic physicians and herbalists present botanical treatment for chronic disease. Panel discussion: Botanical Protocols for Hepatitis C. Includes herb walks at renowned Desert Botanical Garden. Sponsored by the Southwest College of Naturopathic Medicine. CE credits for nurses, pharmacists, and acupuncturists. Contact Herbal Educational Services, P.O. Box 3427, Ashland, OR 97520. Ph: 800/252-0688 or 541/482-3016.

April 25-29: Fifth Annual Alternative Therapies Symposium and Exposition: Taking Your Practice to the Next Level, Kohala Coast, Hawaii. Presented by *Alternative Therapies in Health and Medicine*. Exploring alternative and complementary healing therapies and their integration into conventional care. Plenary speakers include Larry Dossey, Kenneth Pelletier, Jeremy Geffen, and traditional Hawaiian medicine healer Papa Henry Auwae. Contact *Alternative Therapies* Symposium Registration, InnoVision Communications, 101 Columbia, Aliso Viejo, CA 92656-1491. Ph: 800/899-0573. Fax: 949/362-2022. Website <www.alternative-therapies.com/at2k>.

May 2-17: Crete 2000, with Robinette Kennedy and Patricia Kyritsi Howell. Learn about unique flowers, trees, and shrubs that have been part of healing practices throughout the Mediterranean for millennia. Contact Tranceplants International Seminars, 931 Monroe Drive, Suite 102, PMB 343, Atlanta, GA 30308. Ph: 404/607-8222 or 888/881-2657. Email <LWHERBS@earthlink.net>.

May 5: Drug Discovery and Therapies from Natural Products, Stirling University Management Centre, near Glasgow, Scotland. Contact Institute of Nanotechnology, 9, The Alpha Centre, Stirling University, Innovation Park, Stirling FK9 4NF. Ph: 44 1786 447520. Fax: 44 1786 447530. Email <julie@nano.org.uk>. Website <www.nano.org.uk/natural.htm>.

May 7-10: Progress in Phytochemistry: A Young Scientist's Symposium, Rolduc, The Netherlands. Sponsored by Phytochemical Society of Europe. Contact: Professor Dr. R. Verpoorte, Division of Pharmacognosy, Leiden/Amsterdam Centre for Drug Research, P.O. Box 9502, 2300 RA Leiden, The Netherlands. Ph: 31 71 5274528. Fax: 31 71 5274511. Email <FCOGSYMP@LACDR.LeidenUniv.NL>. Website <www.fortunecity.com/meltingpot/rundberg/547/rolduc/homepage.html>.

May 11-13: 4th European Colloquium on Ethnopharmacology, Metz, France. Sponsored by European Society of Ethnopharmacology. Contact: Organizing Secrétariat, Société Française d'Ethnopharmacologie, 1, rue des Récollets, F-57000 Metz, France. Ph/Fax: 33 3 87 74 88 89. Email <sfe-see@wanadoo.fr>.

May 15-19: Herbal Seminar Series, Toronto, Ontario, Canada. Presented by Dominion Herbal College, in conjunction with the Canadian College of Naturopathic Medicine. Topics include ethnobotanical identification, harvesting, making herbal medicine, clinical case studies, and new research. Special presentation by Mark Blumenthal. Contact Dominion Herbal College, 7527 Kingsway, Burnaby, BC Canada, V3N 3C1. Ph: 604/521-5822. Fax: 604/526-1561. Email <herbal@uniserve.com>. Website <www.dominionherbal.com>.

May 16-19: Medicinal Plants, Traditional Medicines, and Local Communities in Africa: Challenges and Opportunities of the Next Millenium, Nairobi, Kenya. Contact Ernest Rukangira, NGO Working Group on Indigenous Knowledge and Biodiversity Medicinal Plants and Local Communities Programme, E.L.C.I., P.O. Box 72461, Nairobi, Kenya. Ph: 576114/25. Fax: (2542)562175. Email <erukangira@iconnect.co.ke>.

May 19-31, Healthy Healing Herbal Tour, China. Led by Linda Page, N.D., Ph.D. Visit 4 of China's most historic sites; Beijing, Xi'an, Shanghai, and Suzhou. Focus on herbal formulations, healing, and Traditional Chinese Medicine (TCM). Contact Regent China Tours. Ph: 888/515-1885. Email <Dr.Page@regenttour.com>. Website <regenttour.com/tours/lindapage.htm>.

May 22-26: Fifth Annual Course: Botanical Medicine in Modern Clinical Practice, Columbia University, Rosenthal Center for Complementary and Alternative Medicine, New York, NY. For physicians, pharmacists, nurses, and other health professionals. Contact Center for Continuing Education, Columbia University College of Physicians and Surgeons, 630 West 168th Street, Unit 39, New York, NY 10032. Ph: 212/781-5990. Fax: 212/781-6047. Email <cme@columbia.edu>. Website <cpmcnet.columbia.edu/dept/cme>.

May 27-29: Herbs for Health and Longevity: Pacific NW Herbal Symposium 2000, Wilsonville, OR. Topics include maintaining health, herb-drug interactions, history of echinacea, gardening medicinal herbs, herbs used in lymphoma, prostate cancer and malignant melanoma, cardiovascular system, menopause and Alzheimers, and herbal tonics. Sponsored by Wise Women Herbals, P.O. Box 279, Creswell, OR 97426. Ph: 800/476-6518 or 541/895-5152. Fax: 541/895-5174.

May 31-June 3: Integration and Holistic Medicine: Health Care in the Third Millennium, American Holistic Medical Association 23rd Annual Conference, Tucson, AZ. Topics include current state of complementary/holistic medicine in the U.S., the trend toward integration, clinical practice and research, adverse effects, safety and efficacy of complementary/holistic medical care, principals and application of common modalities, and more. CME Credits available. Contact AHMA at 703/556-9245. Website <www.holisticmedicine.org/conference.html>.

June 2-4: Ethnobotany and the Search for New Psychotherapeutic Medicines, UpS Botanical Sanctuary, Rutland, Ohio. Featuring Dennis McKenna, Ph.D., author and scientific consultant. Overview of contributions from fields of ethnobotany and ethnopharmacology to Western medicine. Focus on psychoactive plants having long tradition of use in ceremonial practices of traditional cultures, potential leads to new psychotherapeutic agents. CEU credit available for physicians, pharmacists, and other health professionals. Contact United Plant Savers, P.O. Box 98, East Barre, VT 05649. Ph: 802/479-9825. Email <nancy@plantsavers.org>. Website <www.plantsavers.org/confer.html>.

June 3-5: Medicines from the Earth, Rediscovering the Roots of Herbalism, Black Mountain, NC. Presentations by leading herbalists and naturopathic physicians on roots of herbalism in Ayurvedic, Traditional Chinese, Cherokee, Eclectic, and other traditions. Herbalist training track, herb walks and concert by R. Carlos Nakai, acclaimed Native American flutist. CE credits for pharmacists and nurses. Contact Herbal Educational Services, P.O. Box 3427, Ashland, OR 97520. Ph: 800/252-0688 or 541/482-3016.

June 9-11: Exploring the Plant-Human Relationship, UpS Botanical Sanctuary, Rutland, Ohio. Featuring Steven Foster, renowned author, photographer, and consultant specializing in medicinal and aromatic plants. Learn to identify plants at various stages of growth and harvest, and how to use them on a sustainable basis, with the 378-acre Sanctuary as a classroom. CEU credits for physicians, pharmacists, and other health professionals. Contact United Plant Savers, P.O. Box 98, East Barre, VT 05649. Ph: 802/479-9825. Email <nancy@plantsavers.org>. Website <www.plantsavers.org/confer.html>.

June 9-12: Comprehensive Cancer Care 2000, Integrating Complementary and Alternative Therapies, Arlington, VA. Pre-conference workshops on June 7-8. Experts from conventional, integrative, and alternative settings discuss best CAM approaches to cancer treatment; latest findings in treatment and research for patients with cancer and their families; information about current opportunities and methodologies for CAM research; and more. Jointly sponsored by National Cancer

Institute and The National Center for Complementary and Alternative Medicine. Contact Center for Mind-Body Medicine, Conference Registration, 19528 Amaranth Drive, Germantown, MD 20874. Ph: 301/353-1807. Fax: 301/353-1808. Website <www.cmbm.org>.

June 16-18: Third Annual Montana Herb Gathering, Flathead Lake, Rollins, Montana. Topic is Herbal Tales: History, Science, and Folklore. Contact SueWall-MacLane, 1276 Summerdale Rd., Corvallis, MT 59828. Ph: 406/961-3913. Email <kerryman@uswest.net>.

June 19-30: International Training Program in New Crops: Aromatic and Medicinal Plants, Purdue University, West Lafayette, Indiana. Focusing on germplasm collection and preservation, crop production, natural product extraction, processing, quality control, new product development, and marketing. Sponsored by the Center for New Crops and Plant Products, Purdue University, the Program for Collaborative Research in the Pharmaceutical Sciences, College of Pharmacy, University of Illinois, and the Herb Research Foundation, Boulder, Colorado. Contact Conference Division Business Office, Purdue University, 1586 Stewart Center, Room 110, West Lafayette, IN 47907-1586. Ph: 765/494-7220 or 800/359-2968. Fax: 765/494-0567.

June 21-23: Society for Economic Botany 2000 Annual Meeting, Columbia, SC. The 2000 meetings propose to emphasize the future of Economic Botany by targeting students. Contact: Gail Wagner, Dept. of Anthropology, Univ. of S. Carolina, Columbia, SC 29208. Ph: 803/777-6548. Fax: 803/777-0259. Email <gail.wagner@sc.edu>. Website <www.econbot.org>.

June 23-25: 5th International Herb Symposium on Modern and Traditional Uses of Herbal Medicine, Wheaton College, near Boston, MA. Includes over 60 workshops, wild-plant identification walks, edible and medicinal uses of plants, hands-on demonstrations, and herb marketplace. Teachers include David Hoffmann, Christopher Hobbs, Linda Page, Rosemary Gladstar, Ed Smith, Rosita Arvigo, and more. Contact International Herb Symposium, P.O. Box 420, E. Barre, VT 05649. Ph: 802/479-9825. Fax: 802/476-3722.

June 30-July 13: Pharmacy on Safari: South Africa International Health Issues Safari for Healthcare Professionals—International Accredited Field Workshop. Topics include ethnobotany and traditional plant medicines of Africa, prospecting for pharmaceutical medicines in native cultures, importance of accurate botanical identification for effective use as medication, and more. Lectures, visits to both allopathic and non-western venues, field excursions to herb markets, arboretums, and field specimen discovery walks. Sponsors include ABC, Texas Pharmacy Foundation, and International Expeditions. Pharmacists and physicians can earn continuing education credits. Contact Gayle Engels, American Botanical Council. Ph: 512/926-4900, ext. 114. Fax: 512/926-2345. Email <gengels@herbalgram.org>. Website <www.herbalgram.org>.

July 15-17: International Academic Conference on Tibetan Medicine 2000, Llasa, Tibet. Discuss and exchange views on theory, clinical practices, and academic development of Tibetan medicine. Contact: China Medical Association of Minorities, No. 11, Bei San Huan Dong Lu, Chaoyang District, Beijing, 100029, China. Ph: 86 10 64220890. Fax 86 10 64287404. Email <cinmbucm@bj.col.com.cn>.

July 17-19: Nutracon 2000, 7th Annual Conference and Exhibition on Nutraceuticals, Dietary Supplements, and Functional and Medical Foods, Las Vegas, NV. Over 100 speakers. Contact Conference Administrator, Global Business Research, Ltd., 190 Stamford Avenue, Stamford, CT 06902. Ph: 800/868-7188 or 203/325-8094. Fax: 203/323-7825. Website <www.globalbusinessresearch.com>.

July 17-21: 29th International Herbal Summer Seminar, University of British Columbia Botanical Garden, Vancouver, Canada. Topics include ethnobotanical identification, harvesting, making herbal medicine, clinical case studies, new research, and more. Contact Dominion Herbal College, 7527 Kingsway, Burnaby, BC Canada, V3N 3C1. Ph: 604/521-5822. Fax: 604/526-1561. Email <herbal@uniserve.com>. Website <www.dominionherbal.com>.

July 18-23: Herbs 2000-Saskatoon, Canada, joint conference of the International Herb Association and the Canadian Herb Society. International Herb Conference on July 18-22, and Herbfest 2000 on July 22-23. Celebrating past, present, and future of herb industry. Contact IHA, 910 Charles St., Fredericksburg, VA 22401. Ph: 540/368-0590. Fax: 540/370-0015. Email <members@iherb.org>. Website <www.iherb.org/h2k.html>.

July 22-26: ASP 2000: Exploring and Engineering Natural Products Diversity; 41st Annual Meeting of the American Society of Pharmacognosy, Seattle, WA. Details to be announced. Website <www.phcog.org>.

August 3-6: 17th Annual Breitenbush Hot Springs Herbal Conference, Detroit, OR. Over 40 workshops, discussions, demonstrations, and herb walks. Topics span wordwide healing traditions; classes designed for all levels of students. Located in the Cascade Mountains of Oregon, 2 hours southeast of Portland. Contact Autumn Summers, P.O. Box 2131, Sebastopol, CA 95473. Ph./Fax: 707/829-9829. Email <autumnsu@aol.com>.

August 18-20: Frontier Herbfest 2000, Celebrating the Herbal Spirit, Norway, Iowa. Medicinal herbal workshop and celebration for whole family. Explore herbal healing with expert herbalists and speakers, including Rosemary Gladstar, David Winston, Susun Weed, Mindy Green, Christopher Hobbs, Terry Willard, and more. Located at Frontier's 60-acre Organic Farm in Iowa. Contact Frontier Natural Products Coop, 2990 Wilderness Place, Suite 200, Boulder, CO 80301. Ph: 303/449-8137 or 800/669-3275. Fax: 303/449-8139. Website <www.frontiercoop.com>.

September 3-7: Natural Products Research in the New Millennium, International Congress and 48th Annual Meeting of the Society for Medicinal Plant Research (GA), Zurich, Switzerland. Topics include perspectives in natural products chemistry in the year 2000, quality, efficacy and safety of phytomedicines, biodiversity and ethnopharmacology, and more. Contact: ISE-Congress 2000, Swiss Federal Institute of Technology (ETH) Zurich, Dept. of Pharmacy, Winterthurerstrasse 190, CH-8057 Zurich, Switzerland. Ph: 41 635 60 51. Fax: 41 635 68 82. Email <pharmacognosy@pharma.ethz.ch>. Website <www.pharma.ethz.ch/pharmacognosy>.

September 4-7: Ethnopharmacology 2000: Challenges for the New Millennium, 6th International Congress of the International Society for Ethnopharmacology (ISE), Zurich, Switzerland. Topics include targeted drug screening approaches, ethnopharmacology and primary health care, and role of anthropology and the social sciences in ethnopharmacology. Contact ISE-Congress 2000, Swiss Federal Institute of Technology (ETH) Zurich, Dept. of Pharmacy, Winterthurerstrasse 190, CH-8057 Zurich, Switzerland. Ph: 41 635 60 51. Fax: 41 635 68 82. Email <pharmacognosy@pharma.ethz.ch>. Website <www.pharma.ethz.ch/pharmacognosy>.

September 8-10: Green Nations Gathering, Catskill Mountains, New York. Weekend includes herbal emporium, sweat lodges, and workshops by leading herbalists, including Rosita Arvigo, Ryan Drum, Eliot Cowan, Susun Weed, David Winston, and Christopher Hobbs. Learn, network, and honor the earth. Contact: Pam Montgomery, 1525 Danby Mountain Rd., Danby, VT 05739. Ph: 802/293-5996. Email <greenpam@aol.com>.

September 13-17: International Conference and Exhibition on Nutraceuticals and Functional Foods, Houston, TX. Major topics include herbal products, plant-based nutraceuticals, phytosterols, lignins, lycopenes and anthocyanins, U.S. and international regulations, product development, product safety and marketing, and health effects and medical implications of nutraceuticals. Contact Conference Registration, P.O. Box 10506, College Station, TX 77842. Ph: 409/690-7309. Fax: 409/690-7309. Email <nutra@worldnutra.com>. Website: <www.worldnutra.com>.

September 15-17: Oriental Medicine 2000: Integrity and Integration, Providence, Rhode Island. Teaching, demonstrations and panel discussions, including a special Saturday track "The Future of Oriental Medicine." Contact Four Gates Communications, 745 Falmouth Road, Mashpee, MA 02649. Ph: 888/798-0630.

September 29-October 1: A Review of the Most Researched Herbal Products: Identifying European Brands Cited in Scientific Literature and Their Names in the U.S. Market, UpS Botanical Sanctuary, Rutland, OH. Featuring Mark Blumenthal, Founder and Executive Director of the American Botanical Council, and Editor/Publisher of *HerbalGram*. Workshop will review clinical studies on specific brands of herbs, and discuss to what extent research incentives exist to stimulate herbal manufacturers to conduct more clinical research. Contact United Plant Savers, P.O. Box 98, East Barre, VT 05649. Ph: 802/479-9825. Email <nancy@plantsavers.org>. Website <www.plantsavers.org/confer.html>.

October 11-13: Third International Congress on Phytomedicine, Munich, Germany. Organized by Society of Phytotherapy (GPT), Society for Medicinal Plant Research (GA), and European Scientific Cooperative on Phytotherapy (ESCOP). Topics include phytopharmacological and phytochemical research, use of herbal medicine products in clinic and practice, and search for new bioactive natural products and their chemistry. Contact K.I.T. München GmbH, Kongress- und Incentive-Organisation, Geibelstrasse 6, D - 81377 München, Germany. Ph: 49 89 4707 7250. Fax: 49 89 4707 7252. Email <K.I.T.-Muenchen@t-online.de>. Website <www.kit.de>.

October 24-29: Shamanism 2000, 14th International Conference of the Society for Ethnomedicine (AGEM), Munich, Germany. For information contact the Arbeitsgemeinschaft Ethnomedizin, Melusinenstrasse 2, D-81671, Munich, Germany. Fax: 49 89 49 38 31. Email <100042.1504@compuserve.com>. Website <http://www.med.uni-muenchen.de/medpsy/ethno/homepage-engl.html>.

October 28-Nov 5: 7th Annual Peruvian Amazon Pharmacy from the Rainforest Workshop. Expedition includes CE-accredited workshops and field excursions by prominent experts in fields of phytomedicine, pharmacognosy, ethnobotanical and ethnobiomedicinal research, including Dr. James Duke and others. Explore 1/4-mile Canopy Walkway over 115 feet above rainforest floor. Contact Gayle Engels, American Botanical Council. Ph: 512/926-4900, ext. 114. Fax 512/926-2345. Email <gengels@herbalgram.org>. Website <www.herbalgram.org>.

2001

May 28-June 3: Building Bridges with Traditional Knowledge II, Honolulu, Hawaii. An exploration of issues involving indigenous peoples, conservation, development and ethnosciences for the new millennium. Sponsors include University of Hawaii at Manoa, New York Botanical Garden, JuliFlora Foundation, and University of Florida, Gainesville. Contact Building Bridges Conference, University of Hawaii, Honolulu, HI 96822-2279. Fax: 808/956-3923. Email <bbt2@hawaii.edu>.

2003

November: International Ginseng Conference, The Globalisation of Ginseng, Melbourne, Australia. Sponsored by the Australian Ginseng Growers Association, Inc. Contact Conference Secretary, IGC 2003, P.O. Box 250, Gembrook, Victoria 3783, Australia. Ph: 61 3 5968 1877. Fax: 61 3 5968 1322. Email <ginseng@nex.net.au>.

For a complete updated listing of worldwide events, check ABC's website at <www.herbalgram.org/calendar>.

A listing in this classified section does not constitute any endorsement or approval by *HerbalGram*, the American Botanical Council, the Herb Research Foundation, or the HRF Professional Advisory Board. *HerbalGram* Classified ad rates: $1.25 per word; $35 minimum. Contact Debbie Jones, P.O. Box 144345, Austin, TX 78714-4345. 512/926-4900 ext106. Fax 512/926-2345.

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Tieraona Low Dog MD, AHG — Videos on herbal & nutritional treatments. Topics include: menopause; headaches; asthma; ADD & IBD. For a complete listing or additional information call Hound Dog Productions 800/505-4679.

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R J Buckle Associates are pleased to announce their brand new HOME-STUDY COURSE, CERTIFICATION IN CLINICAL AROMA-THERAPHY. This program has been professionally reviewed by a nurse, a physician, a massage therapist and an organic chemist. CE credits for nurses and massage therapists (pharmacy and physician CMEs pending). The course complies with NAHA guidelines. The pack includes 150 pages of research-based REFERENCED information, 6 audio tapes and 15 essential oils - everything you need to begin to use aromatherapy clinically, safely and effectively. Certification is through mail-order test and case-studies. The course is for licensed health professionals only. $500 plus $8.50 postage. For more information please see our website: < www.rjbuckle.com> or send check to Jane Buckle, P.O. Box 868, Hunter, NY 12442.

New Book: *Medicinal Plants of Pacific Northwest: Digest Anthropological Writings About Native American Uses*. $35 200pp. Disk $35. Both $50. Krista Thie, 1549 W. HG Jewett, White Salmon, WA 98672.

CORRESPONDENCE COURSES AND SEMINARS

Aromatherapy Studies Course/Jeanne Rose. Correspondence, certification, in-person intensives. 160 CEU provided, California Board of RN Provider #CEP11659. Info: 219 Carl St., San Francisco, CA 94117 or FAX 415/564-6799.

Institute of Chinese Herbology has been teaching courses in Chinese Herbal Medicine since 1986. Our 130-hour audiotaped program (includes extensive notes and herb samples) is excellent for anyone who wants to gain a working knowledge of Chinese herbs. Free Brochure: Admissions 2HG, 5459 Shafter Ave., Oakland, CA 94618. Phone 510/428-2061, Toll Free 800/736-0182.

The School of Natural Healing was founded in 1953 by Dr. John R. Christopher, M.H., N.D., and continues his legacy of excellent herbal training. The SNH offers Master Herbalist (M.H.) training in 22 course levels. This full spectrum of courses is taught by expert instructors, in the convenience of your own home, on 36 videos, 26 audio-cassettes, and 23 high quality texts. Subjects covered range from herb botany, plant identification, making your own herbal tinctures, preparations and herbal chemistry. For free information, call 800/372-8255 or write to The School of Natural Healing, P.O. Box 412, Springville, UT 84663 or <www.schoolofnaturalhealing.com> or <snh@avpro.com>.

