Revitalization of the Knowledge of Herbs: A Way Forward to Discovery of New Drugs

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Introduction

It has always been man’s continuous endeavor to attain the supreme ends of life which are routed through health. Thus, appraisal of the knowledge to fight the blocks in between is constantly under scrutiny. Medical science has definitely taken a leap forward by attacking the unwanted and protecting the interests of the human race. But this entire process requires its own time during which the challenges multiply and the solutions divide. This is a critical phase today.

Earlier man was a happy animal because of a proximity to nature or rather he was a part of the ecosystem. Though life was full of threats and adventure his fitness levels marked heights. His association with the floral wealth made him disease free and mechanically prepared him to find answers to his sufferings. This exercise was undertaken for years and years resulting in the vast experience gathered by our ancestors. The development of human civilization offered stability to nomadic life, and thus, man

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concentrated to make the most from the natural resources available in the vicinity. Generations kept on updating the knowledge as per the need, and used the best techniques available during those periods. The information gained is very enriching, catering to the medicinal needs of every hour in the residing area. The data was transferred to the next generation through word of mouth. Today, this treasure lies with all those people who stayed together in isolation maintaining a similar lifestyle. The geographical locations of these people vary, and so do the customs and rituals, as well as the use of the resources for various ailments. Bringing together all these stored benefits under one roof for the long term survival of *Homo sapiens* has to be a prioritized task.

In this present world, modernization is an addiction, and expecting the world to be available at the finger tips without hardship has become the trend. This trendy life brings along a variety of previously unheard of ailments pointing to new research needs. After tracing the path practiced by our ancestors, many vital concepts are illuminated, and thus, these can meet the needs of all of us. Thus, the answer to our health lies in the trust we must build in the intelligence of our forefathers. This is not an emotional appeal, but a review of the subject proves the high potential of the history of traditional medicine. Now, it is time to dig all the wealth of knowledge from every corner of the Earth and document it. Application of the information gained from the primitive people in today’s context on the scales of science can act as a savior for the generations to come. Upgrading the utility of traditional medicines to the standard norms and judging them on the parameters of molecular biology at a nano level can rescue man from many complexities. The process of altering the pharma (format) for the use of traditional medicine through maintaining the base formulations and minimizing the process of preparation for the consumer is the revitalization of traditional herbs.

**Why is this Revitalization Needed?**

There are many factors responsible for the successful application of traditional medicines. Traditional medicinal practitioners strongly believe in the establishment of a trust between the healer and the patient. All treatment is based on emotional grounds. There is a need to develop logic in this approach. It is said that acceptance keeps all of the physiological movements of the body at the ground level and thus makes the medicine more effective. But today, this is the world of standardization, quality control, clinical applications, potential drug interactions and the mode of action. Health has always been a challenge to build Rainbow bridges of opportunities between man and flora. This working relationship stands tall even today since eras back, as evidence recollects the glories of the past and can be implemented...
in the timeless periods ahead. Revitalization of traditional medicines is the meticulous application of the sum of the resources used from the biota around to the root cause within the framework of social background using the latest technology available during the period of research.

In the today’s world, adoption of the latest technology like tissue culture and molecular biology can concretize the loop holes. The working of ingredients in combination with the microorganisms and the body system results in a cure (the desired effect). After entering the heart of ethnomedicine, modern man gifted the field with emetine, ephedrine, quinine, reserpine, vinblastine, etc.—today’s most active principles to formulate medicines. Thus, tracing back to primitive systems of medicine can bring a new medicinal revolution. The study of bioactivity within medicinal plants can lead to a new dimension of discovery giving mankind an edge advantage to look into the rising of new horizons.

To date, all the answers in every field are sorted only after going back to the basics. The evidence so far collected in traditional medicine stands at the highest peak in terms of performance. About 10% of the enumerated plant wealth, if measured through the backdrop of modern technologies, can challenge the generations of the mutated diseases and can be looked upon as bench marks in the evolution of the drug discovery process. This is possible by identifying today’s needs and envisaging them as a factor for formulating tomorrow’s medicines. This vision can guarantee a stable, worthwhile life for mankind. Thus, revitalization of traditional medicine is necessary.

