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FILE: ▪ Medicinal Plants

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RE: Internal and External Medicinal Plant Use for Skin Care

Dweck AC. The internal and external use of medicinal plants. *Clin Dermatol*. 2009;27:148-158.

While there may be no apparent logic in using herbs or spices with internal therapeutic value in topical skin care, it is often done, and the author finds ample reason for the choice.

Fatty acids (FAs), e.g., vegetable, nut, seed, or kernel oils, with varying carbon chain lengths are a simple topical treatment for dry skin. Coconut (*Cocos nucifera*), sunflower (*Helianthus annuus*), and other seed oils are often used as carriers for essential oils. They slow moisture loss and smooth rough, scaly skin. Castor (*Ricinus communis*) bean oil is very glossy, thus used in lip salves, and highly occlusive for wetness protection. Castor oil plus zinc is a common diaper rash ointment. Evening primrose (*Oenothera biennis*), borage (*Borago officinalis*), and black currant (*Ribes nigrum*) seed oils have high γ-linolenic acid (GLA, ω-6). A species of rose hip (*Rosa moschata* [*Rosa* aff *rubiginosa*]) seed oil, with vitamin A, has exceptional scar reducing effects, restores skin elasticity after surgery, and reduces scar hyperpigmentation. Inchi ("Aztec peanut"; *Phukentia volubilis*) oil, rich in ω-3, ω-6, and ω-12 FAs, has great promise in skin care. There is no mention of hemp (*Cannabis sativa*) seed oil, widely used in cosmetics and skin care products, rich in linoleic (LA, ω-6) and ά-linolenic (ALA, ω-3) FAs, with significant GLA; vitamins A, D, and E; and other nutrients.

Many flavonoids, or polyphenols, have 15-carbon chain "backbones". Plants often produce several related polyphenols, in response to different stimuli. Chalcones, glycosides and aglycones, flavones, aurones, and flavonols are illustrated. Of commercially important flavonoids, quercetin, a flavonol, is most important, found in black oak (*Quercus tinctoria*) and many other plants. It is probably the most common plant pigment and a potent phosphodiesterase inhibitor. Kaempferol, in elderberry, senna (*Cassia senna*), and others; myricetin, from licorice (*Glycyrrhiza glabra*); galangin, in galanga (*Alpinia galanga*) root; and gossypetin, from Levant cotton (*Gossypium herbaceum*), are other interesting flavonols.

Flavones often occur with antioxidant gallic acid and its esters. Too few examples of flavonoids' many therapeutic effects and application(s) to skin care are given.

Isoflavones exert weak estrogenicity. They occur particularly in plant family Leguminosae, subfamily Papilionoideae, and a few other families. They are used in supplements and topical products to slow aging and boost skin quality. Daidzein and its glucoside, daidzin, are found in soy (*Glycine max*) and chickpeas (*Cicer arietinum*). Genistein is abundant in soy; daidzein and daidzin are abundant in kudzu (*Pueraria montana* var. *lobata*). White kwao krua (*P. mirifica*) has daidzein, daidzin, genistein, genistin; the unique isoflavones kwakhurin, kwakhurin hydrate, and puerarin; and others. As a supplement, it reduces signs of declining estrogen, e.g., sagging breasts, skin wrinkles, bone loss, gray hair; it is also used topically. Red clover (*Trifolium pratense*) has daidzein, genistein, and its own unique isoflavones. It is used for many skin conditions and is a popular herbal substitute for hormone replacement therapy. Sweet yellow melilot (*Melilotus officinalis*) has many effects of red clover, and is anti-inflammatory, anesthetic, and astringent, perhaps due to other phytosterols more than to isoflavones. (Isoflavones are phytosterols, steroid saponins, and triterpenoids, successively larger subgroups within the largest class of plant products, terpenoids.) Some phytosterols are anti-inflammatory. Wild yam (*Dioscorea villosa*) was the first known source of diosgenin, a steroidal saponin from which pregnenolone and progesterone for early birth control pills were derived. Topical wild yam products may benefit skin. Chaste tree (*Vitex agnus-castus*) has natural progesterone, essential oils, flavonoids, and glycosides. Fenugreek (*Trigonella foenum-graecum*) is today's source for diosgenin. Its seeds are emollient, tonic, aphrodisiac, and galactagogic. It should be used with caution in pregnancy. Pomegranate (*Punica granatum*) seeds have an estrone identical to the human hormone; many pomegranate parts have relevant uses, e.g., antioxidant and astringent. Date palm (*Phoenix* spp.) and hops (*Humulus lupulus*) have phytosterols and other beneficial compounds. Hops stimulated hair growth in both animal and human studies. Sarsaparilla (*Smilax* spp.), with phytosterols and isoflavones, is used in psoriasis with desquamation.

Skin has an affinity for sugars. Honey is the first choice in natural healing for burns and wounds, and is antibacterial. Mucopolysaccharides, present in many plants, e.g., plantain (*Plantago* spp.), bladderwrack (*Fucus vesiculosus*), and kelp (*Laminaria digitata*), have effects similar to those of honey and are used for dry, pruritic skin conditions. Aloe (*Aloe vera*) is not mentioned, but probably should be; it is used in many body care products.

The article touches upon regulations governing cosmetics in Great Britain and the European Union; the author provides definitions of "natural", "naturally derived", and "nature identical" substances; the ethnopharmacological origin of many "cosmeceuticals"; and more.

—Mariann Garner-Wizard

The American Botanical Council has chosen not to reprint the original article.