Chinese herbology — health professionals' training since 1987. Academically rigorous curriculum: clinical case emphasis, residential courses, distance learning. Rocky Mountain Herbal Institute, P.O. Box 579, Hot Springs, MT 59845. 406/741-3811. <rmhi@rmhiherbal.org>; <www.rmhiherbal.org>.

Wild Rose College of Natural Healing — established 1975, offering correspondence and part-time classroom courses in Herbology, Pharmacognosy, Nutrition, Vitamins & Minerals, Biology, Physiology, Iridology, and many other fields. Diploma programs for Master Herbalist (2 years) and Wholistic Therapist (3 years). Call or write for a detailed course calendar. #400, 1228 Kensington Rd. NW, Calgary, Alberta, CANADA T2N 4P9. Ph: 888/WLD-ROSE. E-Mail: <coordinators@wrc.net.>

PUBLICATIONS

American Herb Association Quarterly Newsletter — $20/yr. AHA, P.O. Box 1673, Nevada City, CA 95959.

Australian Journal of Medical Herbalism — quarterly publication of the National Herbalists Association of Australia (founded in 1920). Deals with all aspects of Medical Herbalism, including latest medicinal plant research findings. Regular features include Australian medicinal plants, conferences, conference reports, book reviews, rare books, case study and medicinal plant review. Aus/$40 plus Aus/$15 if required by airmail. National Herbalists Association of Australia, Suite 305, 3 Smail St., Broadway, NSW 2007, Australia.

HerbalGram — Quarterly journal published by the American Botanical Council and the Herb Research Foundation. $29/yr, $52/2 yrs, $70 3 yrs. P.O. Box 144345, Austin, TX 78714. 800/373-7105 or fax 512/926-2345. See page 31 in the accompanying Herbal Education Catalog for ordering information. Email <custserv@herbalgram.org>. Website<www.herbalgram.org>.

The Herb Quarterly — When the world wearies and ceases to satisfy, there's always *The Herb Quarterly*, a beautiful magazine dedicated to all things herbal—gardening, medicinal, crafts, folklore, alternative uses of herbs, and more. Rates Sample issue $5; introductory subscription (5 issues) $19.95. P.O. Box 689, San Anselmo, CA 94979. 800/371-HERB.

Join the Aromatherapy Revolution! — a non-profit organization has been established to strengthen, inspire, and advance the field of aromatherapy. Offering the following publications: *Alliance NewsQuarterly*, *Aromatherapy Records*, *The International Journal of Aromatherapy*, and *Discover What's Essential About Essential Oils*. Phone 800/809-9850, Fax 541/994-7588, e-mail <aaoa@wcn.net>.

Medical Herbalism — Subtitled "A Clinical Newsletter for the Herbal Practitioner." Edited by Paul Bergner. $36/yr, $60/2 yrs. Canada $39/yr. Overseas $45/yr. Sample/$6. Medical Herbalism, P. O. Box 20512, Boulder, CO 80308.

Washington Insight — A quarterly newsletter designed to keep natural products scientists abreast of important happenings in Washington, D.C., that may affect them and their institutions. Read interviews with Congressmen, Senators and government officials; reports on key Congressional hearings, FDA, NIH, NIH Offices of Alternative Medicine, Dietary Supplements; "Update on Promising New Compounds" — what's hot from marine organisms, plants, fermentation products. In addition to the newsletter, subscribers receive *Funding Alert*, preadvertised information on funding opportunities. Annual subscription, U.S. personal/$45; institutional/$85. Foreign: personal/$52; institutional/$95. Contact: Washington Insight, 11000 Waycroft Way, North Bethesda, MD 20852. 301/881-6720, Fax: 301/984-7372.

Wildflower — North America's only popular magazine devoted solely to the study, conservation, cultivation and restoration of our continent's native flora. Offering an appealing blend of art and science, this 52-page quarterly examines all aspects of popular botany in North America from the rain forests of Panama to the mosses of the Arctic tundra; from gardening with native trees, shrubs, wildflowers, and ferns to the latest projects in habitat and native plant conservation. The green revolution begins in our own backyard. *Wildflower* is published by the North American Native Plant Society, 90 Wolfrey Avenue, Toronto, Ontario, Canada M4K 1K8. Tel: 416/466-6428. Subscriptions and membership are $35/1 yr., $70/2 yrs. Sample copy $9.

Herbwatch – An impartial review of herbal treatments from papers published in leading medical journals. Dr. Dennis Awang is the scientific advisor. Does not promote or condemn. Published quarterly. Subscription $40 CDN/yr. Please send for complimentary copy. Tel 519/657-1985 Fax 519/455-7151.

SCHOOLS

Academy of Oriental Medicine — Austin. Accredited three-year, 2800-hour Oriental Medicine Program with extensive training in Oriental herbs. AOBTA approved, 600-hour Oriental Bodywork Programs. Postgraduate Program, Teacher Training Program, Medical Qi Gong, Financial Aid. 800/825-9987. <www.aoma.edu>.

The Australasian College of Herbal Studies offers internationally recognized, Distance Learning Diploma & Certificate Programs in Natural Therapy modalities, including Aromatherapy & Herbal Medicine. Oregon State Licensed. Approved to offer CE Credits for Pharmacists, RNs and LMTs. For a FREE Prospectus call 800/487-8839, email <achs@herbed.com>, or visit our secure website <www.herbed.com>.

The Institute of Dynamic Aromatherapy — Correspondence, certification, in-class training programs. Contact: IDA 800/260-7401 or write 2000 2nd Ave., #206, Seattle, WA 98121.

Northeast School of Botanical Medicine — Three programs emphasizing hands-on, community-based, clinical herbalism. A six-month 360+ hour residency program, a one weekend-per-month course and an Advanced Western Clinical Herbalism program. Classes include clinical evaluation, botanical identification, herbal pharmacy, wildcrafting, materia medica, field trips and student clinic. 7Song, P.O. Box 6626, Ithaca, NY 14851. 607/539-7172. <www.7song.com.>

The Rocky Mountain Center for Botanical Studies, comprehensive, balanced herbal curriculum of academic and earth-centered studies. Certificate programs and advanced clinical internship available. Call or write for a free brochure, or send $5 for a complete catalog. P.O. Box 19254, Boulder, CO 80308-2254. Phone 303/442-6861, <rmcbs@indra.com>; <www.herbschool.com>.

July 17-21, 2000 — 29th Annual International Summer Seminar – University of British Columbia Botanical Garden. A five day seminar with topics from Ethnobotanical Identification Herb Walk, Harvesting, Herbal Medicine Making, Clinical Case Studies, New Research and more. For information contact Dominion Herbal College (Est. 1926) - 7527 Kingsway, Burnaby, BC Canada V3N 3C1 Tel: 604/521-5822 Fax: 604/526-1561 Email <herbal@uniserve.com>. Website <www.dominionherbal.com>.

Southwest Institute of Healing Arts offers a unique career oriented 500 Hour Western Herbalism Diploma Program. This vocationally-oriented hands on course is directed by experiential herbalist JoAnn Sanchez. Through traditional arts passed on for centuries, grounded in contemporary scientific foundations, graduates will have the knowledge and experience to become professional herbalists. Intuitive exploration of our relationship to the plant kingdom as well as the clinical applications of true human healing are underlying themes of this study. SWIHA 1402 North Miller Road, Scottsdale, AZ 85257, 888/504-9106 ext. 55, <www.swiha.org>.

Sierra Alta Herb Institute in Santa Fe announces new classes forming: March 13 - July 14 – 530 credit hours. Learn how to identify local plants, understand their medicinal uses, and prepare plants as herbal remedies. Eclectic blend of traditional, alternative, and spiritual healing taught by nurse and ethnobotanist. Payment plans available. Call 505/820-6321 for more information.

Blue Iris School of Herbal Studies – May – October, 400 hour professional training. March - November, 150 hour weekend program. Both programs combine the spiritual and clinical traditions of western herbal medicine. Brochure available. Colette Gardiner, P.O. 10914, Eugene, OR 97440, 541/744-1013, < www.herbalism.net/coletteg>.

New Mexico College of Natural Healing – Massage Therapy and Herbal Medicine Curriculums. Small town, hot springs, wilderness, sunshine. P.O. Box 211, Silver City, NM 88062. 505/538-0050. FREE CATALOG or <www.zianet.com/nmcnh>.

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TRAVEL

Medicinal Plants in Spain – Seminar in Andalucia with Angela Paine PhD, June 24 – July 1 and Sept 2-9, 2000. Identification, preparation, healing properties of local plants, field trips and organic vegetarian cuisine. Tel 0044 1981 240 980. Email: <ampaine@clara.net>.

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Chinese Medicinal Plants compliment any garden, offering over 125 varieties, catalogue $2.00, Plant It Herbs, P.O. Box 851, Athens, Ohio 45701. Call or fax: 740/662-3413. <www.plantitherbs.com>.

Fungi Perfecti offers ready-to-grow mushroom kits, MycoMedicinals®, spawn, books, cultivation, equipment, seminars and more! Free color brochure, 80-page catalog $4.50. Phone: 800/780-9126, Fax: 360/426-9377, Email: <mycomedia@aol.com>, <www.fungi.com>. P.O. Box 7634, Olympia, WA 98507.

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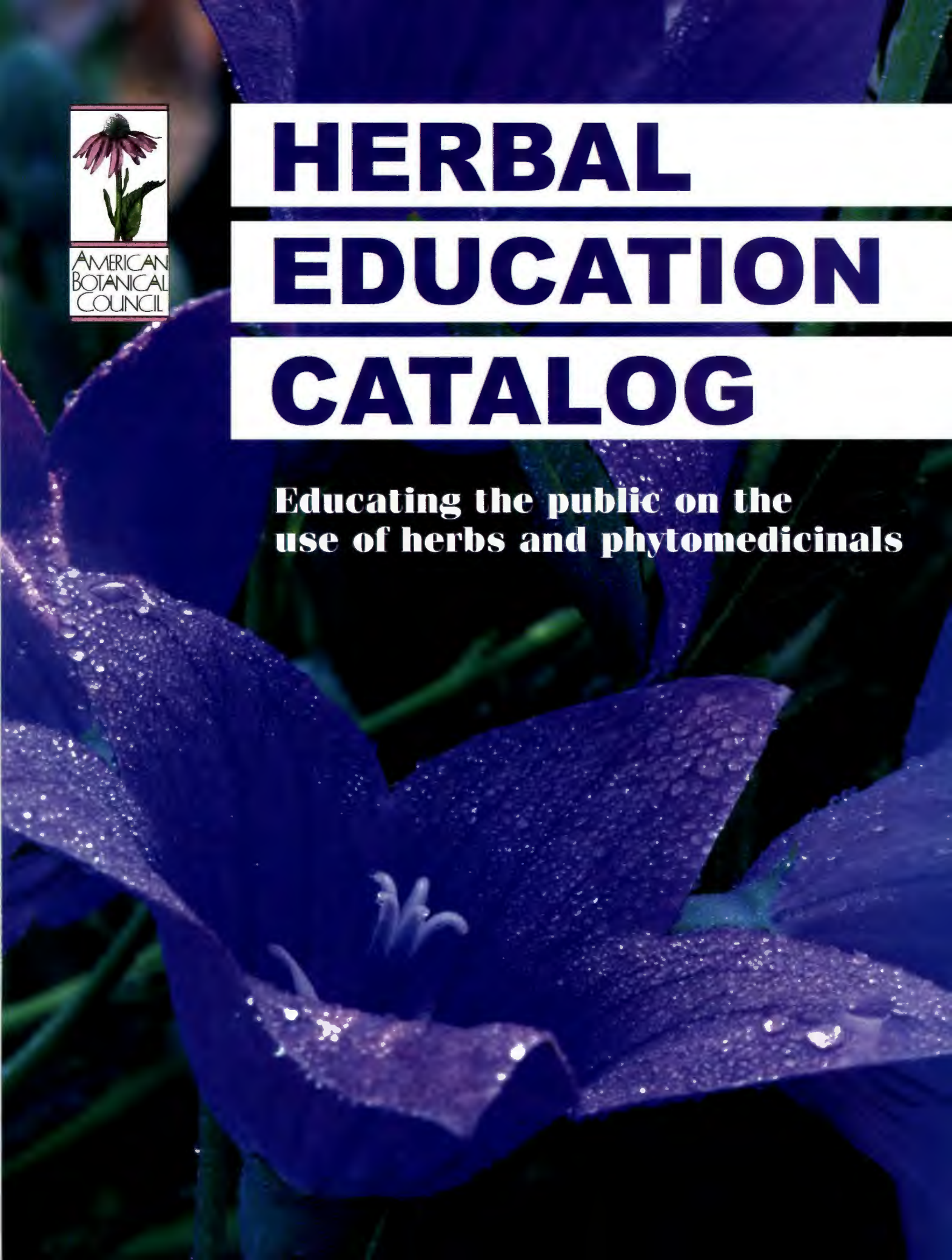


HERBAL EDUCATION CATALOG

Educating the public on the use of herbs and phytomedicinals

Mission Statement

The American Botanical Council is the leading nonprofit educational and research organization disseminating science-based information that promotes the safe and effective use of medicinal plants and phytomedicines.

Dear Reader:

No matter how this catalog reached your hands — whether you requested it directly from us, picked it up at a conference or seminar, or obtained it by some other means — we're pleased that you are taking the time to look at it. We hope that you find some items of interest. Remember that your purchases from this catalog, as well as your charitable contributions, directly support ABC's education and research projects.

As we enter a new decade and our twelfth year as an organization, ABC has taken a look at where we've come from and where we're going, and has made some changes and taken some new directions. Our new mission statement, a result of directional planning sessions held in late 1999, appears at the top of this page. During those planning sessions we also envisioned the future of ABC and produced vision statements as follows:

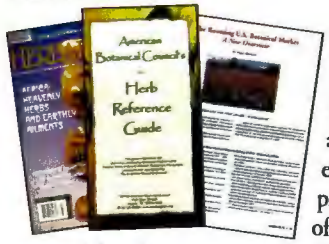
- To create a superior quality herbal education research center
- To provide excellence in herbal education
- To continue as an internationally recognized authority on herbal medicine
- To create and meet demand for herbal information
- To develop new sources of funding and strategic relationships

We remain committed to previous goals through current and ongoing initiatives. These initiatives include:

Health Professional Continuing Education

In keeping with our vision to provide excellence in herbal education, we are developing two new resources, the Saw Palmetto Education Project and *Healthcare Professional's Guide to Commonly Used Herbs.* The Saw Palmetto Education Project will result in the 16th booklet in the Botanical Booklet Series and a literature review. This will provide a solid scientific basis that describes the medicinal benefits of saw palmetto. ABC and the Texas Medical Association are working together to produce the *Healthcare Professional's Guide to Commonly Used Herbs,* an introduction to the clinical evidence that supports the safe and efficacious use of 28 of the most common herbs on the market today. This booklet will be an accredited continuing education module for four major disciplines: medical, nursing, pharmacy, and dietetics. The project will be completed in summer of 2000. We are also developing a comprehensive curriculum to build a superior quality herbal education certification program.

Herb-Ed-Web™



ABC is pleased to announce Herb-Ed-Web™, an extensive program that provides databases and large quantities of herbal medicine educational and research content to health-based and e-commerce Internet web sites. As web sites proliferate, a primary distinguishing feature of the top sites is the quality and scientific nature of the education content available to the user. All of the information provided by ABC through Herb-Ed-Web™ has been peer reviewed and examined for accuracy and validity.

The content is provided directly to licensees so that users will view the content on the licensee site. Four collections make up the basic content package: *HerbalGram* articles and features, Third Party Literature and Continuing Education materials, HerbClip summaries, and an herbal image library. Upgrade options available in interactive HTML format are *The Complete German Commission E Monographs* and *Herbal Medicine: The Expanded Commission E Monographs.*

ABC ON-LINE

Communicate with the American Botanical Council (aka: Herbal Medicine Institute) via the World Wide Web. Ask questions about research projects, send letters to the editor of HerbalGram, get information about ordering any of the products ABC offers in order to fund education and research projects.

HerbalGram subscription, book inquiries, and ordering information:
custserv@herbalgram.org

Pharmacy from the Rainforest or Pharmacy Continuing education:
gengels@herbalgram.org

Case Mill Campaign or support for other projects:
wsilverman@herbalgram.org

Letters or editorial inquiries to HerbalGram
bj@herbalgram.org

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See our whole catalog at World Wide Web domain address:
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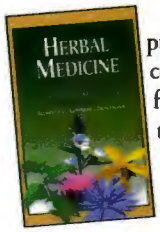
Herbal Medicine: Expanded Commission E Monographs



The Complete German Commission E Monographs was published in 1998 and was warmly received by both consumers and healthcare professionals. In fact, it is the first "alternative medicine" title to be ranked as one of the top three books published in the medical and allied healthcare professions (*Doody's Medical Book Review Journal*, 1998). *Herbal Medicine: Expanded Commission E Monographs* was published early this year to provide more scientific information that documents the efficacy of the herbs most commonly used in the U.S. today. The 107 monographs feature an expanded overview of the herb, description, chemistry and pharmacology, uses, contraindications, side effects, use during pregnancy and lactation, interactions with other drugs, dosage and administration, references, additional resources, footnotes specifying which sections are from the Commission E, and color photographs of each herb.

The HerbClip™ Educational Mailing Service

HerbClip™ is sent twice a month to a growing network of research scientists, academicians, and industry leaders in the areas of medicinal plants and the botanical and pharmaceutical sciences. Through this service, ABC provides valuable information to scientists and industry leaders about compelling issues affecting the research, marketing, and responsible use of medicinal plants. HerbClip™ summarizes articles drawn from a wide variety of newsletters, scientific journals, government documents, mainstream media, and special reports. Each clipping contains an executive summary of an article with insights, perspectives, and links to other articles and issues, plus a copy of the original article. The summaries for 1996-1999 are now available in *HerbClip™ on CD-ROM*, a searchable, sortable database.

Ongoing Initiatives

The following projects continue to be important to ABC:

HerbalGram — ABC's scientific, peer-reviewed magazine, *HerbalGram*, was named one of the best alternative magazines in the "Science and Environment" category by *Utne Reader*. This is the second time in 3 years that *HerbalGram* has been nominated.

Assistance to media — ABC continues to fill its vital role of supplying reliable herbal information to national and international media.

Ginseng Evaluation Program — Working with two independent laboratories, ABC tested hundreds of ginseng products and developed cutting edge methodologies. The report on this project and its results will be published mid-2000.

Third Party Literature — ABC continues to develop and distribute third party literature as provided for in the Dietary Supplement Health and Education Act of 1994 (DSHEA). The most recent addition is the 8-page booklet, *Aloe*, in the Botanical Booklet Series. Also in the works is another booklet for the series and a literature review on saw palmetto.

Rainforest trips — ABC continues to sponsor, in conjunction with the Texas Pharmacy Foundation and International Expeditions, ethnobotanical tours that offer continuing education credit for courses set in the rainforests of Africa, Belize, Costa Rica, and Peru.

Demonstration gardens — Over the course of 1999 we designed and built nine new herb gardens at our new home, the Case Mill Homestead. We have five more planned for implementation in the first half of this year.

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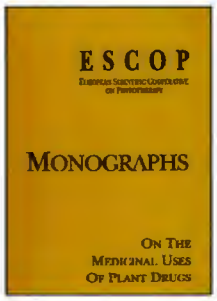

Prepared by the European Scientific Cooperative on Phytotherapy (ESCOP)—a group of herbal experts from academia and industry in the European Union. These monographs contain indications, contraindications, side effects, dosage, interactions, and many other important therapeutic parameters of 50 leading herbs and phytomedicines in Europe. Well referenced. A must for physicians, pharmacists, naturopaths, herbalists, industry, and researchers.

ESCOP monographs are published in loose-leaf form, for insertion into a dedicated ring binder. ESCOP employs the traditional pharmacopeial name of the herb as the title of each monograph.

For a complete listing of monographed herbs and fascicule divisions, visit our website: www.herbalgram.org/monographs.html

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Extensive monographs and literature reviews from *Fitoterapia*, a leading international botanical research journal, founded by Indena, the leading European supplier of botanical derivatives.

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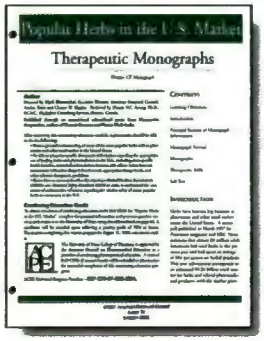

POPULAR HERBS IN THE U. S. MARKET: THERAPEUTIC MONOGRAPHS by Mark Blumenthal and Chance Riggins. 1997. Continuing education course for pharmacists covering 26 herbs popular in the mass market and pharmacies. Includes proper use, safety, dosage and related therapeutic information. Passing grade and $6 to be sent with test earns two hours of continuing education credit. Accreditation expires Aug. 31, 2000.

The University of Texas College of Pharmacy is approved by the American Council on Pharmaceutical Education as a provider of continuing pharmaceutical education.

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Chinese Herb Monographs

CHINESE DRUG MONOGRAPHS AND ANALYSIS by H. Wagner, R. Bauer *et al.* Monographs range from 8 to 17 pp. and include such information as: pharmacopeias found in, publication first cited in, official drugs, substitute drugs, description of official drugs, falsification drugs, pretreatment of the raw drug, medicinal use, main constituents, pharmacology, toxicology, TLC fingerprint analysis, evaluation, HPLC fingerprint analysis, and references. $12. each

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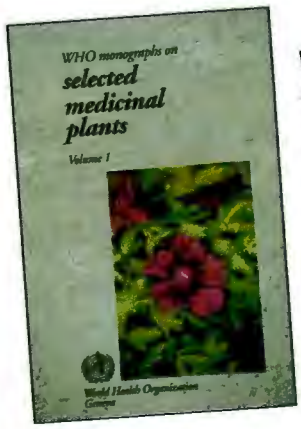

WHO MONOGRAPHS ON SELECTED MEDICINAL PLANTS, VOL 1. by the World Health Organization. 1999. Collection of 28 monographs covering the quality control and traditional and clinical uses of medicinal plants selected for inclusion on the basis of their widespread use, particularly in countries that rely heavily on medicinal plants to meet primary health care needs. Aims to encourage standardized scientific approaches to ensuring the safety, quality, and efficacy of medicinal plants and their products. Softcover, 287 pp.