As per observations, most modern drug formulations are plant derivatives. There is so much to add from the planktons to ease the abnormalities created by the pathogens. All the above mentioned chemical constituents are sourced from plants.

Tapping Ethnomedicinal Knowledge

Ethnomedicinal knowledge is the sum total of all the information and practices, whether applicable or not, used in diagnosis, prevention, and elimination of physical, mental or social imbalance, and relying exclusively on practical experience and observations transformed by the individuals from generations to generations (Manjunath 1990). Ethnomedicine refers to the study of traditional medical practice, which is concerned with the cultural interpretation of health, diseases and illness, and also addresses the healthcare-seeking process and healing practices. Rai (1985, 1987a,b, 1988, 1992), Rai and Nonhare (1992) and Rai et al. (2000) contributed to various aspects of this field, and worked in the Chhindwara district, Madhya Pradesh, India. The practice of ethnomedicine is thus a complex process involving many disciplines constituting the use of plants, spirituality and
the natural environment resulting in a source of healing for people since millennia.

The forests of the world contain an incredibly diverse number of unexplored plant species which may be unique and potentially useful as medicinal sources. The study of native cultures that inhabit these regions can provide enormously valuable clues in the search for improved health. In light of the current scarcity of several medicinal herbs, there is a great need to discover suitable substitutes for them (Shivarajan 1997). The recognition of indigenous health concepts maintaining the ethnic identities with the search for new medical treatments and technologies should be enhanced during that process.

Tapping ethnomedicinal knowledge is an expedition, and only those determined, willing, and, most important, interested can complete the task. Preparation of an agenda, after learning the study area, its access, maps of the road, journey details, conveyance available, and government establishments, will be one step forward into in every niche of the tribal world. The culture that works in these remote places is very sensitive to the dynamics. Abolishing tribal practices cannot help in the process, but establishing trust can assist in this purpose. The local people who acquired the knowledge from their ancestors and practice local health care should be the chief resource persons. Obtaining first hand information and documenting it, can at first appear, to be a mission impossible. Here, consistency and patience can help one sail through. All the contributors should be armed with a variety of skills pertaining to anthropology, public health, social sciences, linguistics, etc.

The interviewing process should be conducted very carefully, meticulously, and gradually. The subject of their interest should be made to feel important, and thus may help them to establish their status. Learning about their festivals, rituals, religious practices, and magical religious beliefs, social taboos, etc. can lead to a host of ethnomedicinal information (Hardas 2010). A tentative questionnaire can vary as per the mood fluctuations of the tribal group. Then, one can proceed towards the professional, open-ended questions such as the diseases handled, the remedies implemented, the results obtained, and the diet suggested, and these can be the seed for more precise details.

Information only about the plant base used for the cure of an ailment cannot be the motto. The experience of the tribal group can also throw light on the development of the procedure in making the medicines. The combinations of plant material used in the treatment and the way of administration of the drug also play important roles in the process. The cooperation of the local tribal guide can be sought to reach the remote plant location. During the course of talks, magic-religious beliefs can be discussed, for they have a tremendous impact on tribal life. In spite of
consistent requests, the practitioners, in some cases, may not cooperate as it is their trade secret. However, being ready for any kind of response can multiply the possibility of gains, as native healers are reluctant to share their acquired knowledge with outsiders.

The real work begins after the survey from the field. All the data obtained from the practitioners of the local health tradition should be scrutinized. The plants studied are to be categorized on the basis of various aspects. The botanical name of the plant, its family and the parts used are to be analyzed for further reference. Depending on the therapeutic action shown, the plants then can be separated. Exhaustive literature is to be accessed for the exact status of studies. Looking up the ethnomedicinal uses, the plant material should hold up well against the causative agent of the disease. Only then can the plant material be proposed for further detailed study in the respective field.