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American Herbal Pharmacopoeia Monographs

- Comprehensive review of the therapeutic uses
- Complete safety and toxicology data
- Critical information on side effects, contraindications, all aspects of quality control, historical use and more
- Astragalus and Schisandra also include Traditional Chinese Medicine supplement section
- Fully referenced and peer reviewed by international authorities

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Valerian Root	#427
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Herbal Drugs and Phytopharmaceuticals

Ed. by Max Wichtl, translated by Norman Bisset. 1994. References, pharmacopeial monographs, sources, synonyms, constituent indications, side-effects, preparation of tea, commercially available phytomedicines, regulatory status, authentication using macroscopic, microscopic, and chromatographic techniques. 181 detailed monographs. Color prints of the dried part and whole plant in natural habitat. Hardcover, 568 pp. $209.95. #B080

British Herbal Compendium

Ed. by Peter Bradley. 1992. Monographs on plant drug constituents and therapeutics with chemical scientific literature and excerpts from available regulatory guidelines of European countries. Hardcover, 239 pp. $90. #B017

British Herbal Pharmacopoeia

by the British Herbal Medicine Association. 1996. Now with 169 monographs on definition, description, identification and standards for plant materials commonly used in herbal products on the market today. Hardcover, 212 pp. $90. #B018

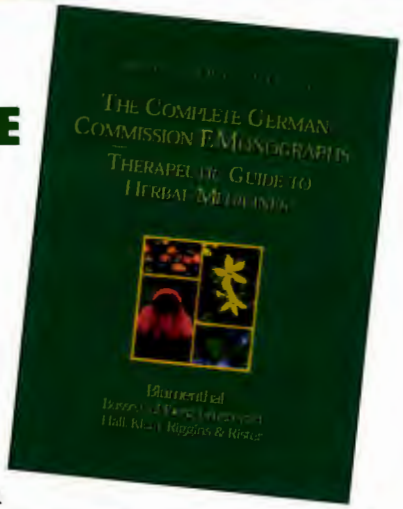
Herbal Medicines: A Guide for Health-Care Professionals

by C. Newall, L. Anderson and J. Phillipson. 1996. Covers 141 herbs commonly present in herbal remedies sold by pharmacies in the UK, providing botanical names, synonyms, parts used, pharmacopeial monograph listing, legal category, constituents, food use, herbal use, dose, pharmacological actions, side effects and toxicity, contraindications and warnings, pharmaceutical comment, and references. Also appendixes by interactions, ingredients, and actions of ingredients. Hardcover, 296 pp. $59.95. #B198

The second ranked medical book of 1998!

American Botanical Council's English translation of

The Complete German Commission E Monographs—Therapeutic Guide to Herbal Medicines



- 380 monographs
- 190 herbs and fixed combinations approved for therapeutic use
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- Glossary of anatomical, botanical, medical, pharmaceutical, and technical terms
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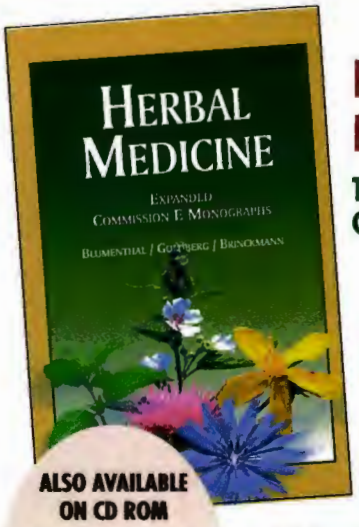

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- More on dosage and administration
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The American Botanical Council, in conjunction with The Texas Pharmacy Foundation and International Expeditions, presents:

African Healing Expedition and Safari for Health Care Professionals

South Africa
Accredited Field Workshop
June 30-July 13, 2000

Embark on this precedent-setting, 15-day expedition to post-apartheid South Africa. Witness and experience the local interpretation of healthcare, the natural environment and the unique healing wisdom of the indigenous people.

Amidst a mosaic of contrasting landscapes, cultures, and a diversity of wildlife habitats, explore the interrelationships between people, animal, plant, land, and health, and uncover the mysteries of the ancient tribal healing traditions. African healers have an elaborate *materia medica* consisting of mixtures of herbs, animal parts, minerals, and clays. This tradition is being called upon and combined with modern medicine to help deal with some of the most pressing health issues of today.

Workshops sites and accommodations are divided between the Cape Town area, the KwaZulu Natal Province, and Kruger National Park. Visit Kirstenbosch Botanical Gardens & Herbarium, the Natal Herbarium, and regional hospitals and local village clinics. Interact with local traditional healers. Explore the largest healing plant and herb market in Africa. Experience firsthand the biodiversity of wild animals and plants at the wildlife preserves.

A once-in-a-lifetime adventure!

Photo from African Expedition in Kenya. © 1998 Mark Blumenthal

New this year! Andes and Amazon Healthcare Workshop

Peruvian Andes - Spirituality and Healing — October 28 - November 2, 2000
Peruvian Amazon - Pharmacy from the Rainforest — November 3 - November 8, 2000

This is the first time ever for this two-part excursion to Peru. You can go on both parts or just one half if that appeals to you. The Andean portion will include an exploration of the Urubamba Valley and Halloween at Machu Picchu. The Amazonian portion will include guided tours of medicinal plants in the wild as well as local shaman Don Antonio Montero's apothecary garden. You will also ascend over 100 feet above the rainforest on the extraordinary canopy walkway, the only one of its kind in the Western Hemisphere, a unique opportunity to experience firsthand the breathtaking splendor of the rainforest canopy ecosystems.

THE LIVING AIR SOUNDS FROM THE PERUVIAN RAINFOREST CD

Recorded and produced by Peter Acker. A wonderful recording using binaural microphones that captures the natural melodies of the rainforest. Recorded at the ACEER facility.

Some of the sounds include the Screaming Piha, Olive-backed Oropendula, Laughing Frog, rainstorms and insects. $16. Item #703

Mayan Medicine Adventure

Belize and Tikal (Guatemala)

NEW FOR 2001!
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Join us for our first trip to Germany September 1-9, 2001.
More information to come.

Explore the na… magnificent rai… Maya ruins loca… coastal country … …versity of its people, natural resources, habitats, and archeological sites form the backdrop for this exciting expedition experience.

The expedition highlights include a hike along the Mayan Medicine Trail with … about … Rainforest Remedies" taught to her by the late great Mayan healer Don Eligio Panti. Also, gain firsthand insight into the initial step in plant-based drug discovery by participating in an exciting afternoon of field collection of medicinal plants. Finally, a special Medicine Woman Forum will provide an opportunity for participants to interact with local midwives.

At the coast, explore the largest barrier reef in the Western Hemisphere and discover important research efforts coming from this underwater rainforest. At Cockscomb Wildlife Basin, seek the elusive jaguar at the world's only jaguar reserve. And discover the ancient healing secrets of the Maya at Tikal, their famous ceremonial site in Guatemala.

Accredited workshops and field excursions, designed to foster an appreciation for and an understanding of the importance of medicinal plants, will be led at each location by prominent experts in the fields of phytomedicine, pharmacognosy, ethnobotanical and ethnobiomedicinal research, including Mark Blumenthal, Executive Director of the American Botanical Council, and James A. Duke, PhD, retired botanist from the USDA. These workshops can provide pharmacists with ACPE approved CE credits.

For further information about these exciting expeditions, please contact, or send your mailing address to:
Gayle Engels at the American Botanical Council
P.O. Box 144345, Austin, TX 78714-4345
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HERBALGRAM back issues enhance your library of information on herbal issues, books, research, conferences, laws, and related topics. The BackPacks are a set of HERBALGRAMS from our first issue (Summer 1983) through the second most current issue and include a complete Cumulative Index. (For listing of topics in each issue, visit our website or call our toll-free number.)

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EXCLUSIVELY FROM ABC

by Yadhu N. Singh, Ph.D., and Mark Blumenthal. Published in HerbalGram No. 39.

- 24-page, full color, extensively referenced literature review explores kava's origin, botany, and geographical distribution in Oceania
- Examines the sociological and ceremonial role of kava, including legends of its origin
- Describes the chemistry, pharmacology, clinical aspects, and effects of the active constituents in kava

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The Booming U.S. Botanical Market:

A New Overview by Peggy Brevoort. Published in HerbalGram No. 44

- 16-page, full color, extensively referenced
- 21 tables and charts provide up-to-date industry and consumer information
- Addresses growth of the market, supply, advertising, health care coverage, definitions, regulatory categories, consumer attitudes, standards projects, and the future

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Published in HerbalGram No. 42

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- Text adapted from stories by George A. Bender

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by Francis Brinker, N.D. Published in HerbalGram No. 46

- Examines 18 botanical products shown to have beneficial effects in human studies in order to appreciate which forms are known to provide important healthcare support
- 16-page, full color, extensively referenced

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Black Cohosh: A Literature Review

by Steven Foster. Published in HerbalGram No. 45

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A Literature Review of TEA

by Robert L. Gutman, Ph.D., and Beung-Ho Ryu, Ph.D. Published in HerbalGram No.37

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- Summary of production and consumption in U.S. and world markets
- A 16-page review including four-color photography, a listing of the most notable teas, and extensive references

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by Christopher Hobbs. Published in HerbalGram No.30

- Referenced in the Dietary Supplement Health and Education Act of 1994
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- Tables of Chemistry and Pharmacology available separately

$2.50 Item #405-A 16-page literature review

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- HPLC methods for separation and quantitative determination of ginsenosides used in the American Botanical Council's Ginseng Evaluation Program
- An improved extraction procedure for rapid quantitative HPLC estimation of the main eleutherosides (B And E) in eleutherococcus senticosus (Eleuthero) as used in the American Botanical Council's Ginseng Evaluation Program
- Scientific documentation of purity and identity of reference standards used in the Ginseng Evaluation Program
- Ginseng Evaluation Program testing, data analysis and reporting guidelines
- 3 booklets from ABC's Botanical Booklet Series: Asian Ginseng, American Ginseng and Siberian Ginseng
- More than 40 ginseng-related HerbClips for 1996-1999

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EAPC Petition

The complete text of the European-American Phytomedicines Coalition Petition to the USFDA. The petition requests inclusion of European OTC Phytomedicines (herbal medicines) to the OTC Drug Review as old drugs. $10. Item #404

EAPC Valerian Petition

European-American Phytomedicines Coalition Citizen Petition to Amend FDA's Monograph on Night-time Sleep-aid Drug Products for Over-the-Counter (OTC) Human Use to Include Valerian. 24-page petition stating the efficacy and safety of valerian as a sleep aid and requesting its inclusion in the existing FDA monograph. 1994. $10. Item #412

EAPC Ginger Petition

European-American Phytomedicines Coalition Citizen Petition to Amend FDA's Monograph on Antiemetic Drug Products for Over-the-Counter (OTC) Human Use to Include Ginger. 31-page petition includes background, chemistry, toxicology, pharmacology, and efficacy of ginger with regard to motion sickness and nausea, and with proposed changes to federal regulations. 1995. $10. Item #413

Pharmacy from the Rainforest

A review of the 1994 ABC/ACEER sponsored ecotour to the Peruvian Amazon. Includes: Varro Tyler's keynote address, Kathy McKeown's and Ian Hunter's description of a Ribereños medicinal garden, and Jay Hutchinson's narration of the Amazonian trail of useful plants. Beautiful color photography. $2.50. Item #409

EACHBP Report

36-page Second Report of the Expert Advisory Committee (appointed by the Canadian government) on Herbs and Botanical Preparations. Includes I.L.#705 and I.L. #771. Deals primarily with safety concerns of medicinal plants. $10. Item #406

The Farnsworth Symposium

Progress on Terrestrial and Marine Natural Products of Medicinal and Biological Interest, in honor of the 60th birthday of Professor Norman R. Farnsworth. Includes 19 scientific papers and 21 abstracts. $29. Item #402

Herb Safety Review: Kava (Piper methysticum)

by Steven Dentoli. Peer-reviewed ingredient safety report provides objective information related to the safety of kava when used as a dietary supplement, and includes pharmacology, toxicology, identified active constituents, their mechanism of action, and known adverse effects, plus botanical, historical, and ethnographical descriptions. 1997. $59.95. Item #422

Alfalfa
Aloe
American Ginseng
Angelica
Ashwaganda
Asian Ginseng
Astragalus
Bearberry
Bilberry
Black Cohosh
Black Elderberry
Borage
Bugleweed
Butterflyweed
Calendula
Cascara Sagrada
Castor Bean
Cat's Claw
Catnip
Cayenne
Chaparral
Chaste Tree
Chickweed
Cleavers
Colt's Foot Flowers
Comfrey
Cranberry
Culver's Root
Dandelion
Echinacea
Elecampane
Evening Primrose
Fennel
Fenugreek
Feverfew
Flaxseed
Fo-ti
Fringetree
Chionanthus
Garlic
Ginger
Ginkgo
Goldenseal
Goldenseal Root
Grape Vine
Green Tea
Hawthorn
Horse Chestnut
Kava kava
Kudzu
Lemon Balm
Licorice
Lobelia
Maitake
Marshmallow
Mayapple
Milk Thistle
Mugwort
Mullein
Niaouli oil
Noni
Pale Purple Coneflower
Passionflower
Pau D'Arco
Pennyroyal
Peppermint
Red Clover
Reishi
Rosemary
Sage
Sarsaparilla
Saw Palmetto
Senna
Shepherd's Purse
Shiitake
Siberian Ginseng
Slippery Elm
Soybeans
Squaw Vine
St. John's Wort
Stinging Nettle
Sunflower
Thuja
Thyme
Tomato
Turmeric
Valerian
Weeping Willow
Wild Yam Root
Witch Hazel
Wormwood
Wuweizi
Yarrow
Yellow Dock
Yucca

This royalty free CD ROM contains 102 photos of some of the most popular medicinal plants in use today. Medicinal Plants - Volume I is designed for both Macintosh™ and Windows™ operating systems. The images are high resolution: 8x12 inches at 300 dpi (20.3x30.5 cm at 118 dpcm) and have excellent highlight and shadow detail. $495* Item #C008

* For products produced in quantities of less than 100,000 units.

Shirts and Caps

MEET OUR STAFF!

Top Left: Our webmaster, Trey Bennett, wears the 4-color, 100% cotton, short-sleeve, white ACEER T-shirt. Two-sided printing includes a beautiful image of the ACEER canopy walkway and blue Morpho butterfly. Sizes: Large (Item #SAL), XL (Item #SAXL), and XXL (Item #SAXX) $20.

Top Right: Shari McMillan (L), sales assistant, wears the denim cap (Item #HABLDE) and Debbie Jones (R), subscription/classifieds coordinator, sports the green and khaki version (Item #HAGRKH) Both caps are embroidered with the ABC echinacea logo on the front and American Botanical Council on the back. Adjustable, one size. $16.

Bottom: Mary Susan Clancy (L), development executive assistant, is shown wearing the white t-shirt. Wayne Silverman, chief administrative officer, wears the natural polo. Both styles are available in white or natural and have the ABC echinacea logo embroidered on them.

On shirt orders, please specify polo or tee as well as size (S, M, L, XL) and color (white or natural).

Caps **$16**

T-shirts **$20**

Polo shirts **$35**

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INDIVIDUAL TOPICS

CONTEMPORARY BOTANICAL ARTISTS: THE SHIRLEY SHERWOOD COLLECTION by Shirley Sherwood. Ed. by Victoria Matthews. 1996. Assembled in just five years, the Sherwood collection is considered the finest of contemporary botanical art in private hands. This book contains over 100 reproductions of paintings by as many artists from 17 countries, amazing in their detail and delicateness, their intricacy and sheer beauty. Hardcover, 240 pp. $60. #B408

WHAT THE LABELS WON'T TELL YOU by Logan Chamberlain. 1998. Provides the information needed to intelligently decode the labels on herbal supplements. Includes information on standardization, cautions, resources, using tonic herbs and antioxidants, and herbs for men and women. Softcover, 120 pp. $9.95. #B368

THE SCIENCE AND ROMANCE OF SELECTED HERBS USED IN MEDICINE AND RELIGIOUS CEREMONY by Anthony Andoh. 1987. Scientific classification of many of the plants used throughout the world for their medicinal value or their religious and spiritual significance, including the herbs used in Santeria religious ceremony. Provides centers of diversity, common and vernacular names, somatic chromosome numbers and genome constitution, description, lore, legend, and romance. Softcover, 324 pp. $19.95. #B208

BIODIVERSITY AND HUMAN HEALTH Ed. by Francesca Grifo and Joshua Rosenthal. 1997. Brings together experts from fields of public health, biology, epidemiology, demography, and pharmacology to discuss the loss of the global environment and biomedicine that explores the human health consequences of the loss of biological diversity. Softcover, 379 pp. $29.95 #B349

NO LONGER AVAILABLE

BOTANICAL MEDICINE: EFFICACY, QUALITY ASSURANCE AND REGULATION Ed. by D. Eskinazi, M. Blumenthal, N. Farnsworth, and C. Riggins. 1999. Articles by experts in botany, pharmacology, medicine, and law address what botanicals are, how they work, safety, quality, and the effect regulation of botanicals has on the marketplace and the cost of health care. Softcover, 222 pp. $69. #B391

HEALING ANXIETY WITH HERBS by Harold Bloomfield. 1998. Explains anxiety and the many forms it takes, herbal remedies and exercises for anxiety and depression, and a method for evaluating your own level of anxiety. 344 pp. $23. #B344

MEDICINAL PLANTS: CAN UTILIZATION AND CONSERVATION COEXIST? by J. Sheldon, M. Balick, and S. Laird. 1997. Examines the cases of several plant species valued in traditional and contemporary medicine, and the ramifications of their over-harvesting. Explores the impact of discovery and utilization of these and other medicinal plants by the herbal and pharmaceutical industries, and makes recommendations for using these resources wisely. Softcover, 104 pp. $14.50. #B289

IMMUNOMODULATORY AGENTS FROM PLANTS Ed. by Hildebert Wagner. 1999. Survey describing medical drugs of plant origin which have proven to be effective as immunostimulants. Provides information on the physiological mechanisms of action and range of application of phytopreparations capable of inducing immunostimulatory effects when administered prophylactically or therapeutically. Drawn from basic research as well as practical and clinical experience gained after administration of preparations such as echinacea medications, lentinan, and mistletoe lectin. Hardcover, 365 pp. $160. #B397

CANADIAN MEDICINAL CROPS NEW! by Ernest Small and Paul Catling. 1999. Detailed accounts of 25 species native to Canada, including morphology, classification and geography, ecology, medicinal uses, toxicity, chemistry, non-medicinal uses, agricultural and commercial aspects, myths, legends, tales, folklore, and interesting facts, as well as selected references and world wide web links. Softcover, 240 pp. $29.95. #B429

1997 IUCN RED LIST OF THREATENED PLANTS Ed. by Kerry Walter and Harriet Gillett. 1998. Over 12.5% of the world's vascular flora is threatened on a global scale, 91% of which exist in only one country. The result of years of data collection by researchers throughout the world resulted in this milestone report delineating exactly what those plants are. Softcover, 862 pp. $45. #B382

BOTANICA EROTICA: AROUSING BODY, MIND, AND SPIRIT by Diana De Luca. 1998. More than a list of aphrodisiacs, this beautifully illustrated book explores the foods, herbs, and behaviors aimed at the sensual side of one's life. Includes recipes for internal as well as external stimulation. Not for the prudish or faint of heart. Hardcover, 130 pp. $25. #B376

PLANTS OF LOVE by Christian Rätsch. 1990. Detailed, beautifully illustrated listing of more than 100 plants gives full information on their specific aphrodisiacal properties, plus dozens of age-old recipes for beverages, ointments, pills, incenses, and snuffs. Softcover, 205 pp. $19.95.#B321

DIETARY SUPPLEMENT HEALTH AND EDUCATION ACT: A LEGISLATIVE HISTORY AND ANALYSIS by I. Scott Bass and Anthony Young. 1996. In-depth discussion of the FDA's enforcement and regulatory activities from 1938 to 1994 regarding vitamins, minerals, and dietary supplements; consumer demand for legislative change; and the subsequent passage of DSHEA. Includes complete text of DSHEA and bills preceding it. Softcover, 319 pp. $99. #B220

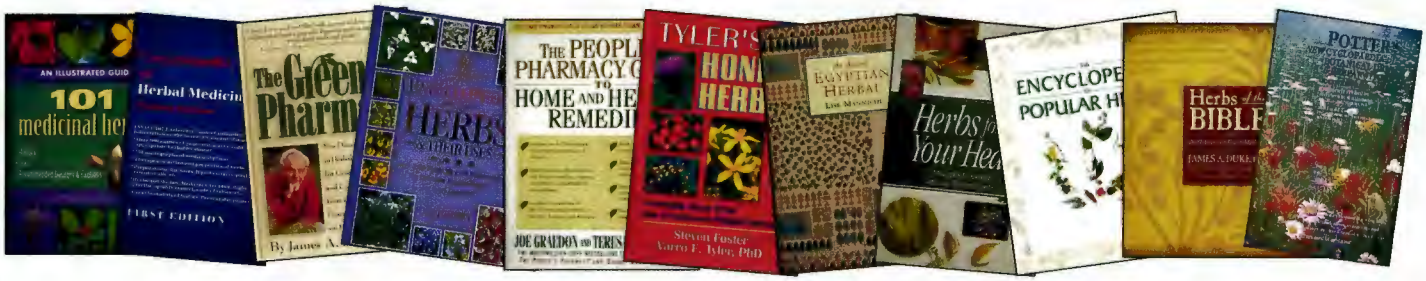
HERB CONTRAINDICATIONS AND DRUG INTERACTIONS by Francis Brinker, N.D. 1998, 2nd Ed. Information on 181 traditional therapeutic herbs explaining documented contraindications and drug interactions. Appendices identify even more herbs as they affect certain conditions and medicines. Softcover, 148 pp. $19.95. #B282

SAFETY/TOXICOLOGY

TOXIC PLANTS DANGEROUS TO HUMANS AND ANIMALS NEW! by Jean Bruneton. 1999. Lists common causes of incidents and accidents induced by plants in humans, describes the risks, emphasizes those inherent to herbs, and discusses issues of plant identification and medical treatment, as well as the specifics of animal poisoning, particularly in pets. Includes detailed discussion of plant species most often at fault, including circumstances of the intoxication, symptoms, proposed treatment, toxic doses, diagnostic elements, toxin identification, and toxic mechanisms. Hardcover, 545 pp. $163. #B422

BOTANICAL SAFETY HANDBOOK: GUIDELINES FOR SAFE USE AND LABELING FOR HERBS IN COMMERCE Ed. by M. McGuffin, C. Hobbs, R. Upton, and A. Goldberg. 1997. Provides safety data on more than 550 herbs as guidelines for product labels, including contraindications, side effects, and special warnings. Each herb is classed as can be safely consumed when used appropriately, herbs with the following restrictions, for external use only, or not to be used during pregnancy. Hardcover, 256 pp. $39.95. #B275

GENERAL HERBALS



101 MEDICINAL HERBS: AN ILLUSTRATED GUIDE by Steven Foster. 1998. Quick reference guide to the herbs most often sold as dietary supplements to support natural health. Includes both modern scientific information and the history and traditions of the herbs, as well as common and botanical names, historical uses, health conditions and herbal actions, forms of the herb typically available, dosages, and cautions. Softcover, 240 pp. $19.95. #B394

ENCYCLOPEDIA OF HERBAL MEDICINE by Thomas Bartram. 1995. Includes over 900 entries of general disease conditions with appropriate herbal treatment, 550 monographs of medicinal plants, therapeutic action and properties of herbs, preparations (tinctures, liquid extracts, poultices, essential oils, etc.), and British legal requirements. Hardcover, 474 pp. $43. #B213

THE GREEN PHARMACY by James A. Duke. 1997. A-Z entries that include more than 120 health conditions and scores of natural remedies that can replace or enhance costly pharmaceuticals. Up-to-date information and traditional folk remedies in an authoritative, entertaining format. Hardcover, 507 pp. $29.95. #B281

ENCYCLOPEDIA OF HERBS AND THEIR USES by Deni Bown. 1995. Published by the Herb Society of America. More than 1,500 photographs, taken in herb collections all over the world, combined with descriptions of over 1,000 species, varieties, hybrids, and cultivars. Listed alphabetically by genus, contains information on growth and harvest, culinary, aromatic, medicinal, and economic uses. Hardcover, 424 pp. $39.95. #B156

THE PEOPLE'S PHARMACY GUIDE TO HOME AND HERBAL REMEDIES NEW! by Joe Graedon and Teresa Graedon. 1999. A-Z handbook of common symptoms and ailments; describes safe, effective home and herbal remedies, vitamins and dietary supplements; reviews the 50 most popular herbs in the US, Europe, and Australia; herb/drug combinations to avoid; details active ingredients, common uses, and proper dosages of each herb; special precautions, adverse effects, and possible interactions; and resource lists of herbal web pages and products. Hardcover, 428 pp. $27.95. #B428

TYLER'S HONEST HERBAL: A SENSIBLE GUIDE TO THE USE OF HERBS AND RELATED REMEDIES by Steven Foster and Varro Tyler. 1999. 4th edition. Assesses herbs based on available scientific information. Includes the latest details on advocacy literature and the new regulatory environment and descriptive information on the source of each plant, its traditional uses, and evaluations of relevant and current literature to help support or disprove intended use of the plant. Information on the latest clinical trials on black cohosh, echinacea, garlic, ginkgo, ginseng, St. John's wort, and saw palmetto, and research and information on cat's claw, celery, garcinia, grape seed, kava, pygeum, and wild yam, and hundreds of new, supporting references from scientific studies on herbs and other dietary supplements. 442 pp. Hardcover, $49.95. #B005H. Softcover, $24.95. #B005

AN ANCIENT EGYPTIAN HERBAL by Lise Manniche. 1989. 94 species of plants and trees used from before the pharaohs to the Coptic period. Each plant is named in Latin and English, and where known in ancient Egyptian, Greek, and modern Arabic. An account is given of the plants' special properties, with authentic recipes for cosmetics and cures. Discusses the many uses the ancient Egyptians made of herbs and flowers, and the importance of plants for funerary and festive occasions. Softcover, 176 pp. $19.95. #B414

HERBS FOR YOUR HEALTH by Steven Foster. 1996. Designed as a quick reference guide to the 50 most commonly used herbs available in the U.S. as dietary supplements. Profiles include common and botanical name, brief history of traditional uses, summary of credible scientific reports, brief descriptions of conditions and symptoms the herb treats, forms in which it is available in the U.S., actions, dosage, cautions or contraindications, and photograph. Softcover, 121 pp. $9.95. #B232

THE ENCYCLOPEDIA OF POPULAR HERBS NEW! by Robert McCaleb, Evelyn Leigh, and Krista Morien. 2000. From the Herb Research Foundation, the latest scientific research, traditional information, and safety considerations for 40 popular herbs. Includes dosage and advice on choosing herbal supplements. Full-color photographs and line drawings. Hardcover, 576 pp. $29.95. #B398

HERBS OF THE BIBLE: 2000 YEARS OF PLANT MEDICINE NEW! by James Duke. 1999. Stories, quotes, Biblical passages, medicinal history, current scientific research, and beautiful color illustrations by Peggy Duke of 58 herbs. Addresses possible benefits and hazards and provides recipes. Taxonomic list gives English, Latin, Hebrew, Greek, and Arabic names. Hardcover, 256 pp. $34.95. #B431

POTTER'S NEW CYCLOPAEDIA OF BOTANICAL DRUGS AND PREPARATIONS by R. C. Wren. 1988. A listing of 571 botanical drugs including common name, botanical name, family, synonyms, habitat, description, part used, constituents, medicinal use, and regulatory status. Softcover, 362 pp. $28.50. #B011

THE COMPLETE MEDICINAL HERBAL by Penelope Ody, foreword by Mark Blumenthal. 1993. Practical guide to the healing properties of herbs. Historical uses, therapeutic uses, parts used, chemical constituents, 250 remedies, safety precautions. 120 color photos. Hardcover, 192 pp. $29.95. #B039

THE ENCYCLOPEDIA OF MEDICINAL PLANTS by Andrew Chevallier. 1996. Profiles more than 550 key medicinal plants, systematically detailing their history, cultivation, key constituents and actions, research, and traditional and current uses. Shows how to make different types of herbal preparations and recommends safe, effective remedies for a wide range of common health problems. Full-color illustrations throughout. Hardcover, 336 pp. $39.95. #B250

THE HERBAL HANDBOOK: A USER'S GUIDE TO MEDICAL HERBALISM by David Hoffmann. 1998. Includes a reference section of actions, herbal prescriptions for specific illnesses, fundamentals of growing, drying, storing, and cooking with herbs, as well as the making of infusions, decoctions, oils, and ointments. 240 pp. $14.95. #B343

HERBAL REMEDIES FOR DUMMIES by Christopher Hobbs. 1998. Precise instructions for which herbs to take for what ails you, how much to take, and how long to take them. Not just for beginners, this book presents a wealth of knowledge in an interesting, easy-to-use format. Softcover, 352 pp. $19.99. #B375

GENERAL HERBALS

A BIBLICAL HERBAL by Blair Montague-Drake. 1997. Throughout history many of the herbs and spices with biblical connections have played an important role in the culinary, medicinal, and social development of mankind. In this beautifully illustrated volume, the author tells the story of 84 of his favorite biblical herbs. Hardcover, 193 pp. $35. #B305

HERBS FOR HEALTH AND HEALING by Kathi Keville. 1996. Herbal formulas for many health problems arranged by bodily systems, instructions on how to make preparations, discussion of specific herbs for women's, men's, and children's health issues, herbal first aid, cautions and considerations, aromatherapy, skin and hair care, and cooking with herbs. Hardcover, 374 pp. $27.95. #B235

AN ELDERS' HERBAL by David Hoffmann. 1993. Addresses the unique concerns of people approaching fifty years of age and older, offering specific herbal remedies for conditions including hypertension, insomnia, bronchitis, varicose veins, and arthritis. Lists more than 150 herbs by both common and Latin names, specifies which part of the plant to use, actions and indications, preparation methods, and recommended dosages. Softcover, 266 pp. $17.95. #B189

A MODERN HERBAL by Margaret Grieve. 1931. A classic. Medicinal, culinary, cosmetic and economic properties, cultivation and folklore of herbs, grasses, fungi, shrubs, and trees with their scientific use as known for the times. Softcover, 2 vol. set, 902 pp. $19.90. #B139

THE GREAT HERBAL OF LEONHART FUCHS: DE HISTORIA STIRPIUM COMMENTARII INSIGNES, 1542 NEW! Commentary by Frederick Meyer, Emily Emmart Trueblood, and John Heller. Two volumes. 1999. Recognized for more than four centuries as a masterpiece of Renaissance botany and one of the most beautiful books ever printed. Now available in a facsimile edition, accompanied by a volume of commentary based on three decades of historical and botanical research and destined to become the standard reference on Renaissance botany. The herbal is illustrated with 511 woodcut figures that established a standard for botanical illustration. The commentary includes 100 illustrations of the woodcuts that were hand-colored. Hardcover, 1864 pp. $299.50. #B436

FOREST PHARMACY: MEDICINAL PLANTS IN AMERICAN FORESTS by Steven Foster. 1995. Discusses historical and continued use of America's forest plants as powerful sources of medicine. Outlines early Native American use and declines in research and Americans' resurgent interest in medicinal plants. Color photos. Softcover, 64 pp. $6.95. #B103

A REFERENCE GUIDE TO MEDICINAL PLANTS: HERBAL MEDICINE PAST AND PRESENT by John Crellin and Jane Philpott. 1989. This companion to *Trying to Give Ease* is an illustrated reference guide which covers over 700 medicinal plants, including an assessment of each plant's efficacy, current information on its chemical constituents and pharmacological effects, and herbalist Tommie Bass's comments about the plant. 551 pp. $22.95. #B339

OF PEOPLE AND PLANTS by Maurice Mességué. 1991. A combination of colorful anecdotes from the life of France's most renowned herbalist. Detailed information about the use of specific plants in treating a wide variety of ailments. Comprehensive appendices describe preparations and provide recommendations for use of plants for optimal health. Softcover, 328 pp. $12.95. #B288

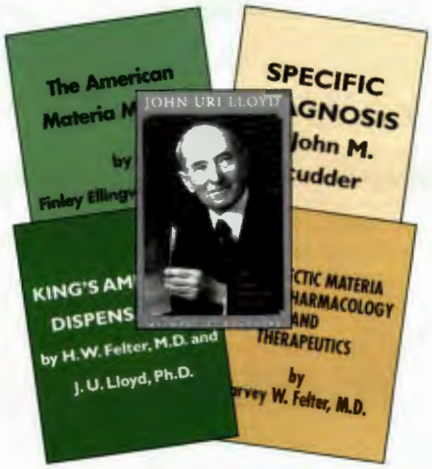
TRYING TO GIVE EASE by John Crellin and Jane Philpott. 1989. The life, practices, and accumulated knowledge of the late A. L. "Tommie" Bass, a widely known and admired Appalachian herbalist. Special attention is given to local resources that shape alternative medicine, the backgrounds of herbal practitioners, and the cultural currency of medical concepts once central to professional medicine and now less common. Softcover, 335 pp. $16.95. #B322

GREEN PHARMACY by Barbara Griggs. 1991. 2nd edition. A fascinating account of the ideas, personalities, advances, and vicissitudes that have shaped the course of herbal medicine and pharmacy. Focuses with candor and clarity on the professional, economic, and social forces that have periodically consigned herbal medicine to near oblivion, and presents a strong case for the cyclical emergence of alternative medicine at times when allopathic methods of treatment have lost their safety and efficacy. Softcover, 379 pp. $19.95. #B187

FLORA BRITANNICA BOOK OF WILD HERBS by Richard Mabey. 1998. Derived from on of the most important books on Britain's wild plants published this century. Includes nearly 100 species, with section on wild foods and kitchen medicines. Color photos throughout. Hardcover, 144 pp. $17.95. #B385

HISTORY

ECLECTIC



JOHN URI LLOYD: THE GREAT AMERICAN ECLECTIC by Michael Flannery. 1998. The first full-length biography of the man generally accepted as one of America's most influential pharmaceutical pioneers. Phytochemical researcher, pharmaceutical manufacturer, teacher, author, library founder, and leader among pharmacists and eclectics, his story is one of failure and success, of professional myopia and scientific vision. Hardcover, 234 pp. $34.95. #B361

THE AMERICAN MATERIA MEDICA by Finley Ellingwood, M.D. 1994. First published in 1919. Botanical therapeutic agents are discussed and compared in groups under headings that classify them by their action. In addition, five fold-out charts provide a quick and in-depth comparative glance of the most commonly used herbs for fever, heart, digestive, liver, and female reproductive organ problems. Hardcover, 564 pp. $98. #B084

SPECIFIC DIAGNOSIS by John M. Scudder. 1994. First published in 1874. "Dr. Scudder maintained that there was a definitive relationship between known drug action and known conditions of disease as manifested by symptoms, and upon this theory based his justly named book."–editor of the Gleaner, 1875. Hardcover, 387 pp. $48. #B085

KING'S AMERICAN DISPENSATORY by H. W. Felter, M.D. and J. U. Lloyd, Ph.D. Two-volume set. 1898. The most complete text ever compiled on American medicinal plants and herbal pharmacy. 2,172 pages of medicinal properties and clinical administration of hundreds of medicinal plants in detail. Hardcover, 2,229 pp. $285. #B022

THE ECLECTIC MATERIA MEDICA, PHARMACOLOGY AND THERAPEUTICS by Harvey W. Felter, M.D. 1994. First published in 1922. This work prescribes on the basis of the symptoms that the agent would either cure or palliate. Hardcover, 764 pp. $95. #B082

SPECIFIC HERBS

THE PEPPER LADY'S POCKET PEPPER PRIMER by Jean Andrews. 1998. Detailed descriptions of 42 commonly available peppers, including size, color, fruit shape, flesh, and pungency, common names, sources, uses, and substitutes. Significance of color, aroma, flavor, and nutrition. Color photographs. Softcover, 184 pp. $17.95. #B369

BEAT DEPRESSION WITH ST. JOHN'S WORT by Steven Bratman. 1997. Easily readable yet solidly researched, and based on the experiences of his patients as well as the [NO LONGER AVAILABLE] cal studies worldwide, Dr. [NO LONGER AVAILABLE] at St. John's Wort is and how it wo[NO LONGER AVAILABLE] success without dangerous side effects, how to determine if it may be effective for you, and where to buy it and what to look for on the label. Softcover, 212 pp. $12. #B299

VALERIAN Ed. by Peter Houghton. 1997. A comprehensive and contemporary overview that includes ethnobotany, chemistry, pharmacology, therapeutics, cultivation, analysis, and commercial aspects of the genus *Valeriana*. Hardcover, 142 pp. $75. #B307

PAU D'ARCO: IMMUNE POWER FROM THE RAIN FOREST by Kenneth Jones. 1995. Describes the different varieties and their applications in South American folk medicine. Directions for preparation and dosage as teas and extracts. Reviews and summarizes scientific literature. Softcover,160 pp. $8.95. #B120

GINKGO BILOBA EXTRACT (EGB 761): FROM CHEMISTRY TO THE CLINIC by Francis DeFeudis. 1998. Analysis of the available scientific information concerning the pharmacological and therapeutic actions of EGb 761. Covers its vasoregulatory action, neurosensory disturbances and peripheral occlusive arterial disease, cognition-enhancing action which relates to its use in treating Alzheimer's disease and various dementias, stress-alleviating action which explains it anxiolytic-like/ antidepressive-like effects, and a gene-regulating action which provides a basis for explaining why most of the clinically beneficial effects of the extract require repeated administration. Softcover, 401 pp, $35. #B378

KAVA-THE PACIFIC ELIXIR by Vincent Lebot, Mark Merlin, and Lamont Lindstrom. 1992. Research on botany, chemistry, ethnobotany, pharmacology, social usage, distribution, and economic potential. B/W photos, illus. Softcover, 255 pp. $19.95. #B032

PERILLA Ed. by H. Yu, K. Kosuna, and M. Haga. 1997. Includes articles describing the cultivation, traditional and modern applications, and the chemical, pharmacological, medical, and clinical studies of this plant and its active compounds. The cell culture of *Perilla*, the genetic control of the plant, and the isolation and structural elucidation of a number of its active compounds such as terpenoids, phenolics, glycosides, flavonoids, and anthocyanins are discussed. Hardcover, 191 pp. $89. #B308

ECHINACEA: NATURE'S IMMUNE ENHANCER by Steven Foster. 1991. Chronicles the history of echinacea, from its controversial medical history to the extensive research conducted on it in Germany, providing the most comprehensive information on the subject available to the layperson. 150 pp. $8.95. #B346

ST. JOHN'S WORT: THE MOOD ENHANCING HERB by Christopher Hobbs. 1997. Presents the exciting research and clinical experience that substantiates the use of St. John's wort for easing depression and anxiety and deepening sleep. Also discusses natural programs to help reduce stress, examines other time-honored mood-enhancing herbs, and provides resources for ordering herbs and herbal products. Softcover, 176 pp. $12.95. #B310

GARLIC, THE SCIENCE AND THERAPEUTIC APPLICATION OF ALLIUM SATIVUM L. AND RELATED SPECIES Ed. by Heinrich Koch and Larry Lawson. 1996. The most complete scientific work on garlic and garlic supplements. History, chemistry, composition, analytical methods, and scientific review of cardiovascular, anticancer, antimicrobial, and other effects; comprehensive tables; 2580 references. Softcover, 329 pp. $34.95. **SALE PRICE $30**. #B159

THE GINGER BOOK: THE ULTIMATE HOME REMEDY by Stephen Fulder. 1996. Covers the latest scientific findings as well as the rich folklore and history of ginger. Includes effects on bodily systems, chemistry, ginger products and preparations, and recipes. Softcover, 147 pp. $8.95. #B267

SAW PALMETTO by Christopher Hobbs and Stephen Brown. 1997. Outlines natural remedies and habits that can help men keep their prostate gland healthy into old age and prevent prostate enlargement. Reviews current research and the medical treatments available. 96 pp. $9.95. #B341

KAVA: MEDICINE HUNTING IN PARADISE by Chris Kilham. 1996. A journey through the mystical legends, outlandish history, and exciting science surrounding kava. With a thorough analysis of kava research and information on where to find the best kava, a must-read for those interested in adventure, plant medicines, or the cultures of Oceania. Softcover. 166 pp. $12.95. #B202

THE GARLIC BOOK: NATURE'S POWERFUL HEALER by Stephen Fulder. 1996. How heart disease occurs, how garlic is beneficial in preventing and treating it by lowering cholesterol and blood pressure and thinning the blood, and how to include it in your diet. Includes historical use, garlic's other actions, and products and preparations. Softcover, 139 pp. $8.95. #B269

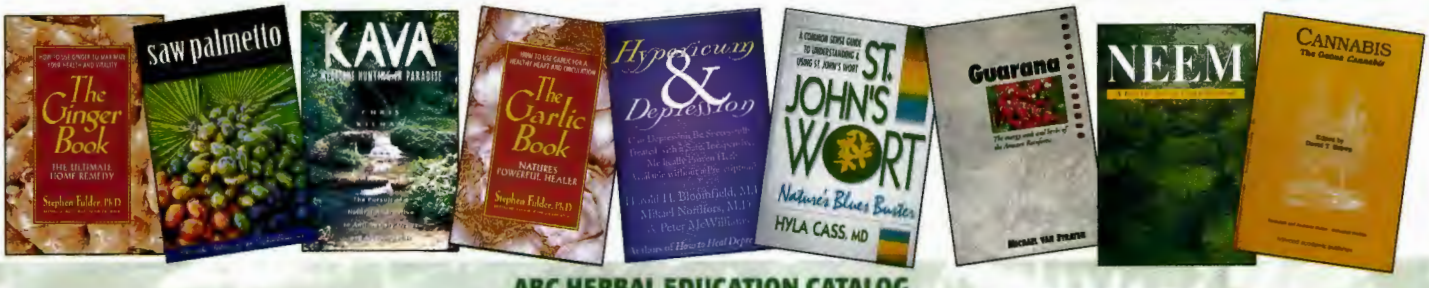
HYPERICUM AND DEPRESSION by H. Bloomfield, M. Nordfors, and P. McWilliams. 1996. Reports on recent medical research that could change the way depression is treated in America. Explains what depression is, how to know if one is depressed, the medical effects of hypericum on depression (with summaries of selected medical studies), and where to find research-grade hypericum. Softcover, 203 pp. $7.95 #B263

ST. JOHN'S WORT: NATURE'S BLUES BUSTER by Hyla Cass. Explains what depression is, possible benefits that St. John's wort can offer, information on its use, including its combination with other herbs. Reviews the studies done on the plant as well as facts on synthetic antidepressants. Discusses St. John's wort's nutritional cofactors and makes lifestyle recommendations concerning diet, exercise, and stress reduction. Softcover, 192 pp. $9.95. #B318

GUARANA by Michael van Straten. 1994. Explores the health benefits of this herb that has been used by the natives of the Amazon River basin since the beginning of time. Also covers Lapacho, Pfaffia, Catuaba, and Stevia. 152 pp. $9.95. #B342

NEEM, A TREE FOR SOLVING GLOBAL PROBLEMS BOSTID. 1992. Medicinal uses, chemical constituents, growing and propagation, habitats, insecticidal use, cultural use, safety tests, reforestation, and industrial products. Softcover, 141 pp. $25. #B098

CANNABIS Ed. by David T. Brown. 1998. A series of expert dissertations, supported by over 700 references on the history, ethnobotany, chemistry and analysis, cultivation, and processing of Cannabis. The medicinal and non-medicinal uses of the plant and its derivatives are viewed in the context of national and international legislation to define and control its use. Hardcover, 286 pp. $100. #B405



SPECIFIC HERBS

THE GREEN TEA BOOK by Lester Mitscher and Victoria Dolby. 1998. Explores the history, research, and benefits green tea offers — its use as an antioxidant in the prevention of cancer, heart disease, and stroke; its ability to promote longevity; its use as a digestive aid; its many benefits to women's health; and its role in fighting cavities and gingivitis. Softcover, 186 pp. $9.95. #B323