Modern Drugs are Mainly from Plants

Looking at the scenario of the modern drugs available, most of them are derived from plants. All modern drugs are available in a sealed and patented format. For convenience, the plant substance used is addressed as a drug. The process is involved in extracting the drug from the plant. Identifying the locations of the active principle in the plant is followed by its separation and then it can be combined with other chemicals to produce a medicine for serving the purpose.

Two important chemicals, quinine and quinidine, are derived from Cinchona ledgeriana for over hundred years. Quinine is a popular antipyretic, and also a remedy for malaria, whereas quinidine is used as an antiarrhythmic in various heart conditions. Technology could replicate quinine synthetically, but quinidine is still a challenge and thus, is exploited from the plant itself. Digitalis lanata is the source plant of cardiac glycosides acetyldigoxin and lanatosides A, B and C, and Digitalis purpurea gives digoxin and digitoxin, along with gitalin (an amorphous mixture of glycosides) used as a cardiac tonic. Berberis vulgaris is the plant source for berberine, a major cure for dysentery. Caffeine is extracted from Camellia sinensis, whereas camphor is derived from Cinnamomum camphora. The popular anesthetic cocaine is from Erythroxylum coca and the analgesic codeine is from Papaver somniferum. Curcuma longa is a choleric due to the presence of curcumin, and Cassia species are a laxative due to the presence of danthrene derivatives. The renowned emetine is the product of Cephaelis ipecacuanha, and ephedrine is the product of Ephedra sinica. Glycyrrhizin, a sweetener, is from Glycyrrhiza glabra, and the haemostatic astringent, hydrastine, is from Hydrastis canadensis. The male contraceptive gossypol is the product of the Gossypium
species, and the *Mentha* species produce rubefacient menthol. The well-known morphine used as analgesic is from the plant *Papaver somniferum*, and nicotine is from *Nicotiana tabacum*. *Carica papaya* gives the proteolytic papain, and *Papaver somniferum* also gives papaverine, acting as a muscle relaxant. *Rauwolfia serpentina* contains reserpine, along with rescinnamine, and both act as tranquilizers. *Theobroma cacao* gives theobromine and theophylline—popular diuretics and vasodilators. Vinblastine and vincristine have proved to be the greatest boon to fight deadly cancer and are produced from *Catharanthus roseus*, and the presence of antileukemic agents makes it a more powerful drug. *Vinca minor* gives vincamine that is administered as a brain stimulant. Epipodophyllotoxin from *Podophyllum peltatum*, after research was converted to the semisynthetic analogue etoposide for cancer treatment. Similarly, teniposide is a semisynthetic compound from the same plant derivative. Paclitaxel, a diterpenoid previously called taxol, is used for ovarian, breast and non-small cell lung cancers, was found in the bark of the Pacific yew (*Taxus brevifolia*) in low yield (0.004%), which requires destroying trees by removing the bark. Now it is obtained by semisynthesis from 10-deacetylbaccatin III, which is obtained from *Taxus baccata* needles, as a renewable resource.

Research is an ongoing process and many plant resources have active principles which could be responsible for providing therapy. A little attention to our forefathers study can mitigate the need of every hour.