CAT'S CLAW: HEALING VINE OF PERU by Kenneth Jones. 1995. History of a powerful medicinal vine and the researchers who have pioneered its use. Utilized for centuries by Asháninka Indians in Peru to control inflammations, gastric ulcers, arthritis, rheumatism, cancer, and as a contraceptive, cat's claw is now the subject of clinical research in Europe aimed at new treatments for AIDS, cancer, herpes, rheumatoid arthritis, and diseases in animals. Softcover. 152 pp. $9.95. #B201

CAFFEINE Ed. by Gene Spiller. 1998. This comprehensive text gathers in a single volume in-depth information on composition, processing, consumption, health effects, and epidemiological correlations for the methylxanthine beverages and foods. Hardcover, 374 pp. $110. #B316

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CARAWAY Ed. by Éva Németh. 1998. Authors from around the world present information about valuable traditions as well as the most up-to-date research results on the biology, chemistry, pharmacological uses, toxicology, agrotechnology, and utilization of the plant genus *Carum*. Hardcover, 200 pp. $70. #B402

CHEMISTRY AND APPLICATION OF GREEN TEA Ed. by T. Yamamoto, L. Juneja, H. Hatta, and M. Kim. 1997. The latest information on the chemistry, metabolism, and other aspects of tea polyphenols and their applications. Explores the many useful properties of green tea that have been scientifically investigated, such as inhibition of tooth decay, effects on chemoprevention of colon cancer and intestinal microflora, and antioxidant and deodorant properties. Hardcover, 250 pp. $74.95. #B276

POPPY by Jenõ Bernáth. 1998. Includes historical evaluation, botany, taxonomy, physiology, cultivation, pharmacological effectiveness, international control of their processing and trade, and the modern approach to compiling both the chemical and biotechnological information concerning the genus *Papaver*. Hardcover, 352 pp. $127. #B403

GINKGO: A PRACTICAL GUIDE by Georges Halpern. 1998. History, cultivation, its many beneficial effects on the body, the latest research, and case studies of people who have been helped by ginkgo. Forms that are available, where you can find it, how you can choose among the available products, how much you should take, and how you should take it. Softcover, 172 pp. $9.95. #B317

NEEM by H. S. Puri. 1999. Excellent treatment of the observations and research efforts of botanists, taxonomists, traditional medicine men, and medicinal chemists concerning Neem's botanical, medicinal, industrial, and agricultural uses. From processing and quality assurance of plant raw materials to toxicology, chemical constituents, and therapeutic indications and pharmacological studies. Hardcover, 182 pp. $70. #B401

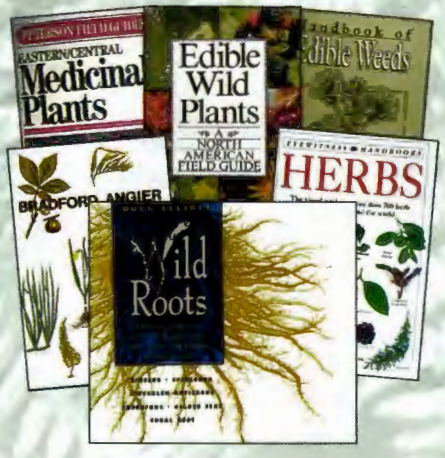
TRADE IN *PRUNUS AFRICANA* AND THE IMPLEMENTATION OF CITES by M. Cunningham, A. B. Cunningham, and U. Schippmann. 1997. Summarizes all available information on the extraction, commercialization, and trade in this medicinal plant species and aims at helping customs officials to identify the commodities in trade and to improve the implementation of CITES for this species. 52 pp. $12. #B333

THE HEALING POWER OF ECHINACEA AND GOLDENSEAL by Paul Bergner. 1997. In-depth discussion of echinacea and goldenseal as well as a detailed list of herbal remedies for specific illnesses, information on proper dosages, and a glossary of immune system terminology. 320 pp. $15. #B345

ERGOT Ed. by Vladimír Kren and Ladislav Cvak. 1999. Ergot alkaloids cover a wide spectrum of therapeutic uses. This volume address history, biology, taxonomy, biosyntheses, chemistry, cultivation, industrial production, receptors for and antimicrobial and antitumor effects of ergot alkaloids, and toxicology. Hardcover, 518 pp. $120. #B404

KAVA: NATURE'S ANSWER TO STRESS, ANXIETY, AND INSOMNIA by Hyla Cass and Terrence McNally. 1998. The best new book on Kava as a unique new herbal remedy for stress, anxiety, and insomnia. Covers when and how to use it, research and clinical evidence of its actions and effectiveness, how it compares favorably with prescription medications, as well as extensive references and resources. Softcover, 274 pp. $12.95. #B371

FIELD GUIDES



FIELD GUIDE TO EASTERN/CENTRAL MEDICINAL PLANTS by Steven Foster and James Duke. 1990. Pocket size guide identifying 500 medicinal plants, their uses, remedies, line drawings, over 200 color photos. From the Peterson Field Guide Series®. Hardcover, 366 pp. $26. #B096

EDIBLE WILD PLANTS: A NORTH AMERICAN FIELD GUIDE by Thomas Elias and Peter Dykeman. 1990. Comprehensive, precise, and filled with drawings, maps, and nearly 400 photographs, this is a superior guide to identifying, harvesting, and preparing over 200 healthful plants from the wild. Softcover, 286 pp. $17.95. #B240

A HANDBOOK OF EDIBLE WEEDS by James A. Duke. 1992. Contains 100 plants with a detailed description, parts used, habitat, region, safety precautions, historical use, current use, and illustration of each plant. Hardcover, 246 pp. $62.95. #B024

FIELD GUIDE TO EDIBLE WILD PLANTS by Bradford Angier. 1974. Full-color illustrations, family, common and Latin names, description, distribution, and edibility guidelines on 100 wild food plants across the United States and Canada. Softcover, 255 pp. $16.95. #B210

WILD ROOTS By Doug Elliott. 1995. A forager's guide to the edible and medicinal roots, tubers, corms, and rhizomes of North America. 69 roots listed, outlining botanical, family, and common names, habitat, line drawing, and edible and medicinal uses. 128 pp, Softcover, $14.95. #B173

HERBS by Leslie Bremness. 1994. More than 1500 full-color illustrations of over 700 species from around the world make this one of the most comprehensive guides to herbs available. Combines a concise description with annotated photographs to highlight the herb's distinguishing features and chief uses. Softcover, 303 pp. $18.95. #B207

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SELECTION, PREPARATION AND PHARMACOLOGICAL EVALUATION OF PLANT MATERIAL by Williamson, Okpako, Evans. 1996. Strategies for the selection and extraction of plant material, protocols for pharmacological investigation which are arranged in therapeutic sections, examples of data obtained by methods described, and advice on interpretation of results. Some topics covered are blood cholesterol lowering, liver protecting, estrogenic activity, and anti-platelet testing. Softcover, 228 pp. $78. #B227

MEDICINAL NATURAL PRODUCTS: A BIOSYNTHETIC APPROACH by Paul Dewick. 1997. Building on fundamental chemical principles and demonstrating a unique integration of plant, microbial and animal natural products, the author guides the reader through a wealth of diverse natural metabolites used in medicine. Sources, production methods, use as drugs, and modes of action are all covered, together with semi-synthetic derivatives and synthetic analogues developed from natural product templates. Softcover, 466 pp. $72.95. #B324

PHYTOMEDICINES OF EUROPE: CHEMISTRY AND BIOLOGICAL ACTIVITY Ed. by Larry Lawson and Rudolf Bauer. 1998. Articles on the status of herbs in the United States, Europe, the Commission E Monographs, and regulatory concerns; diseases and how they might be affected by a variety of plants; and reviews of the biological activity and chemistry of 12 popular herbs. 324 pp. $125. #B329

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DOWNSTREAM PROCESSING OF NATURAL PRODUCTS: A PRACTICAL HANDBOOK Ed. By Michael Verrall. 1996. Guides researchers and industrial workers through the potential pitfalls of natural product isolation. Covers: state-of-the-art techniques and observations; the three main stages of natural product purification: release, capture, and purification; proteins and secondary metabolites; G M P requirements; practical guidance on scale-up procedures and process scale instrumentation. Hardcover. 354 pp. $225. #B243

PHENOLIC COMPOUNDS IN FOOD AND THEIR EFFECTS ON HEALTH, VOLUME 1 Ed. by C. Ho, C. Lee, and M. Huang. 1992. Articles on analytical methodology, perspective, selected occurrence, flavor, chemical properties, and biochemical properties of phenolic compounds. Hardcover, 338 pp. $95. #B312

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THE MEDICINAL PLANT INDUSTRY by R. Wijesekera. 1991. Addresses a wide variety of topics including the old philosophies and modern impact of traditional medicines, and methods of assessing the spontaneous flora for industrial utilization. Covers aspects of cultivation and climatic variations, biological assessment and formulation, process technologies, phytochemical research, and information sources. Reviews highly developed traditional medicine in China and India, and covers experiences in Africa and other continents. Softcover, 269 pp. $314.95. #B256

ENCYCLOPEDIA OF COMMON NATURAL INGREDIENTS USED IN FOOD, DRUGS, AND COSMETICS by Albert Leung and Steven Foster. 1995. 2nd edition. Over 500 common natural ingredients and substances commercially used. Listed alphabetically according to common name, and includes synonyms, general descriptions, chemical composition, pharmacology or biological activities, uses and commercial preparations, regulatory status, and references. Hardcover, 624 pp. $175. #B136

A DICTIONARY OF NATURAL PRODUCTS by George Hocking. 1997. Subtitled "Terms in the Field of Pharmacognosy Relating to Natural Medicinal and Pharmaceutical Materials and the Plants, Animals, and Minerals from Which They Are Derived," this book contains more than 18,000 entries including English common name, Latin binomials, German common names of both plants, substances and common items used in pharmacy, colloquial names, chemical compounds found in many plants, and related plant miscellany. Hardcover, 994 pp. $139.50. #B300

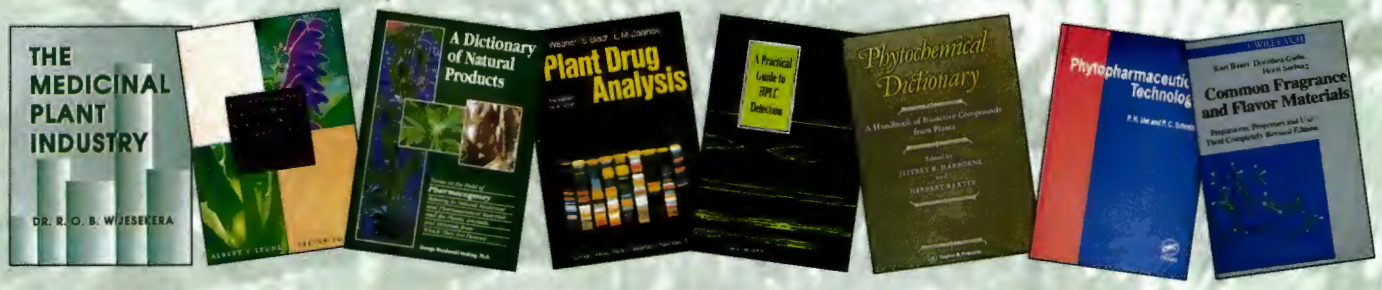
PLANT DRUG ANALYSIS by H. Wagner, S. Bladt, and E. M. Zgainski. 1995. 2nd edition. Invaluable and unique aid for all involved with herb production and analysis. 165 color plates, each showing 6 TLC chromatograms. Essential for every analytical lab. Hardcover, 320 pp. $212. #B083

A PRACTICAL GUIDE TO HPLC DETECTION Ed. by Donald Parriott. 1993. A guide for the practicing chromatographer that explores and compares existing detection systems, outlines the common problems associated with a given detector, and offers proven approaches to avoiding such problems. 293 pp. $71. #B332

PHYTOCHEMICAL DICTIONARY by Jeffery Harborne and Herbert Baxter. 1993. Over 3,000 substances and constituents are listed with information on trivial name, synonyms, structural type, chemical structure, molecular weight and formula, natural occurrence, biological activity, and other uses. Hardcover, 791 pp. $395. #B009

PHYTOPHARMACEUTICAL TECHNOLOGY by P. H. List and P. C. Schmidt. 1989. Reference that provides the basic information necessary to select and operate machinery and to process plant products through to the desired liquid, solid, or powdered form. Hardcover, 374 pp. $131.95. #B067

COMMON FRAGRANCE AND FLAVOR MATERIALS: PREPARATION, PROPERTIES AND USES by Kurt Bauer, Dorothea Garbe and Horst Surburg. 1997. 3rd edition. Survey of the 500 most used natural and synthetic fragrance and flavor materials which are isolated and produced commercially on a relatively large scale because of their organoleptic characteristics. Provides information concerning properties, methods employed in their manufacture, and areas of application. Hardcover, 278 pp. $155. #B389



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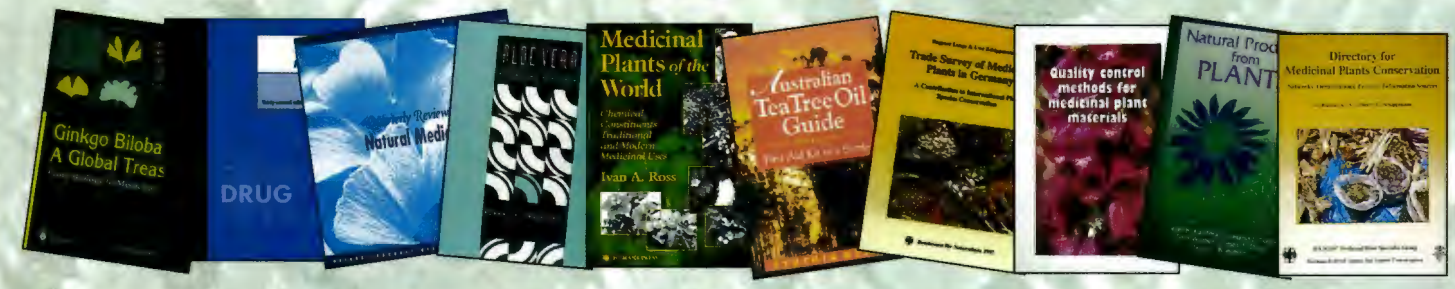

GINKGO BILOBA— A GLOBAL TREASURE Ed. by T. Hori *et al.* 1997. Latest findings of research on a broad range of topics that include cell biology, biochemistry, morphology, paleobotany, environmental engineering, and cultural history, as well as possible applications in chemistry and medicine. Extensive bibliography. Hardcover, 427 pp. $99. #B297

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ALOE VERA: A SCIENTIFIC APPROACH by Robert Davis. 1997. The first scholarly explanation of how aloe works. Demonstrates the relationship between the polysaccharide and surrounding active components. Meticulously researched and illustrated by clear, illuminating charts. Hardcover, 320 pp. $21.95. #B284

MEDICINAL PLANTS OF THE WORLD: CHEMICAL CONSTITUENTS, TRADITIONAL AND MODERN MEDICINAL USES by Ivan Ross. 1999. Documents the medicinal value of 27 major plant species widely used in formulations around the world. An exhaustive summary of scientific data for each plant, including known chemical constituents, provides detailed information on how the plant is used in different countries, describing its traditional therapeutic applications and its use in clinical trials. Hardcover, 415 pp. $99.50. #B377

AUSTRALIAN TEA TREE OIL GUIDE by Cynthia Olsen. 1997. 3rd edition. Contains up-to-date clinical research into tea tree oil's effectiveness against conditions including acne, herpes, candida, bleeding gums, and more. Includes history, harvesting and production, use with animals, products, and case studies. Softcover, 110 pp. $7.95. #B283

TRADE SURVEY OF MEDICINAL PLANTS OF GERMANY by Dagmar Lange and Uwe Schippmann. 1997. This study, conducted on behalf of the *Bundesamt fur Naturschutz* describes the national and international structures of the trade in plant drugs. An overview of the plant species identified, their trade commodities, and uses is given. The analysis of imports and exports from 1991 to 1994 emphasizes the important role of Germany in the international trade regime. Softcover, 128 pp. $12. #B252

QUALITY CONTROL METHODS FOR MEDICINAL PLANT MATERIALS by the World Health Organization. 1998. A collection of recommended test procedures for assessing the identity, purity, and content of medicinal plant materials intended to support development of national standards based on local market conditions. Includes macroscopic and microscopic examination, thin-layer chromatography, and tests for determination of many factors. Softcover, 115 pp. $31.50. #B406

NATURAL PRODUCTS FROM PLANTS by Peter Kaufman, Leland Cseke, Sara Warber, James Duke, and Harry Brielmann. 1999. Practical, relevant information on plant compounds, how and why they are made, how environmental factors regulate their synthesis, human use of natural products from plants, modes of action at target sites, extraction and identification, and a global view of plant conservation. Hardcover, 343 pp. $129.95. #B421

DIRECTORY FOR MEDICINAL PLANTS CONSERVATION by M. Kasparek, A. Groger, and U. Schippmann. 1996. Aims at providing information for policy makers, scientists, and technical experts in the management of medicinal plant resources. Provides information on more than 200 networks, organizations, and projects worldwide dealing with research, management, policy making, and conservation. Key journals and databases in the field are highlighted. Softcover, 156 pp. $12. #B253

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WOMEN'S HERBS, WOMEN'S HEALTH by Christopher Hobbs and Kathi Keville. 1998. Discusses today's major women's health issues in an understandable yet comprehensive way. A sourcebook of knowledge about how the body works, in medical terms as well as in the view of traditional medicine. Herbal remedies enhanced by modern viewpoints, physiology, and plant chemistry. Softcover, 240 pp. $16.95. #B367

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BOTANICAL INFLUENCES ON ILLNESS by Melvin Werbach, M.D. & Michael T. Murray, N.D. 1994. Reviews of botanical treatments for 60 different illnesses. Materia medica on 26 common phytomedicines and annotated list of resources. Hardcover, 341 pp. $39.95 #B074

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HERBAL MEDICINE by Rudolf Fritz Weiss, M.D. 1985. The now classic text used by M.D.s in Germany. An indispensable modern text in medical herbalism. Many herbs are illustrated. Plant drugs are arranged by clinical diagnoses relating to particular systems. Softcover, 362 pp. $55. #B006

TYLER'S HERBS OF CHOICE: THE THERAPEUTIC USE OF PHYTOMEDICINALS by James Robbers and Varro Tyler. 1999. 2nd edition. Up-to-date legal data about herb use in the U.S., clinical studies and advances in determining mechanism of action, information essential for understanding any medicinal agent and its rational use in therapeutics, easy-to-follow breakdown of how herbal remedies are used to treat various conditions and systems, and an expanded introduction to phytomedicines and their respective applications. 287 pp. Hardcover, $49.95. #B079H. Softcover, $19.95. #B079S

HERBAL PRESCRIPTIONS FOR BETTER HEALTH by Donald Brown. 1996. Discusses the most well researched herbal medicines and effective herbal treatments for dozens of health conditions. Including vitamins, minerals, and herbs, each prescription covers preparation, dosage, possible side effects, and cautions. Extensive references and additional resources. Softcover, 349 pp. $16. #B183

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PHYTOTHERAPY IN PAEDIATRICS by Heinz Schilcher. 1997. As only some of the many diseases of infants and young children can be treated by phytotherapy, this book is intended as an addition to synthetic drug therapy rather than as an alternative. Includes 14 indications for external applications and 30 for internal use. Softcover, 181 pp. $35. #B279

CLINICAL EVALUATION OF MEDICINAL HERBS AND OTHER THERAPEUTIC NATURAL PRODUCTS by Steven Bratman and David Kroll. 1999. A clinical reference guide aimed primarily at pharmacists and other health professionals which provides a scientific reference on herbal medicine indications, pharmacology, and herb-drug interactions. Covers 45 of the most popular herbs and dietary supplements. Includes registration for a year of updates. Hardcover binder, 227 pp. $160. #B412

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CLINICAL APPLICATIONS OF AYURVEDIC AND CHINESE HERBS by Kerry Bone. 1996. Provides comprehensive monographs on important Ayurvedic and Chinese herbs in a form suited to practitioners of western herbal medicine. The monographs emphasize the large body of pharmacological and clinical information now available for the 32 plants covered. Softcover, 152 pp. $30. #B291

THE HEALING POWER OF HERBS by Michael Murray. 1995. 2nd edition. Up-to-date and carefully researched, latest scientific findings about efficacy of medicinal herbs. Addresses common food herbs and spices, tonics, sedatives, and herbs for asthma and hayfever, immune-system enhancement, bladder infections, diabetes, herpes, and menopause. Softcover, 410 pp. $15.95. #B155

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KIDS, HERBS, HEALTH by Linda White and Sunny Mavor. 1998. Topics covered include understanding herbal medicine, children's herbs, keeping kids healthy, a discussion of antibiotics, natural first aid, and childhood health concerns from allergies and attention disorders to sleep and skin disorders. Includes recipes for colds, flu, fever, and more. Softcover, 272 pp. $21.95. #B395

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COLORING BOOK OF THE MAYA RAIN FOREST Text by Dr. Rosita Arvigo, illustrations by Tessa Fairweather. 1992. Written in both English and Spanish, this book is a delightful way to learn about the useful plants and trees growing in tropical areas. Includes space to enter other medicinal plants you find and where found, and items you find that are made of plant material. $6. #G006

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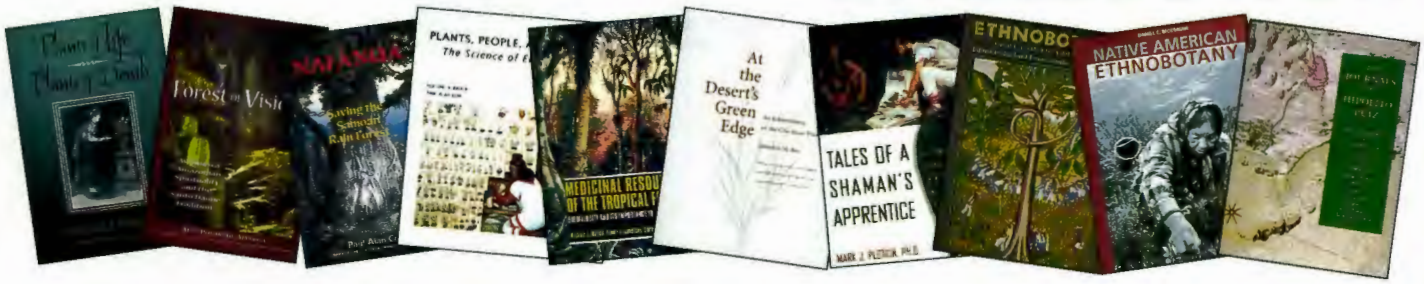
ETHNOBOTANY



PLANTS OF LIFE, PLANTS OF DEATH by Frederick Simoons. 1998. Examines plants associated with ritual purity, fertility, good health, prosperity, and life, and with plants associated with ritual impurity, sickness, ill fate, and death. Identifies and discusses physical characteristics of plants that have contributed to their contrasting ritual roles, and emphasizes the point that the ritual roles of plants are shaped by basic human concerns that were as important in antiquity as they are today. Softcover, 568 pp. $34.95. #B393

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PLANTS, PEOPLE, AND CULTURE by M. Balick and P. Cox. 1996. Beginning with the prehistoric use of plants by hunter-gatherers and the development of agriculture, the authors reveal how studies of plant use by indigenous peoples is the key to understanding the history of human civilization. Intriguing first and stories of fieldwork in remote villages deep in the rainforests of South America, Africa, and the islands of the South Pacific reveal the vast amount of knowledge indigenous peoples possess that warrants preservation. Hardcover, 228 pp. $32.95. #B196

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NATIVE AMERICAN ETHNOBOTANY by Daniel Moerman. 1998. Long anticipated, unique and exhaustive compilation of the uses of plants by Native North Americans that brings physical and intellectual order to what was before a sea of ethnographic, botanical, and historical information. 4029 kinds of plants, 44,691 usages in 189 different usage categories. Indices of tribes, usages, synonyms, and common names. Hardcover, 927 pp. $79.95. #B355

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CANCER RESEARCH

HERBS AGAINST CANCER: HISTORY AND CONTROVERSY by Ralph Moss. 1998. Not meant as a guide for cancer patients on how to treat themselves with herbs, this book is a historical and critical analysis of herbs used in cancer treatment. Well-researched and referenced, the author offers an honest and objective discussion of a compelling topic. Softcover, 300 pp. $16.95. #B374

CANCER AND NATURAL MEDICINE by John Boik. 1996. Known effects of natural therapies on key biomechanical processes active during cancer progression. Based on published scientific data obtained from over 1,200 references. Comprehensive review of cancer physiology, covering such topics as differentiation, angiogenesis, apoptosis, invasion, metastasis, and immune and hormonal interactions. Natural therapies reviewed include herbs, vitamins, minerals, enzymes, cartilage, Chinese medicine, electrotherapy, antioxidants, flavonoids, and others. Softcover, 315 pp. $28. #B161

CANCER SALVES by Ingrid Naiman. 1999. Different types of cancer salves and herbs are discussed, including pros and cons of salve use and the conditions under which they may be safe and appropriate. Case histories and methods are given. Major anti-cancer herbs are described in considerable detail along with exact formulae used by famous physicians and practitioners of natural medicine who developed poultices, pastes, and other herbal remedies for cancer. Softcover, 235 pp. $27.50. #B415

CANCER AND THE SEARCH FOR SELECTIVE BIOCHEMICAL INHIBITORS by E. J. Hoffmann. 1999. Examines nonorthodox methods, particularly plant and herbal possibilities, for treating cancer. Includes a full account of the main conventional and alternative cancer treatments currently available. Provides detailed information about the biochemistry of cancer. Lists bioactive plant species, their chemical taxonomy and phytochemicals, notably those considered anticancer agents. Reports the latest findings on the genesis of cancer cells including the action of viruses. Hardcover, 560 pp. $139.95. #B410

NUTRITIONAL ONCOLOGY Ed. by David Heber, George Blackburn, and Vay Liang W. Go. 1999. Addresses the principles of nutritional oncology, including cell biology, environmental and chemical carcinogenesis, oxidant stress, and elements of human diet. Also, methods of clinical, nutritional, immunological, biochemical, and nutritional endocrine assessment of the patient. Fields of nutritional intervention and chemoprevention of cancer are included using an organ-specific approach. Discusses the treatment of the malnourished patient using nutritional and pharmacological approaches. Hardcover, 632 pp. $149.95. #B413

GENERAL BOTANY

BOTANY IN A DAY by Thomas J. Elpel. 3rd edition. 1998. Learn how to identify plants by the dozens by learning to recognize the patterns they share. Related plants have similar features for identification and they often have similar properties and uses. More than 100 plant families and over 650 genera. 182 pp. $19.95. #B340

THE PLANT BOOK by D. J. Mabberly. 1987 Comprehensive portable dictionary of flowering plants, conifers, and ferns will be of value to botanists, zoologists, gardeners, foresters, agriculturalists, journalists, and writers. Softcover, 706 pp. $49.95. #B001

BOTANY–AN INTRODUCTION TO PLANT BIOLOGY by James D. Mauseth. 2nd Ed. 1995. Emphasis on evolution by natural selection, analysis of botanical phenomena, and diversity of organisms. Color photos and transparencies. Glossary and index, Hardcover, 800 pp. $80. #B036

MANUAL OF VASCULAR PLANTS OF NORTHEASTERN UNITED STATES AND ADJACENT CANADA by H. Gleason and A. Cronquist. 1991. 2nd ed. NO LONGER AVAILABLE g plants of the area, incorporati konomic research. Includes in glossary, descriptions of plants, index, and room for notes. Hardcover, 910 pp. $69. #B266

BOTANICAL LATIN by William Stern. 1992. 4th edition. Summarizes the grammar and syntax of botanical Latin, and covers the roots and origins of Latin and Latinized geographical names, color terms, symbols and abbreviations, diagnoses and descriptions, the formation of names and epithets, and more. Hardcover, 546 pp. $44.95. #B143

DICTIONARY OF PLANT NAMES by Allen Coombes. 1995. More than 1000 plants arranged alphabetically with common names cross referenced for easy access. Botanical names, country of origin, meaning and pronunciation, and other interesting facts. Hardcover, 194 pp. $12.95. #B273

PHARMACOGNOSY

DRUGS OF NATURAL ORIGIN: A TEXTBOOK OF PHARMACOGNOSY by Gunnar Samuelsson. 1999. 4th edition. Extensively revised and extended. Arranged according to biosynthetic principles, which places the substances in a natural context and facilitates the understanding of the often complicated chemical structures. Knowledge of the biosynthesis of pharmacologically active compounds has increased tremendously in the last few years and is reflected in a substantial increase in the information presented in this book. Hardcover, 550 pp. $64. #B093

TREASE & EVANS' PHARMACOGNOSY by W. C. Evans. 14th Edition, 1989. Standard text in Great Britain. A must for the research library and quality assurance labs of herb and dietary supplement companies worldwide. Hardcover, 832 pp. $83. #B015

PHARMACOGNOSY AND PHARMACOBIOTECHNOLOGY by Robbers, Speedie, and Tyler. 1996. U.S. text on natural product drugs, arranged mainly by biosynthetic and chemical relationships, including biotechnology-derived pharmaceuticals, a comprehensive treatment of antibiotics, and important herbal drugs in current use. Hardcover, 337 pp. $43.95. #B008

PHARMACOGNOSY, PHYTOCHEMISTRY, MEDICINAL PLANTS by Jean Bruneton. 2nd edition. 1995. Organized in four parts (primary metabolites, phenols, terpenes and steroids, and alkaloids). Phytochemical generalities, distribution, biosynthesis, extraction and quantitation methods, and biological properties. Origin, identity, production, composition, uses, processing, and optimization for each raw material. Therapeutical indication and recommended usage specified for each product. Hardcover, 915 pp. $218. #B149

AFRICA

MEDICINAL PLANTS OF WEST AFRICA by Edward Ayensu. 1978. 187 plants that occur in West Africa, their uses, local names, and standard scientific binomials. Bibliography, glossary of medical terms, medical and botanical indexes. 127 illus. Hardcover, 330 pp. $45. #B094

MEDICINAL PLANTS OF NORTH AFRICA by Loutfy Boulos. 1983. Authoritative, systematic, and wide-ranging work, illustrated with 103 line drawings. Over 500 species. Medical, common name, and botanical indexes. Hardcover, 286 pp. $45. #B125

MEDICINAL PLANTS OF SOUTH AFRICA by B. Van Wyk, B. Van Oudtshoorn, and N. Gericke. 1997. 132 medicinal plants; over 500 photographs of plants, plant parts used and products; introductory chapters on cultural aspects of healing, methods of collection and storage; methods of preparation and administration; plant list according to ailments; 132 geographical distribution maps; and comprehensive references for further reading. Hardcover, 104 pp. $75. #B314

HERBS, HEALTH, HEALERS: AFRICA AS ETHNOPHARMACOLOGICAL TREASURY by Peter De Smet. 1999. With more than 400 color photographs, many of African art from various collections including the Afrika Museum in Berg en Dal, The Netherlands, this book addresses in a stunning and very accessible way how sub-Saharan Africans use herbal drugs and poisons both medicinally and religiously. Integrates the ethnopharmacological perspective with other biomedical methods that are available to African healers and the diseases which must be treated. Softcover, 180 pp. $59. #B407

AFRICAN ETHNOBOTANY: POISONS AND DRUGS by H. D. Neuwinger. 1994. Comprehensively reviews the chemical composition, pharmacology, and toxicology of more than 240 plants. Covers botany, vernacular names, hunting poison, traditional medicine, chemistry, pharmacology/toxicology, and literature. Hardcover, 941 pp. $119.95. #B325

AMAZONIA / RAINFORESTS

NON-TIMBER PRODUCTS FROM TROPICAL FORESTS Ed. by Daniel Nepstad and Stephan Schwartzman. 1992. Volume 9 of the *Advances in Economic Botany* series subtitled *Evaluation of a Conservation and Development Strategy*. Contains 14 papers covering the biological and political context, social and economic context in Amazonia and in Africa and Asia; barriers to and strategies for expanding non-timber forest product extraction. Softcover, 164 pp. $18.95. #B274

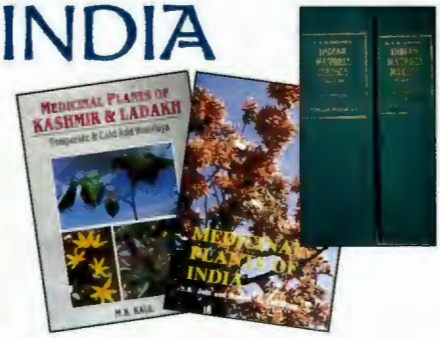
LA DOCTORA by Linnea Smith. 1999. A rare glimpse into the suspense and drama of practicing allopathic medicine in the far reaches of the Amazon rainforest. Learn how Dr. Linnea Smith left her thriving medical practice in Wisconsin to tend the Yagua Indians of Peru; an inspiring testimony to one person's power to make a lasting difference. Softcover, 238 pp. $14.95. #B380

A FIELD GUIDE TO MEDICINAL AND USEFUL PLANTS OF THE UPPER AMAZON by J. L. Castner, S. L. Timme and J. A. Duke. 1998. Practical guide to approximately 100 of the most important and representative plants of the region. Includes a fascinating discussion and beautiful color photos of each plant. Softcover, 151 pp. $35. #B358

THE HEALING FOREST by Richard E. Schultes and Robert F. Raffauf. 1990. Field research spanning a half-century in the Northwest Amazon. Over 1,600 species listed. The modern classic on Amazonian ethnobotany. B/W photos, illus., hardcover, 486 pp. $69.95. #B002.

AMAZONIAN ETHNOBOTANICAL DICTIONARY by James Duke and Rodolpho Vasquez. 1994. An excellent resource book on the wealth of botanicals in the Amazon. Lists uses and common names of hundreds of plants. Illus., softcover, 215 pp. $57.95. #B071.

INDIA



MEDICINAL PLANTS OF KASHMIR AND LADAKH by M. K. Kaul. 1997. Comprehensive information on 111 selected medicinal plants occurring in the temperate and cold arid regions of the Himalayas. Includes a chapter on traditional knowledge of healing properties in 291 plants used ethnomedicinally. 69 color photos. Hardcover, 173 pp. $40. #B290

MEDICINAL PLANTS OF INDIA by S. K. Jain and Robert DeFilipps. 2 vol. set. 1991. Surveys the medicinal plant resources of India (including Nagaland) and Sikkim, covering 860 species, and listing plants used in Western, Unani, and Ayurvedic medicines. Includes medicinal common names, botanical indexes, bibliography, and 133 full-page illustrations. Hardcover, 848 pp. $99. Set. #B121

THE INDIAN MATERIA MEDICA by Dr. Kim Nadkarni. Two volumes. 1993. This updated classic, known as the Ayurvedic Bible, contains about 2,000 herbs by botanical name, common Indian name in seven languages (including English), habitat, parts used, varieties, action, and common historical uses. Hardcover, 2,286 pp. $100. #B070

THE PACIFIC

THE ABANDONED NARCOTIC: KAVA AND CULTURAL INSTABILITY IN MELANESIA by Ron Brunton. 1989. Taking the varying fortunes of kava on the island of Tanna, Vanauta, as his starting point, the author suggests that kava's abandonment can best be explained in terms of its association with unstable religious cults and is part of a broader problem of why many traditional Melanesian societies were characteristically highly unstable. Hardcover, 219 pp. $54.95. #B134

A HAWAIIAN FLORILEGIUM: BOTANICAL PORTRAITS FROM PARADISE Illustrated by Mary Grierson, text by Peter Green. 1996. Contains 43 watercolors depicting native plants of Hawaii as well as Polynesian and modern introduced plants now prevalent in the islands. Text covers the ethnobotany and legends of the early Hawaiians, taxonomic research of botanists, and the history that brought such an incredible mix of species to the islands. Hardcover, 102 pp. $45. #B295

THE STRAIGHT PATH OF THE SPIRIT: ANCESTRAL WISDOM AND HEALING TRADITIONS IN FIJI by Richard Katz. 1999. An in-depth study of the healing and spiritual aspects of kava in its original cultural context, as well as an engrossing story of indigenous healers and a dramatic account of cultures in collision. The straight path of the title is a journey through life whose truth is revealed only to the extent that it is searched for with honesty and faith, and it emphasizes the spiritual dimension of health and the ceremonial use of kava. Softcover, 411 pp. $19.95. #B409

MAORI HEALING AND HERBAL by Murdoch Riley. 1994. The first half of this New Zealand ethnobotanical sourcebook discusses 85 Maori healing and health topics, from mundane things like arthritis and backache to topics like drowning and tattooing. Part two presents over 200 medicinal plants with color photographs, description, relationships, and external and internal uses. Hardcover, 528 pp. $65. #B222

TONGAN HERBAL MEDICINE by W. Arthur Whistler. 1992. Provides an overview of traditional Tongan medicine, including causation of illness, medical problems, and practices of priests and lay healers. Discusses modern Tongan medicine in depth, including concepts of sickness and health, types of ailments, and contemporary herbal medicine. Includes descriptions and uses of 77 commonly used herbs. Softcover, 122 pp. $13. #B204

BEYOND SLASH AND BURN: BUILDING ON INDIGENOUS MANAGEMENT OF BORNEO'S TROPICAL RAIN FORESTS by Carol Colfer with Nancy Peluso and Chin See Chung. 1997. Explores the complex management systems the indigenous Kenyah people of Borneo have developed for their tropical forests, including the uses they make of the various stages of forest regrowth, the benefits gained from the forest, and recommendations of how these systems might be adapted to help in the conservation of other tropical rain forests. Softcover, 236 pp. $28. #B387

ASIA

CHINESE HERBAL PATENT FORMULAS by Jake Fratkin. 1986. Complete guide to 225 Chinese herbal patent medicines organized according to traditional categories, with discussion of their energetic applications, symptoms, cautions and precautions, and ingredients with percentage composition. Includes 49 American products made with Chinese herbs, Chinese characters and pinyin pronunciations, and a complete index by symptom and Chinese pathology. Softcover, 352 pp. $17.95. #B215

CHINESE HERBAL MEDICINE: MATERIA MEDICA by Dan Bensky and Andrew Gamble. Revised 1993. Extensive sourcebook about the most commonly used substances in Chinese herbal medicine. Each herb is illustrated and identified by its pharmaceutical, botanical, and family names. Hardcover. 556 pp. 380 illustrations. $75. #B003

CHINESE MATERIA MEDICA: CHEMISTRY, PHARMACOLOGY AND APPLICATIONS by You-Ping Zhu. 1998. Comprehensive, up-to-date information on Chinese herbs, and an in-depth look at the traditional experience of Chinese *materia medica* with modern scientific explanations. Theories, concepts, sources, production and quality control of Chinese *materia medica*. Hardcover, 706 pp. $132. #B353

THE CHINESE HERB SELECTION GUIDE by Charles Belanger. 1997. A traditional and modern clinical repertory with a summary materia medica for the health care practitioner. All the necessary information to make effective herb preparations for your patients. Softcover, 882 pp. $59.95. #B360

CHINESE MEDICINAL TEAS by Zong Xiao-fan and Gary Liscum. 1996. A compendium of easy to make and take Chinese herbal remedies. Most of these folk recipes use only two to four easily obtained ingredients steeped in boiling water; many include tea leaves and a sweetener. Softcover, 312 pp. $19.95. #B350

OUTLINE GUIDE TO CHINESE HERBAL PATENT MEDICINES IN PILL FORM by Margaret Naeser. 1991. 2nd edition. Over 175 patent medicines. Organized with Chinese characters and English translation and Pinyin spelling, function and clinical application, ingredients with explanation of clinical function of each herb, pictures of packaging. Softcover, 371 pp. $29.95. #B099

CHINESE HEALING FOODS AND HERBS by Albert Leung. 1984. Describes 48 traditional Chinese herbs, their sources, history, components, dosages, safety precautions, effects, and recipes. Illus., softcover, 192 pp. $10.95. #B054

CHINESE HERBAL MEDICINE by Daniel Reid. 1986. Examines 200 examples of the natural flora and fauna on which Chinese herbal medicine is based and explains the philosophy that propelled its development. Well-illustrated and easy-to-read, this book provides the general reader with insight into one of the world's most complex and little-known sciences. Softcover, 174 pp. $25. #B306

CHINESE TRADITIONAL HERBAL MEDICINE: VOL. 1, DIAGNOSIS AND TREATMENT NEW! by Michael Tierra and Leslie Tierra. 1998. Focuses on theory, principles, diagnostic methods, and treatment modalities that are essential to Traditional Chinese Medicine. Provides systematic insight and practical information for meaningful application of these principles. Describes The Four Diagnosis method. Softcover, 401 pp. $22.95. #B426

CHINESE TRADITIONAL HERBAL MEDICINE: VOL. 2, MATERIA MEDICA AND HERBAL RESOURCE NEW! by Michael Tierra and Leslie Tierra. 1998. Provides an extensive *materia medica* and herbal resource organized and developed for the Western practitioner. Discusses the use of Chinese herbal formulas and treatment of specific disease conditions, and provides useful index listings, including Latin name, Chinese name, Chinese Herbal formulas, and a general index. Softcover, 467 pp. $24.95. #B427

THE ILLUSTRATED CHINESE MATERIA MEDICA by Kun-Ying Yen. 1992. Over 240 of the most commonly used agents in Chinese medicine, arranged in pharmacognostic style according to plant part used. Included are names, origins, characters, quality, production area, properties and actions, indications, chemical constituents, and representative formulas. Appendices include drug function comparison tables, a short description of drug processing, 356 formulas with ingredients and indications, and a glossary of Chinese medical terms. Plants are indexed by English, Latin, Pinyin, Japanese, and Chinese names. Hardcover, 383 pp. $79.95. #B158

CHINESE MEDICINAL WINES AND ELIXIRS by Bob Flaws. 1994. Contains the ingredients, method of preparation and administration, indications, and contraindications of more than 200 authentic Chinese medicinal wines. Translated from both premodern and contemporary Chinese sources, this is the largest, most complete book in English on this topic. Softcover, 242 pp. $19.95. #B348

MEDICINAL PLANTS OF CHINA by James Duke and Edward Ayensu. 1985, Two volumes. Covers 1,240 species with line drawings, names, uses, chemical constituents, and parts used for each herb. Intended for the use of biologists, chemists, and laypersons. B/W illus., Hardcover, 705 pp. $99. #B048

THE DIVINE FARMER'S MATERIA MEDICA (A translation of the Shen Nong Ben Cao Jing by Yang Shou-zhong) 1998. First English translation of one of the three foundation books of Chinese medicine and the *materia medica* from which all others have been derived. A must for all serious students and practitioners of Chinese medicine. Softcover, 198 pp. $21.95. #B366

BETTER HEALTH WITH (MOSTLY) CHINESE HERBS AND FOODS by Albert Leung. 1995. Sixty herbs and foods, not primarily used as medicine, that supply certain unconventional nutrients which may be missing from modern diets. Includes Latin binomial and family name of plant source, parts used, properties, most common traditional uses, and full-color photographs. Softcover, 105 pp. $7.46. #B218

ORIENTAL MATERIA MEDICA by Hong-Yen Hsu *et. al.* 1986. A standard reference. Covers 768 Chinese herbs, combining traditional properties and effects with reports on developments in botanical and biochemical research into their structures and actions. Hardcover, 932 pp. $69.95. #B157