**Search for Bioactivity in Medicinal Plants**

Plants produce a diverse range of bioactive molecules, making them a potentially rich source of different types of medicines. Higher plants, as sources of medicinal compounds, have continued to play a dominant role in the maintenance of human health since ancient times (Farombi 2003). Baker et al. (1995) reported that natural products play an important role in drug development programs in the pharmaceutical industry. These days to control the major diseases of the world, production of synthetic pharmaceutical products is not enough; they cannot expand or alter their abilities. Due to this limitation there is a need to discover new molecular structures and naturally every contributor diverts to the plant kingdom. The other benefits involved are encouraging people to track the plants used by indigenous peoples. The ethnobotanical approach is one of the common methods that is employed in choosing the plants for pharmacological study (Cox and Balick 1994). In spite of all these efforts, there remains a need for detailed scientific studies of traditional medical practices to preserve valuable therapeutic knowledge and supplement the scientific evidence of their efficacies (Onyeagba et al. 2004).
People of small remote villages and native communities use folk medicine for the treatment of common infections. These plants are ingested as decoctions, teas and juice preparations to treat respiratory infections or made into a poultice and applied directly on infected wounds or burns (González 1980). Traditional healers display their expertise in procedures of diagnosis, treating wounds, setting bones and making herbal medicines, teas, decoctions, infusions or juices, etc., cheaper and more effective than modern medicine with a reduced risk to get infectious diseases from resistant pathogens as compared to people from the urban areas who are treated with traditional antibiotics. In urban areas, hospitalization has become very common, but it increases the chance of contracting a nosocomial infection (Ospina et al. 2002). Thus, recently, the trend has switched to use new compounds that are not based on existing synthetic antimicrobial agents (Shah 2005). It is necessary to scientifically evaluate the potential of folk medicine for the treatment of diseases produced by common pathogens. This can lead to the development of potent and more powerful antibiotics which the pathogens cannot resist (Fabricant and Farnsworth 2001).

Plants are an important source of potentially useful structures for the development of new chemotherapeutic agents. The bioactivity of plants provides a variety of agents which can be effective against pathogens having undesired effects. The major factor responsible for the bioactivity is secondary metabolites. Secondary metabolites are armed with the potential to be active against bacteria, fungi, insects, other animals, amoeba, etc. It is due to these secondary metabolites that the plants have their medicinal properties. Most of these metabolites directly act on the pathogenic organisms and arrest their growth. At times, the active principles do not affect the pathogen, but they can stimulate the production of those elements in the body responsible for an inhibitory action against the microbes. The mechanism of action of the drug in the body is a complicated process. Thus, the action of the plant extract to some extent may vary in vivo. At times, personal history, climatic conditions, and the immunity of the other symbiotic microbes are also responsible for the net effect to cure a patient.

The meaning of the word antimicrobial relates to a substance that kills, or inhibits, or prevents the growth of microorganisms, such as bacteria, fungi, or protozoa. Pasteur and Joubert observed that one type of bacteria could prevent the growth of another bacteria, this observation led to the foundation of the study of antimicrobial activities. Antibiotics are thus the substances that are produced by one microorganism that kill, or prevent the growth, of another microorganism. However today the term antibiotic, is used to refer to almost any drug that attempts to rid your body of a bacterial infection. Antimicrobial agents are those substances or drugs with antifungal, antiviral, antiparasitic and antibiotic properties. Antimicrobial agents have substantially reduced the threat posed by
infectious diseases since their discovery in the 20th century (Nwaopara et al. 2009). In this process, conventional antibiotics are potent medicines and save lives; however, they can be more harmful if they are not used in the right way (Neu 1992). Microorganisms are becoming resistant more quickly than new drugs are being made available. For a number of new antibacterial drugs, resistance by bacteria has increased and become a global concern. Thus, future research in antimicrobial therapy challenges us to be more responsible and the limelight is on finding out how to overcome resistance to antimicrobials. This is because in recent years, multiple drug resistant species have developed due to the indiscriminate use of existing antimicrobial drugs in the treatment of infectious diseases (Westh et al. 2004). Antifungal activity is unique as it works by exploiting the differences between human and fungal cells to kill off the fungal organism without dangerous effects on the host.

Plant extracts are potential sources of novel antimicrobial compounds, especially against bacterial pathogens. The selection of crude plant extracts for screening programs has the potential of being more successful than the screening of pure compounds isolated from natural products (Kusumoto et al. 1995). This needs a re-enforced, directed effort to produce effective antibacterial agents against pathogenic microorganisms resistant to current antibiotics (Soulsby 2005). Counteracting the real problem of the undesirable side effects leading to the emergence of uncommon infections also needs serious attention now (Marchese and Shito 2001). Adulteration and the increasing toxic side effects of these synthetic drugs, in concert with their high cost is the challenge to be dealt (Shariff 2001). The adverse reactions are negligible in the case of the pure plant products as compared to the pharmaceuticals. This cost effectiveness provokes public and national health care institutions to consider plants as an alternative to synthetic drugs (Nair et al. 2005).