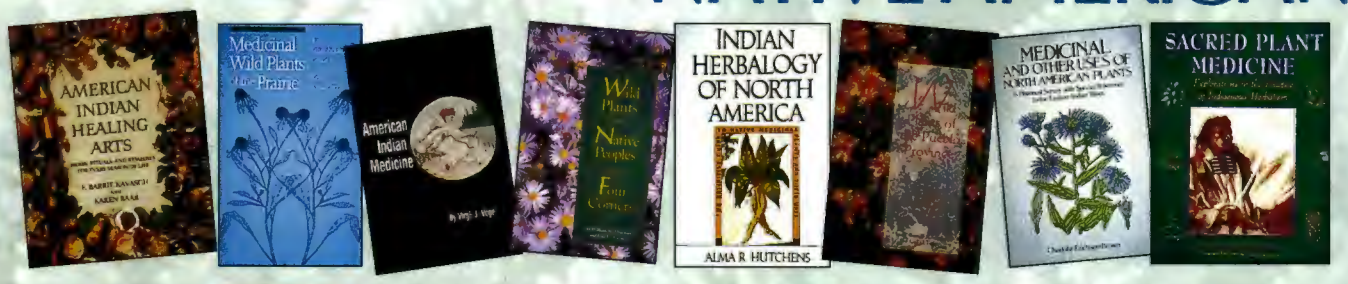
ORIENTAL MEDICINE: AN ILLUSTRATED GUIDE TO THE ASIAN ARTS OF HEALING Ed. by J. Van Alphen and A. Aris. 1997. Covers the key concepts of theory, diagnosis, and actual practice of Indian, Tibetan, and Chinese traditional medicine. Essays by 17 contributors (both western academicians and physicians working within the individual disciplines) are accompanied by beautiful, full-color illustrations, both ancient and modern. Softcover, 271 pp. $39.95. #B303

CHINESE HERBAL MEDICINE: FORMULAS AND STRATEGIES by Dan Bensky and Randall Barolet. 1991. The first book of Chinese medicinal formulas in English. 600 Chinese medicinal formulas in 18 functional categories. 18 illustrations, Hardcover, 562 pp. $85. #B004

PLANT RESOURCES OF SOUTH-EAST ASIA 12 (1) MEDICINAL AND POISONOUS PLANTS 1 NEW! Ed. by L.S. de Padua, N. Bunyapraphatsara, and R.H.M.J. Lemmens. 1999. Medicinal and poisonous plants are a rich source of promising chemical compounds. Thus, the best way to find new applications of plant-derived drugs would seem to be to combine local knowledge with the results of modern research on the properties of plant-derived medicines. This book provides the latest information on the botanical, agricultural, chemical, and medicinal aspect of 92 genera and species. Also sections on phytochemistry, biological and pharmacological activity and therapeutical applications, botany, ecology, agronomy, harvesting and handling after harvest, processing, utilization and quality control, genetic resources and breeding, and research and development. Hardcover, 711 pp. $175. #B432

PHARMACOLOGY OF CHINESE HERBS by Kee Chang Huang. 1998. 2nd edition. 473 herbs, describing the chemical composition, pharmacological actions, toxicity, and therapeutic uses of each herb. Lists scientific and experimental data. Hardcover, 388 pp. $149.95. #B046

NATIVE AMERICAN



AMERICAN INDIAN HEALING ARTS: HERBS, RITUALS, AND REMEDIES FOR EVERY SEASON OF LIFE by E. Barrie Kavasch and Karen Baar. 1999. A blend of plant lore, history, and living tradition including more than 60 easy-to-use herbal remedies, many now being confirmed by modern research, and guidelines for assembling a basic American Indian medicine chest. Softcover, 309 pp. $17.95. #B411

MEDICINAL WILD PLANTS OF THE PRAIRIE by Kelly Kindscher. 1992. 203 native prairie plant species used by Native Americans, settlers, and doctors. Includes botanical, Native American, and common name; description and habitat; parts used; Native American use; medical use; scientific research; and cultivation. Softcover, 340 pp. $12.95. #B140

AMERICAN INDIAN MEDICINE by Virgil Vogel. 1990. The classic work in this field. Lists the practical and pharmacological bases of treatment and cure. Essay on the medical aspects of Indian history, folklore, pharmacology, and botany. Softcover, 578 pp. $24.95. #B131

WILD PLANTS AND NATIVE PEOPLES OF THE FOUR CORNERS by William Dunmire and Gail Tierney. 1997. Profiles of more than fifty individual plant species that have important cultural associations and are relatively easy to find growing in the Four Corners region. Illustrations and descriptions make identification easy. A multitude of uses is covered. Softcover, 312 pp. $22.50. #B286

INDIAN HERBOLOGY OF NORTH AMERICA by Alma Hutchens. 1973. Illustrated encyclopedic guide to more than 200 medicinal plants found in North America, with descriptions of each plant's appearance and uses, and directions for methods of use and dosage. Much data based on Russian research. 382 pp. $19. #B338

WILD PLANTS OF THE PUEBLO PROVINCE by William Dunmire and Gail Tierney. 1995. A chronicle of plant uses that encompasses all of the traditional territory of the nineteen modern pueblos of New Mexico, centering in the middle Rio Grande Valley. Documents the prehistoric, historic, and contemporary uses of 300 species of southwestern flora. Softcover, 289 pp. $22.50. #B241

MEDICINAL AND OTHER USES OF NORTH AMERICAN PLANTS by Charlotte Erichsen-Brown. 1979. Focuses on the ways North American Indians, especially Eastern tribes, have used plants. Plants are grouped according to habitat: wet, open places, woods and thickets, and dry, open places. A detailed line drawing of the plant's leaves, buds, twigs, seeds, and other characteristic features accompanies the textual descriptions. Softcover, 512 pp. $12.95. #B137

SACRED PLANT MEDICINE by Stephen Buhner. 1996. Looks at the historical use of plants by Native Americans and gives a detailed look at how the sacredness of plants is experienced in indigenous cultures. Includes color plates of 19 species of plants, a short compendium of plants and their uses as sacred medicine, and an appendix that addresses ethical harvesting. Softcover, 210 pp. $18.95. #B228

U.S. REGIONAL

HEALING PLANTS: A MEDICINAL GUIDE TO NATIVE NORTH AMERICAN PLANTS AND HERBS by Ana Nez Heatherley. 1998. A concise guide to traditional herbal medicine that examines 100 types of healing plants and herbs common to North America, citing the afflictions they remedy and offering understandable scientific explanations for each plant's effectiveness. Includes growing tips, methods of preparation, herbal food ideas, and information on the latest research. Softcover, 252 pp. $16.95. #B365

HEALING WITH PLANTS IN THE AMERICAN AND MEXICAN WEST by Margarita Kay. 1996. Descriptions of 100 plants including botanical and common plant names, history, contemporary uses, a description of how the plant is prepared and administered, and brief phytochemical data. Softcover, 315 pp. $19.95. #B229

SHINNER'S & MAHLER'S ILLUSTRATED FLORA OF NORTH CENTRAL TEXAS by George Diggs, Jr., Barney Lipscomb, and Robert O'Kennon. 1999. Information on 2,223 species, nearly half known for the entire state of Texas, line drawings for all species, 174 color photographs, and appendices covering botanically related internet addresses, conservation organizations, native plants to use as ornamentals, phylogeny, and endemic species make this book useful to a wide audience. Hardcover, 1626 pp. $95. #B417

MEDICINAL PLANTS OF THE DESERT AND CANYON WEST by Michael Moore. 1989. Guide to identifying, preparing, and using traditional medicinal plants. Exposes the botanical wealth of the desert and the need to protect it. Softcover, 184 pp. $13.95. #B113

EDIBLE AND MEDICINAL PLANTS OF THE WEST by Gregory Tilford. 1997. Full-color photographic guide to the identification, edibility, and medicinal uses of more than 250 plant species, growing from Alaska to southern California, east across the Rocky Mountains and the Northern Plains to the Great Lakes. Softcover, 239 pp. $21. #B278

LOS REMEDIOS by Michael Moore. 1990. Comprehensive text detailing 172 plants with primary and secondary uses cross indexed by Spanish, scientific, and primary names of each plant. Includes precautions, usefulness ratings, dosage, preparation methods, and therapeutic index grouping ailments and complaints with the plants best suited to treat them. Softcover, 108 pp. $9.95. #B260

RAINFOREST: ANCIENT REALM OF THE PACIFIC NORTHWEST Photography by Graham Osborne, text by Wade Davis. 1998. Stunningly beautiful tribute to North America's temperate rainforest, one of the richest ecosystems in the world. Provides a haunting reminder that it is not just the tropical rainforest that we need to save. Hardcover, 128 pp. $35. #B383

MEDICINAL PLANTS OF THE PACIFIC WEST by Michael Moore. 1993. Guide to over 300 species geographically ranging from Baja California to Alaska. Details what medicinal plants exist, where to find them, how to identify, gather, and use them. Softcover, 359 pp. $22.50. #B114

INFUSIONS OF HEALING; A TREASURY OF MEXICAN-AMERICAN HERBAL REMEDIES NEW! by Joie Davidow. 1999. Hundreds of safe, effective herbal treatments for everyday ailments; alphabetical listing of more than 200 herbs and plants, including their English, Spanish, Nahuatl (Aztec), and botanical names, with extensive notes on their histories and healing properties; and advice from contemporary traditional healers and practitioners of Mexican-American herbal medicine with remedies recorded in print for the first time. Softcover, 367 pp. $14. #B434

MEDICINAL PLANTS OF THE MOUNTAIN WEST by Michael Moore. 1979. Guide to the identification, preparation, and uses of traditional medicinal plants found in mountains, foothills, and upland areas. 120 plant types, covering 1,000 species with a down-to-earth practical approach. Softcover, 200 pp. $13.95. #B112

FROM EARTH TO HERBALIST by Gregory Tilford. 1998. Full-color guide to the sustainable harvest and use of 52 species of North American medicinal plants, emphasizing principles of ethical wildcrafting, identification, propagating, making and using herbal remedies, and when to choose alternative or adjunct herbal medicines. Softcover, 248 pp. $21. **SALE PRICE $18.95**. #B370

CENTRAL AMERICA

TAKING CARE OF SIBÖ'S GIFTS by Palmer, Sánchez, Mayorga. 1991. An environmental treatise from Costa Rica's KékölDi Indigenous Reserve, this book shows how the rainforest provides the KékölDi people with everything they need to live, as long as they respect Sibö's (God's) laws governing the use of natural resources. Income from book sales goes directly to the KékölDi people, to support their rainforest conservation efforts and their cultural school. Softcover, 96 pp. $12. #B225

RAINFOREST REMEDIES: ONE HUNDRED HEALING HERBS OF BELIZE by Rosita Arvigo and Michael Balick. 1993. 2nd edition. A window into the sacred world of traditional Mayan healers who know that the rainforest holds within its grasp all the ingredients that have sustained it and its people. Illus., softcover, 215 pp. $15.95. #B053.

GENTRY'S RÍO MAYO PLANTS: THE TROPICAL DECIDUOUS FOREST & ENVIRONS OF NORTHWEST MEXICO Revised and edited by P. Martin, D. Yetman, M. Fishbein, P. Jenkins, T. Van Devender, & R. Wilson. 1998. Howard Scott Gentry's 1942 classic updated and amended with more than twice the number of species first described by Gentry. Includes information on distribution, habitat, appearance, common names, and indigenous uses in this major geographic area, along with historical background, a review of geography and vegetation, and a description of changes to the land and river wrought by agriculture, grazing, and lumbering. Hardcover, 558 pp. $75. #B384

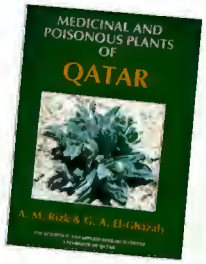
SASTUN by Rosita Arvigo. 1994. A captivating story of American Herbologist Rosita Arvigo's apprenticeship to Don Elijio Ponti, one of the last surviving and most respected traditional healers of Belize. Set in the imperiled Belizean rainforest that serves as the pharmacy of ancient Mayan medicine. Softcover, 90 pp. $14. #B087.

CARIBBEAN

EARTH AND SPIRIT: MEDICINAL PLANTS AND HEALING LORE FROM PUERTO RICO by María Benedetti. 1989. Interviews with traditional *curanderos*, a granny midwife, spiritual healers and others along with remedies presented in an extensive recipe section organized by health condition make this a celebration of green medicine, Caribbean style. Softcover, 268 pp. $20. #B359

MIDDLE EAST

MEDICINAL AND POISONOUS PLANTS OF QATAR by A. Rizk and G. El-Ghazaly. 1995. Constituents, uses, and effects of 184 plants in 68 families, easily identified with the help of 250 color photographs and brief descriptions that include flowering period, habitat, and distribution. Alphabetically by family, genus, and species. Hardcover, 306 pp. $70. #B224



CULTIVATION

MEDICINAL HERBS IN THE GARDEN, FIELD, AND MARKETPLACE by Lee Sturdivant and Tim Blakley. 1999. Complete details on growing, harvesting, and marketing. Includes best techniques for propagation, cultivation, drying, processing, plus regulations, herb safety, standardization, marketing aids, company surveys, and help from growers, practitioners, producers, and wild-crafters. Softcover, 323 pp. $24.95. #B352

HERBAL EMISSARIES by S. Foster and C. Yue. 1992. Supplies specific techniques for cultivating 44 Chinese herbs and flowers in Western gardens, providing scientific verification of their effectiveness, as well as history, taste and character, uses, dosage, warning, description, distribution, harvesting, processing, additional species, and other uses. Softcover, 356 pp. $16.95. #B190

SOUTHERN HERB GROWING by Madalene Hill and Gwen Barclay. 1987. Comprehensive guide to growing more than 130 herbs in the conditions peculiar to the American South. Propagation, cultivation, harvesting, design ideas, usage, and history. 300 color photographs and 100 recipes. Softcover, 196 pp. $24.95. #B399

MUSHROOMS

SHIITAKE: THE HEALING MUSHROOM by Kenneth Jones. 1995. Covers nutritional value, history as a folk medicine, usefulness in lowering cholesterol and preventing heart disease, and its value in bolstering the immune system to increase the body's ability to prevent cancer, viral infections, and chronic fatigue syndrome. Softcover, 120 pp. $8.95. #B188

MEDICINAL MUSHROOMS by Christopher Hobbs. 1995. Over 100 species of edible fungi. Descriptions, habitats, range, history, chemistry, pharmacology, human clinical studies, toxicity, traditional medicinal uses, medical uses, preparation, dosage, related species, and procurement. Softcover, 251 pp. $18.95. #B115

PSILOCYBIN MUSHROOMS OF THE WORLD: A GUIDE TO IDENTIFICATION by Paul Stamets. 1996. Nearly 100 species are described, including close relatives and poisonous look-alikes. Far more than just a field guide, this book will prove useful to mycologists, scholars, physicians, and the curious. Excellent color photographs. Softcover, 243 pp. $24.95. #B244

HEMP & MEDICINAL MARIJUANA

HEMP HORIZONS by John Roulac. Explores the origins of industrial hemp and its current emergence as a marketplace phenomenon. Covers the laws and politics of this plant which has been a mainstay of agriculture for more than 12,000 years, surveys the multitude of products that can be made from hemp, and offers scientific facts to dispel myths about this controversial plant. Softcover, 212 pp. $18.95. **SALE PRICE $13.27**. #B315

ADVANCES IN HEMP RESEARCH Ed. by Paolo Ranalli. 1999. Addresses botany, phytochemistry, detecting and monitoring THC content, agronomical and physiological advances, crop physiology, survey of hemp diseases and pests, germplasm resources, genetic improvement, advances in biotechnological approaches for breeding and industry, alkaline pumping of fiber hemp, and seed as a food source. Hardcover, 272 pp. $89.95. #B390

THE GREAT BOOK OF HEMP by Rowan Robinson. 1996. With Europe and Canada lifting bans on growing industrial hemp, it has exploded onto the marketplace in a dazzling array of products: jeans, sneakers, lip balm, tree-free paper, fiberboard, and insulation. With new technology it is possible to make anything from hemp that we now make from petroleum, while perhaps solving some of the world's most troubling environmental problems such as soil erosion, contamination, and deforestation. Softcover, 247 pp. $19.95 **SALE PRICE $13.97**. #B192

THERAPEUTIC USES OF CANNABIS by the British Medical Association. 1997. Published as a result of the BMA's resolution that "certain additional cannabinoids should be legalised for wider medicinal use," this report discusses the use and adverse effects of marijuana for nausea, multiple sclerosis, pain, epilepsy, glaucoma, and asthma. Softcover, 142 pp. $20. #B392

PREPARATIONS/COOKING

TONICS by Robert Barnett. 1997. More than 60 essays and 125 recipes about specific foods and herbs that benefit health. Integrates the science of modern nutrition with traditional herbal medicine in a practical, easy-to-use cookbook. Softcover, 336 pp. $15. #B271

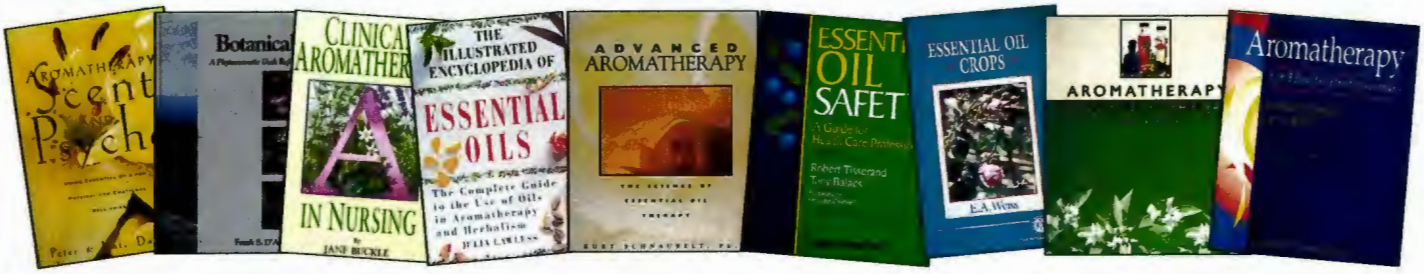
CULINARY HERBS NEW! by Ernest Small. 1997. Comprehensive reference guide to herb and spice plants cultivated in Canada and the northern half of the United States. Categories of information covered in considerable detail for 125 species include nomenclature, description and classification, uses, importance, cultivation, chemistry, medicine, nutrition, human interest, selected key literature, and a summary evaluation of problems and potential from an economic and agricultural viewpoint. 400 drawings and climate zone map. Hardcover, 710 pp. $79.95. #B419

THE CLASSIC HERB COOKBOOK by Jill Norman. 1997. Recipes for more than 100 mouthwatering dishes. Easy-to-follow format with full-color photographs of the finished product, as well as the necessary ingredients. Catalog of herbs illustrates varieties with notes on their properties and possible uses. Hardcover, 144 pp. $24.95. #G008

THE HERB GARDEN COOKBOOK by Lucinda Hutson. 1987. 2nd edition. Contains descriptive botanical information, easy-to-understand planting and harvesting instructions, and more than 150 tasty recipes along with suggested menus. Includes extensive source list for buying seeds, fresh plants, and gourmet food products. Softcover, 229 pp. $24.95. #G013

HANDMADE MEDICINES: SIMPLE RECIPES FOR HERBAL HEALTH by Christopher Hobbs. 1998. 43 easy recipes along with the history of herbal medicine making, how it works, how to find and prepare the herbs, and a resource directory. Softcover, 120 pp. $12.95. #B356

ESSENTIAL OILS/PHYTOCOSMETICS



AROMATHERAPY: SCENT AND PSYCHE by Peter and Kate Damian. 1995. With a thorough exposition of the ancient practice of aromatics in China, India, Persia, and Egypt and a modern scientific understanding of the psychology of scent, and based on research, clinical studies, and the authors' professional experience, this book is a guide to mastering the use of essential oils. Includes profiles for 44 essential oils and specific instructions for creating blends. Softcover, 244 pp. $16.95. #B245

BOTANICALS: A PHYTOCOSMETIC DESK REFERENCE by Frank D'Amelio, Sr. 1999. Includes forms of extracts, formulations, quality control, examination procedures, common terminology, and plant identification, as well as an extensive section on botanicals which includes habitat, range, description, properties, and constituents. Hardcover, 361 pp. $129.95. #B386

CLINICAL AROMATHERAPY IN NURSING by Jane Buckle. 1997. Contains an in-depth clinical section dealing with the management of common problems such as infection and pain, giving examples of which oils might be used in treatment. Illustrates the application of aromatherapy in specific clinical specialties. Cites more than 700 references. Softcover, 289 pp. $39.95. #B298

THE ILLUSTRATED ENCYCLOPEDIA OF ESSENTIAL OILS by Julia Lawless. 1995. An extensive and systematic reference guide to aromatherapy oils. Comprehensive A to Z presentation. Over 160 oils including aromatherapy applications for common complaints, home and commercial uses, herbal/folk tradition for each plant, safety data, exact botanical origins, and methods of extraction. Softcover, 256 pp. $24.95. #B154

ADVANCED AROMATHERAPY by Kurt Schnaubelt. 1998. The author, a chemist and pioneer of the science of aromatherapy, provides a scientific basis for the efficacy of essential oils. Draws on broad-based research to demonstrate how essential oils interact with the different systems of the body and how they affect emotional states as well as physical ones. Takes much of the guesswork out of developing formulas. Softcover, 138 pp. $16.95. #B351

ESSENTIAL OIL SAFETY by Robert Tisserand and Tony Balacs. 1995. Up-to-date research findings. Practical, comprehensive guide. Detailed profiles of 95 essential oils, including constituents, hazards, dosage, toxicity data and contraindications; brief safety profiles of 311 essential oils and 135 essential oil components; safety guidelines, details of essential oil absorption, metabolism and excretion; oils which may react adversely with certain drugs; and extensive references. Hardcover, 279 pp. $49. #B169

ESSENTIAL OIL CROPS by E. A. Weiss. 1997. Addresses growing essential oil plants profitably to obtain an aromatic derivative. Each chapter covers a different family. A brief history of the use and economic development is given, and cultivation, harvesting, and distilling described. Results of current research and recommendations for improved agronomic practices, together with methods of adding value to the crop are also discussed. Hardcover, 600 pp. $140. #B255

AROMATHERAPY: A COMPLETE GUIDE TO THE HEALING ART by K. Keville and M. Green. 1995. Topics include the history and theory of fragrance; therapeutic uses of aromatherapy for circulation, digestion, respiration, immunity, and more; instructions for creating personal beauty and skin-care products; techniques for the home distillation and blending of essential oils; and a *materia medica* listing the origins and uses of commonly available essential oils. Softcover, 156 pp. $16.95. #B179

AROMATHERAPY FOR HEALTH PROFESSIONALS by Shirley and Len Price. 1995. 2nd edition. Guidelines on practice within specific care contexts, e.g. intensive care, terminal illness, pregnancy and childbirth, care of elderly, learning difficulties; composition of oils and their effects; guidance on massage and other applications; power and safety of oils, including advice on quantities, dispensing, storage and undesired effects; and case studies from the authors' own experience and others. Softcover, 298 pp. $32. #B168

FOOD/NUTRITION

THE HEALING HERBS COOKBOOK by Pat Crocker. 1999. Information on preserving and cooking with herbs, plus a comprehensive reference on their medicinal properties. 115 vegetarian recipes incorporating whole, natural ingredients with a wide variety of healing herbs. Lists herbal organizations, mail-order sources, glossary, and herb-specific recipe index. Softcover, 192 pp. $17.95. #B400

TEXTBOOK OF NUTRITIONAL MEDICINE NEW! by Melvyn Werbach with Jeffrey Moss. 1999. Discusses dietary and nutritional treatments for 82 illnesses based on a comprehensive review of the world's literature. Unique Nutritional Treatment Guides rates and summarizes each nutritional treatment discussed, including dosages and trial periods. Hardcover, 737 pp. $74.95. #B425

WHOLE FOODS COMPANION by Dianne Onstad. 1996. Over 300 plant-based foods and their history, folklore, culinary use, and nutritional data, along with information on their botanical names. Includes 115 herbs and spices with their hard-to-find nutritional data. Not only an incredible reference text but a good read as well. Softcover, 528 pp. $29. #B262

THE ENCYCLOPEDIA OF EDIBLE PLANTS OF NORTH AMERICA by François Couplan. 1998. Contains a comprehensive account of each edible species (about 4000 plants) on the North American continent used as food by humans. Includes etymology, geographical location, uses of each part, history of the uses, composition, medicinal uses, possible toxicity, endangered species, traditional Native American cooking techniques, and uses. Softcover, 583 pp. $19.95. #B357

THE NEW WHOLE FOODS ENCYCLOPEDIA NEW! by Rebecca Wood. 1999. How to select, prepare, store, and use more than 1,000 familiar and unusual foods. Includes tips on how to heal with Ayurveda, Western nutrition, and Traditional Chinese Medicine, a complete index, organized so readers can research treatments by ailment as well as by the food, line drawings, glossary, resources, and fully cross-referenced format with sidebar recipes throughout. Softcover, 426 pp. $18.95. #B423

GINSENG

AMERICAN GINSENG: THE ROOT OF NORTH AMERICA'S MEDICINAL HERB TRADE by Christopher S. Robbins. 1998 report from TRAFFIC North America a program of WWF (World Wildlife Fund) and IUCN (The World Conservation Union) on *Panax quinquefolius*. This study reviews harvest and trade levels to determine whether management of American ginseng in the United States and Canada is adequately protecting wild populations from intensive collection and increasingly pervasive habitat loss. Softcover, $20. #B347

GINSENG A CONCISE HANDBOOK by James Duke. 1989. Examines history, taxonomy, chemistry, and pharmacology, and surveys the economics of ginseng cultivation. B/W illus., hardcover, 273 pp. $45. #B047

GINSENG: HOW TO FIND, GROW AND USE AMERICA'S FOREST GOLD by Kim Pritts. 1995. Covers history, cultivation, diseases and pests, harvesting and marketing, hunting and conserving wild ginseng, and ginseng's place in traditional herbal medicine. Softcover, 150 pp. $16.95. #B217

THE GINSENG BOOK: NATURE'S ANCIENT HEALER by Stephen Fulder. 1996. Practical, sound advice on choosing the most appropriate form of ginseng and on selecting the right dosage. Covers legends and history, scientific studies, and cultivation and processing Softcover, 109 pp. $8.95. #B268

AMERICAN GINSENG, GREEN GOLD Revised edition by W. Scott Persons. 1994. A growers' guide, including history and use. Information on life cycle, range, government regulation, medicinal properties, trade, growing methods, harvesting and stratifying, and economics. Photos, illus, tables. Softcover, 203 pp. $17.95. #B111

GINSENG: THE ENERGY HERB by Christopher Hobbs. 1996. Small but packed with information, this book will tell you the benefits and proper use of 10 kinds of ginseng, how to choose and use the most potent and cost-effective products, and summaries of human clinical studies that support the health claims of ginseng. Softcover, 103 pp. $7.95. #B214

PSYCHOACTIVE

BUZZ: THE SCIENCE AND LORE OF ALCOHOL AND CAFFEINE by Stephen Braun. 1996. Explores recent advances in neuroscience which frequently contradict conventional wisdom: alcohol is much more complex than just a simple depressant, and caffeine is not the direct stimulant it was once thought to be. Also reports on recent findings which support previously unsubstantiated folk wisdom. Hardcover, 214 pp. $25. **SALE PRICE $18.75**. #B259

THE CHEMISTRY OF MIND-ALTERING DRUGS: HISTORY, PHARMACOLOGY, AND CULTURAL CONTEXT by Daniel Perrine. 1996. A rigorous, scientifically objective, and thoroughly documented exposition of acute pharmacological and psychological effects of nearly every known substance that affects human consciousness. Provides an accessible explanation of drug-receptor interaction and organic chemical structures, as well as descriptions of the discovery, isolation, and syntheses of the chemical substances responsible for drug activity. Softcover, 480 pp. $42. #B292

AYAHUASCA: HALLUCINOGENS, CONSCIOUSNESS, AND THE SPIRIT OF NATURE NEW! Ed. by Ralph Metzner. 1999. A diverse group of contributors explore the chemical, biological, psychological, and experiential dimensions of Ayahuasca, the Amazonian plant concoction used in Peru, Colombia, and Ecuador for healing and divination for perhaps thousands of years. Includes both objective scientific essays on the brew and its effects, and subjective personal accounts by people who have used it for their own spiritual experience. Softcover, 294 pp. $13.95. #B435

PEYOTE: THE DIVINE CACTUS by Edward Anderson. 1996. 2nd edition. Addresses the ceremonial and medicinal uses of peyote in the U.S. and Mexico, along with the legal aspects of this use, as well as the pharmacology, chemistry, and botany of the plant. Softcover, 272 pp. $19.95. #B248

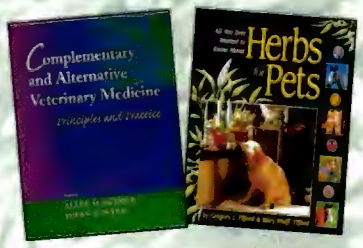
SACRED AND HERBAL HEALING BEERS by Stephen Buhner. 1998. Meant primarily as the exploration of the beauty and sacredness of ancient fermentation, revealed through the discussion of 200 mostly medicinal plants and hive products, this book also includes 120 recipes for ancient and indigenous beers and meads from 31 countries. (Note: Some of the recipes contain poisonous plants and are included for historical and educational purposes only. Neither the author, publisher, nor ABC recommends the making or ingestion of these beers.) Softcover, 534 pp. $19.95. #B373

NATURAL ENERGY by Mark Mayell. 1998. The first book to offer unbiased, responsible, and authoritative information on the latest generation of psychoactive substances. Provides readers with an in-depth look into the uses and histories of a variety of plants and supplements, including St. John's Wort, valerian, melatonin, kava, and yohimbé. Softcover, 266 pp. $15. #B354

PLANTS OF THE GODS by Richard Schultes and Albert Hofmann. 1992. Ninety-one hallucinogenic plants with vivid detail on 14 having profound significance for humans. Over 100 color illustrations, plus rare photographs—many published for the first time—of plants and the people, ceremonies, sculpture, paintings, pottery, and weavings related to ritual use of sacred hallucinogens. Softcover, 192 pp. $22.95. #B165

PHARMACOTHEON by Jonathan Ott. 1993. The most comprehensive multi-disciplinary book on the subject of shamanic inebriants and their active agents and artificial cousins. Featuring a bibliography of 2,440 sources, this culmination of twenty years of research is the reference book specialists have long needed and yet is written in a style that makes it accessible to the layperson. Softcover, 639 pp. $40. #B160

ANIMALS



COMPLEMENTARY AND ALTERNATIVE VETERINARY MEDICINE: PRINCIPLES AND PRACTICE Ed. by Allen Schoen and Susan Wynn. 1998 Introduction to the philosophy, science and clinical applications of CAVM designed to help practitioners integrate these modalities into their conventional practice. Includes nutritional, physical, energetic and botanical medicine, and homeopathy. 820 pp. $84.95. #B335

ALL YOU EVER WANTED TO KNOW ABOUT HERBS FOR PETS NEW! by Mary Wulff-Tilford and Gregory Tilford. 1999. In-depth coverage of natural nutrition, principles and practices of herbalism, *materia medica* of 64 herbs and supplemental list of 45 herbs, herbal repertory for more than 20 conditions, and a number of appendices with information on ethical wildcrafting, recommended commercial foods for dogs and cats, holistic veterinarians, and other resources. Hardcover, 416 pp. $49.95. **SALE PRICE $39.95** until June, 2000. #B433

VIDEO

HERBAL MEDICINE AND YOUR HEALTH Lectures by Michael Balick, Mark Blumenthal, James A. Duke, Varro Tyler, and Andrew Weil from a conference at Columbia University in 1996. Continuing medical education activity worth up to 6-1/2 hours in Category 1 credit toward the AMA Physician's Recognition Award. Three videotapes, 5-1/2 hours with study guide. $150. #816 Videotapes only. $100. #817

NATIVE AMERICAN MEDICINE by Estella Roman, Patsy Clark, Theresa Barnes, and Jim Meuninck. 1995. Native American wisdom on herbal medicine, remedies, health tips, identification, and more. 60 min. $24.95. #814

EDIBLE WILD PLANTS by Jim Duke and Jim Meuninck. 1988. Identifies 100 edible wild plants, herbal tea recipes, uncovers Amerindian and folk uses, identifies poisonous plants, and more. 60 min. $24.95. #812

JULIETTE OF THE HERBS by Tish Streeten. 1998. A beautifully filmed portrait of the life and work of Juliette de Bairacli Levy, herbalist, author, and pioneer of holistic veterinary medicine. An inspiration for the present day herbal renaissance, Juliette's life story is as colorful and as exciting as her tremendous wealth of herbal knowledge. 75 minutes. $35. #819

PHARMACY FROM THE RAINFOREST VIDEOS Most were filmed on the first week-long ethnobotanical trip the American Botanical Council sponsored to the Peruvian Amazon in October, 1994, in conjunction with the Texas Pharmacy Foundation and International Expeditions.

Pharmacology and Therapeutic Application of Plant Drugs, Varro E. Tyler, Ph.D., 81 min. $39.95. Item #802

Nutrition and the Amazon Food Pharmacy, James A. Duke, Ph.D. 47 min. $39.95. Item #803

Tropical Medicine in the Rainforest, Linnea Smith, M.D., 25 min. $39.95. Item #804

Plant Drugs, Healing Herbs and Phytomedicinals, Varro E. Tyler. 33 min. $39.95. Item #805

Ethnomedicinal Field Research in the Amazon, Walter Lewis, Ph.D. 57 min. $39.95. Item #806

ACEER Useful Plant Trail Guide, Don Antonio Montero. 41 min. Available in English, $39.95. Item #807A, or Spanish, $39.95. Item #807B

A Walk in the Rainforest, Dr. Jim Duke. 21 min. $39.95. Item #808

Complete set of 7 Videos, $223.70. Item #809

LITTLE MEDICINE: THE WISDOM TO AVOID BIG MEDICINE by Jim Meuninck and Theresa Barnes. 1995. Herbal wound treatments, repellents, health tips, and more. 60 min. $24.95. #813

HERBAL PREPARATIONS AND NATURAL THERAPIES by Debra Nuzzi St. Claire. Complete instructions in a book and 2 videotapes to help you prepare and use your own herbal medicine chest. Covers wildcrafting, tools and ingredients needed, and how to make decoctions, infusions, teas, gargles, cough syrups, tinctures, liniments, salves, oils, tonics, ointments, poultices, and much more. An incredible resource for those who want to learn from a great teacher how to make their own herbal remedies. $149. #818

NAFANUA: SAVING THE SAMOAN RAINFOREST As aired on the Discovery channel, this documentary recounts the heroic struggle of a Samoan village to protect their rainforest against loggers. It includes extensive footage of Samoan healers demonstrating their skills for ethnobotanist Paul Cox, and Samoan chiefs who courageously stand up to the logging companies. Follows the same story as Cox's poignant memoir of the same title. Won first prize at the US Environmental Film Festival. 52 min. $24.95. #820

NATURAL HEALTH WITH MEDICINAL HERBS AND HEALING FOODS by Jim Meuninck, Ed Alstat, James Balch, Phyllis Balch, Randall Bradley, Abdul Kaiyum, Ed Smith, and Mark Wheeler. 1992. Uncovers 100 plants with health-protecting chemistry. 60 min. $24.95. #815

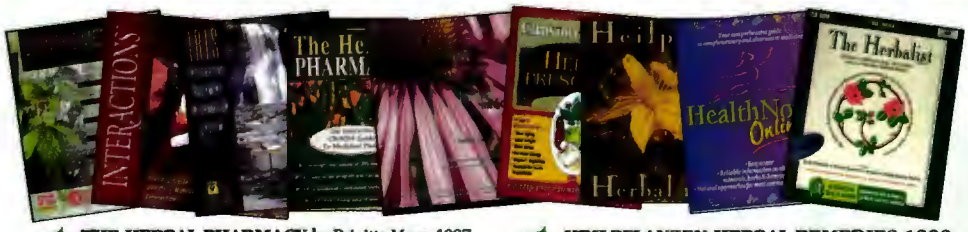
GUARDIANS OF EDEN by Boris Ensson. The race to save the rarest plants in the world is vividly portrayed in this footage from Kaua'i, Maui and Samoa. Botanists rappel down cliffs, collect from helicopters, and struggle to plant at the lush National Tropical Botanical Gardens in Hawaii and Florida the last seeds of plant species that teeter on the edge of extinction. Ethnobotanical interviews with indigenous healers save equally endangered healing knowledge. A stunningly beautiful film. 25 min. $19.95. #821

SOFTWARE

TRADITIONAL CHINESE MEDICINE AND PHARMACOLOGY Contains 322 herbs, 137 formulas, color illustrations, full text search, photo zoom, extensive help system, tracking capability, printing, copying, bookmarking, and annotations. CD ROM, PC / MAC hybrid, $49.95. #C002

INTERACTIONS - THE IBIS GUIDE TO DRUG-HERB AND DRUG-NUTRIENT INTERACTIONS NEW! Up-to-date information for hundreds of medications based on the scientific literature of medicine, pharmacology, clinical nutrition, and herbal therapeutics; effects of herbs and supplements on drug metabolism and dosages, including positive synergistic effects and adverse side effects; clinical data on drug-induced nutritional depletion patterns with safe and effective supportive strategies. Windows 95/98/2000. MacOS 7.1 or higher. CD ROM. $99.95. #C011

IBIS - INTEGRATIVE BODYMIND INFORMATION SYSTEM NEW! Over 12,000 pages of reference data on the full spectrum of natural medicine and the latest information on drug/herb and drug/nutrient interactions. Combines an encyclopedia of natural medicine and integrative healthcare with note-taking and report-generating features. Requires Pentium-class, Win 95 or later, WinNT 4.0 or later, 32 MB available RAM and 50 MB available on hard drive. MacOS 8 or higher, 48 MB available RAM and 50 MB available on hard drive. CD ROM. $199. #C010



THE HERBAL PHARMACY by Brigitte Mars. 1997. Thorough descriptions of 300 medicinal plants with internal, topical and culinary uses, properties, side effects, chemical constituents, and history. 100 professionally formulated herbal preparations, 300 photographs, easy-to-use program, add notes, free internet version upgrades. Windows 95 or NT. CD ROM. $39.95. #C006

HERBAL MEDICINE INTO THE NEW MILLENNIUM 1999 international conference on the science, regulation, production, and clinical application of medicinal plants at Southern Cross University, New South Wales, Australia. View and hear from your computer the complete 18 hours of presentations from 27 of some of the world's most eminent medicinal plant experts from 9 countries together for the first time. CD ROM $150. #C009

HERBAL PRESCRIBER by Christopher Hobbs. 1995. Disk based software. Quick access to over 2000 remedies and 30 therapeutic diets for 450 common ailments. Over 250 of the most widely used herbs. Searches 9 ways. Resources directory. Requires Windows 3.0 or higher. Database. $36.95. #D004

HEILPFLANZEN HERBAL REMEDIES 1999 Updated, redesigned and simplified. More than 700 plants, 800 drugs, 5,000 references. Includes toxicology with contraindications and interactions, pharmacology and effect, application and dosage, component substances, indications, and more. CD ROM. Windows 95 and up. $99. #C003

HEALTHNOTES ONLINE Natural health approaches for most common health conditions, reliable information about natural supplements (most vitamins, minerals, and herbs) and how they support various conditions, side-effect, contraindication information, and dosage ranges for supplements and herbs, homeopathic remedies, fully referenced, thousands of hyper-links. Mac or Windows 3.1 and up, modem optional. CD ROM. $49.95. #C007

THE HERBALIST-VER 2, By David Hoffman, Multimedia presentation, 171 color photos, music by Jim Duke, narration by David Hoffman. Includes basic principles, human system, materia medica, glossary, English to Latin, and taxonomy. CD ROM. PC/MAC hybrid. $49.95. #C001

BACKLIST

BIOTECHNOLOGY IN AGRICULTURE AND FORESTRY: Vol. 33: Ed. by Y. P. S. Bajaj. 1995. Hardcover, 476 pp. $369. #B194 Vol 37: medicinal and aromatic plants ix 1996. Hardcover, 414 pp. $339. #B230

CRC HANDBOOK OF MEDICINAL MINTS (AROMATHEMATICS) PHYTO-CHEMICALS AND BIOLOGICAL ACTIVITIES by Stephen Beckstrom-Sternberg and James A. Duke. 1996. Hardcover, 298 pp. $169.95. #B239

CAMPOTOTHECA ACUMINATA DECAISNE, XI SHU: A PROMISING ANTI-TUMOR AND ANTI-VIRAL TREE FOR THE 21ST CENTURY by Shiyou Li and Kent Adair. 1994. Hardcover, 249 pp. $45. #B145

THE CHALLENGES OF THE 21ST CENTURY Ed. by Bailey, Whitehead, Proctor, and Kyle. 1995. Softcover, 645 pp. $49.95. #B199

CONSUMING HABITS Ed. by Jordan Goodman by Paul Lovejoy. 1995. Hardcover, 244 pp. $70. #B152

DATABASE OF BIOLOGICALLY ACTIVE PHYTOCHEMICALS AND THEIR ACTIVITIES For IBM (PC compatibles, Word Perfect 5.1 required). $273.95. #B028

DATABASE OF PHYTOCHEMICAL CONSTITUENTS OF GRAS HERBS AND OTHER ECONOMIC PLANTS For IBM (PC compatibles, Word Perfect 5.1 required). $273.95. #B026A

DISCOVERING WILD PLANTS: ALASKA, WESTERN CANADA, THE NORTHWEST by Janice Schofield. 1989. B/W illus., softcover, 354 pp. $32.95. #B109

DRUGS AND NARCOTICS IN HISTORY Ed. by Roy Porter and Mikulas Teich. 1995. Softcover, 227 pp. $19.95. #B153

EATING ON THE WILD SIDE: THE PHARMACOLOGIC, ECOLOGIC, AND SOCIAL IMPLICATIONS OF USING NON-CULTIGENTS by Nina Etkin. 1994. Hardcover, 305 pp. $41. #B118

ECONOMIC AND MEDICINAL PLANT RESEARCH VOL. 6 Ed. by Hildebert Wagner and Norman Farnsworth. 1994. Hardcover, Vol. 6: 394 pp. $94. #B146

ETHNOBOTANY AND THE SEARCH FOR NEW DRUGS Ciba Foundation Symposium 185. 1994. Hardcover, 280 pp. $128.10. #B095

FIELD GUIDE TO THE FAMILIES AND GENERA OF WOODY PLANTS OF NW SOUTH AMERICA (COLUMBIA, ECUADOR, AND PERU) by Alwyn H. Gentry. 1993. 895 pp. Hardcover, $75. #B044H

FIELD GUIDE TO VENOMOUS ANIMALS & POISONOUS PLANTS by Steven Foster and Roger Caras. 1994. Softcover, 244 pp. $18. #B097

FLAXSEED IN HUMAN NUTRITION Ed. by S. Cunnane and L. Thompson. 1997. Hardcover, 400 pp. $95. #B277

FLORA EUROPAEA, VOLUME I: PSILOTACAE TO PLATANACEAE Second Edition, Ed. by T. G. Tutin. 1994. Hardcover, 581 pp. $215. #B078

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FLORA OF LOUISIANA by Margaret Stones. 1991. Hardcover, 220 pp. $36. #B127

FLORA OF NORTH AMERICA NORTH OF MEXICO Ed. by Flora of North America Editorial Committee. 1993. Vol 1: Introduction. Hardcover, 372 pp. $95. #B037 Vol 3: 1997. Hardcover, 616 pp. $85. #B038B

FLOWERING PLANTS OF THE WORLD by V. H. Heywood. 1993. Hardcover, 335 pp. $65. #B089

FOOTPRINTS OF THE FOREST by William Balee. 1993. Hardcover. 396pp. $72. #B110

GROWING GOURMET AND MEDICINAL MUSHROOMS by Paul Stamets. 1993. Softcover, 552 pp. $39.95. #B238

GUIDE TO FLOWERING PLANT FAMILIES by Wendy Zomlefer. 1994. Hardcover, 430 pp. $59.95. #B128

HANDBOOK OF AFRICAN MEDICINAL PLANTS by Maurice M. Iwu. 1990. Hardcover, 435 pp. $156.95. #B025

HANDBOOK OF ALTERNATIVE CASH CROPS by James Duke & Judith duCellier. 1993. Hardcover, 536 pp. $187.95. #B045

HANDBOOK OF ARABIAN MEDICINAL PLANTS by Shahina Ghazanfar. 1994. Hardcover, 265 pp. $146.95. #B092

HANDBOOK OF AYURVEDIC MEDICINAL PLANTS by L. D. Kapoor. 1990. Hardcover, 416 pp. $330.95. #B023

HANDBOOK OF BIOLOGICALLY ACTIVE PHYTOCHEMICALS AND THEIR ACTIVITIES by James Duke. 1992. Hardcover, 183 pp. $156.95. #B027

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