The first step directed towards the future is the validation of the drug. Here, the potential reactive part of the plant containing the active principle that acts on the cause is subjected to the hazardous microorganism causing ill health in the human body. There are many pathogens, each affecting the working body system and derailing the operation. Every organism acts on a specific part of the body or its organs and produces symptoms indicating change other than the routine. This deflection in the body is termed as disease. To counteract the effect produced, the growth of the pathogens must be arrested. To test the potential of the plant for reducing the pathogens, the procedure of validation is carried out. The use of plant extracts or phytochemicals with known antimicrobial properties can be of great significance for therapeutic treatments (Bag et al. 2009). The cause of the disease can be determined at the very initial stages by inhibiting the pathogens. Use of this technique is a leap forward in the study of
ethnomedicine. To carry out the proceedings, knowledge in the subject of microbiology as well as biotechnology can assist in the way to carry out the work. Many researchers have worked on the antimicrobial activities of plants or their synthetic analogues. Their experience provides impressive results.

Shelef (1983) propagated the knowledge of antimicrobial activity and evaluated the effect of spices used in day to day food. Recio et al. (1989a) reported the antimicrobial activities of the substances isolated from the plants. Rios et al. (1988) reviewed the various techniques to unify the different criteria and parameters to provide standard methods for the study of the antimicrobial activity of medicinal plants. Rabe and Van Staden (1997) screened crude extracts from 21 South African medicinal plants reported to be septic (infectious) in nature for antibacterial activity using the agar diffusion and dilution methods. Rios et al. (1987) and Recio et al. (1989b) extensively screened medicinal plants from the Mediterranean area for their antimicrobial activity. Antibacterial activity of plants used in ailments by the tribals in Western Ghats in India is reported by Samy and Ignacimuthu (2000). Kumaraswamy et al. (2002) worked on the seeds of Scottish medicinal plants for antibacterial properties and exploited their potential. The neem tree, Melia azadiracta, is regarded as the “village dispensary” in India (Biswas et al. 2002) and displays considerable inhibitory activity against various tested organisms. Antimicrobial activity of propolis and antimicrobial drugs was reported by Stepanovic et al. (2003). Multidrug-resistant Salmonella typhi was treated by plant extracts for their anti-enteric potential by Khullar and Rani (2004). Lawsonia inermis has been reported to be effective in the management of burns, wounds and other skin infections (Muhammad and Muhammad 2005). Antibacterial activity of Zingiber officinale and Allium sativum were evaluated against Escherichia coli and Salmonella typhi by Ekwenye and Elegalam (2005). The Kandha tribe of Orissa, India uses phytotherapy to get rid of the bacteria causing urogenital diseases. This effect of the antimicrobial activity was reported by Behera and Misra (2005). Methanol extracts were reported more effective than the hexane extract, whereas water extracts were also effective, possibly more so (Duraipandiyan et al. 2006). Anogeissus latifolia was analyzed for the study of antitumor and antimicrobial activity by Govindarajan et al. (2006). Mahesh and Satish (2008) evaluated the potential of Tinospora cordifolia and reported significant antifungal activity against Drechslera turcica. A new twist developed in the evaluation of antimicrobial activity was reported by Genc et al. (2008). The sulfonamide derivative medicines are preferred to cure infection caused by Staphylococcus aureus as it is one of the important bacteria as a potential pathogen specifically for nosocomial infections due to methicillin resistance. Escherichia coli are Gram negative bacteria responsible for uropathogenic ailments. The plant drug Terminalia chebula was used in antimicrobial assays
by Chattopadhyay et al. (2008). Seventeen Indian folklore medicinal plants were investigated to evaluate the antibacterial activity of their extracts (Sharma and Pandey 2009).

The study of individual plants for the evaluation of antimicrobial inhibitory activity was carried out by many researchers. Rees et al. (1992) obtained results from a quantitative assessment of the antimicrobial activity of garlic (*Allium sativum*). Cichewicz and Thorpe (1996) reported the antimicrobial activity of *Capsicum* species along with their uses in Mayan medicine. Oboh and Abula (1997) worked on *Psidium guajava* and *Citrus aurantium* against several pathogens. *Aegle marmelos* is very effective for gastrointestinal ailments as the seed extracts and the crude alkaloids possess antimicrobial activity (Ahmed et al. 1998). Seed oil of *Swietenia mahogani* has been reported to possess antimicrobial characteristics by Majid et al. (2004). Daud et al. (2005) studied the performance of *Phrygilanthus acutifolius* for its antimicrobial properties. The leaf extract of *Hyptis suaveolens* showed inhibitory activity (Mandal et al. 2007). The agar disc diffusion method was used to study the antibacterial activity of *Artemisia nilagirica* extracts against 15 bacterial trains (Ahameethunisa and Hopper 2010).

*Escherichia coli* found in the gastrointestinal tract, affects the urinary tract and causes neonatal meningitis, bad stomach cramps, respiratory illness, diarrhea with blood, and pneumonia. *Staphylococcus aureus* is commensally on human skin and leads to furuncles (boils) and carbuncles, and scaled skin and abscesses, and is also responsible for inflammatory bowls, cancer, lung diseases and diseases of the central nervous system. Thus, it is the cause of multiple sets of problems. *Salmonella typhi* causes typhoid in human beings. It is present in the blood stream and intestine of humans. It causes fever, malaise, diffuse abdominal pains, constipation, delirium, intestinal hemorrhage, and bowel perforation. *Candida albicans* causes mucocutaneous diseases, lesions of hands, nails, face, scalp, sore and painful mouth, burning mouth and tongue, whitish thick patches on oral mucosa, epigastric pain, nausea and vomiting, abdominal fever and chills, variable breath sound, and, in rare cases, leads to jaundice. It changes the mental status leading to arthritis or confusion or even coma. *Candida utilis* is an industrially important species responsible in most cases for urinary tract infections. *Candida utilis* represents an imperfect stage of the organism and can be isolated from diseased cells.

The results of a Standard Disc Diffusion method with plant extracts against the above pathogens resulted in interesting findings. In spite of the understanding that release of the responsible active principles is well defined in the alcoholic media, the use of methanol, hexane, ethanol or similar solvent for the extraction process was avoided to produce an exact replication of traditional knowledge. Since some factors (culture medium composition, microorganisms tested, extractive method, pH, solubility
of the extract in the culture medium, etc.) can change the results, it is
difficult, using these methods, to standardize a procedure for the study of
antimicrobial plants (Rios et al. 1988). Joshi et al. (2009) provided the reasons
for the varied effectiveness of the same plant extract on the same pathogen
by different researchers. The inhibition produced by the plant extracts
against a particular organism depends upon various extrinsic and intrinsic
parameters. Due to variable diffusability in agar medium, the antibacterial
property may not demonstrate as a zone of inhibition commensurate to
its efficacy. Generally plant extracts are usually more active against Gram
positive bacteria than Gram negative bacteria (Basri and Fan 2005). The
observations are likely to be the result of the differences in the cell wall
structure between Gram positive and Gram negative bacteria, with the
Gram negative outer membrane acting as a barrier to many environmental
substances, including antibiotics (Burt 2004).

The plant extract of Melia azadirachta exhibited activity against the Gram
positive organism S. aureus, but was found to be inactive on other tested
microorganisms, E. coli and S. typhi (Hardas 2010). On the other hand, C.
utilis and C. albicans did not display any antifungal activity, but in the case
of C. albicans the activity is unique. The sample was proved to be ineffective
alone but in combination with the antibiotic shows enhanced results. The
presence of different chemicals is responsible for the antimicrobial activity
(Ikram and Haq 1980). It is reported that sulfation of the alkaline extract
of the leaves improves the activity against bacteria and fungi (Helmy
et al. 2007). The results showed that “Neem” seed extracts possessed
antimicrobial activity with notable effects on some fungal phytopathogens
(Coventry and Allan 2001).

The extract of Allium sativum showed the highest zone of inhibition in
the case of bacteria and fungi (Hardas 2010). The Gram negative bacterial
strains E. coli and S. typhi demonstrated resistance against all of the plant
extracts screened in the antimicrobial assay. The other plant extracts
demonstrated moderate inhibitory activities against the tested bacteria.
The maximum inhibition activity in the case of fungi was recorded by the
extract of Allium sativum against Candida utilis followed by Terminalia chebula
against Candida utilis. In most of the cases against Candida albicans, the
sample was effective in combination with an antibiotic. Gomaa and Hashish
(2003) reported that the water extract of garlic, Allium sativum, produced
higher antimicrobial reduction than the fresh ones. The aqueous extract
of A. sativum showed huge potential as an antimicrobial agent compared
to alternate commercial antibiotics for aquaculture (Wei and Musa 2008).
This is of particularly urgent interest considering the rate of development
of multidrug resistant strains of organisms, including S. typhi, currently
emerging world-wide (Prescott et al. 2005).
The broad spectrum of activity demonstrated in these studies by many researchers makes a promising indigenous drug used even today by indigenous groups more scientific and safe for use by hesitant individuals. Every experimental method has its own pros and cons. All the screened plants have the potential to perform against pathogens to a greater or lesser extent. The usage of plants by indigenous groups should be scanned for further benefit, and the focus is therefore on the awareness and the willingness of the local community to incorporate traditional knowledge with scientific findings.

**Conclusions and Future Perspective**

Today is the generation of great care and suspicion. Proof is mandatory before the utility of the product. All the claims made by indigenous groups from different locations in the world are to be rooted in the niche of science. This generation is aware of the benefits and the cost effectiveness of herbal medicine. They are very inclined to use a natural product. It is necessary to scientifically evaluate the potential of indigenous medicine for the treatment of diseases caused by common pathogens in general and new and emerging pathogens in particular. The potential of indigenous folklore is tremendous. To put the ability of these drugs in black and white and carve a new path for treatment, revitalization of the traditional medicine through tailored attempts by researchers for acceptance as an alternative treatment in the medicinal science is necessary. The main aim is its inclusion in the pipeline as a therapeutic medicinal science. This will take time until the transactions of indigenous knowledge is as clear as crystal. Yet this science is on a runway, the flight is over many mountains, but the final landing will provide cushions to millions of generations to come. A step towards success is not a destination, but a never ending journey towards excellence. Force is required to transfer the potential energy into the working kinetic energy. Thus, the following prospects provide momentum and are launching pads for new medicines to come in the future. This will safeguard the tribal group from facing hardships and addicting themselves from meaningless practices. Rising financial status and education will lubricate the firm grip of superstitions, thus enhancing the brainpowers to work at priority. Ultimately, it can alter the life style of this and the upcoming generations making their world a more beautiful and perfect place to live in harmony with the treasure land of plants.

Progress in scientific research can clarify the mystique surrounded by the drug. Areas of growth can be focused on viral infections, liver diseases, diabetes, anticancer agents, anti-AIDS, H1N1, and many deadly names which will follow.
The ethnomedicinal study of plants of the Thane district illuminates the non discovered path for further inventions from Indian folk medicinal plants. The validation of plant taxa for different bacterial and fungal strains has highlighted the direction of new upcoming drug formulations. These plants and many more have the potential of giving a range of traditional products which are handy to carry, and nullifying the other parallel symptoms or side effects. The rich heritage of traditional knowledge lies only with the tribal groups.

Looking at their religious beliefs, it seems that every activity followed by the tribal group is, in some way or other, scientific and, moreover, logical and associated with their daily pattern of work. Their way of living and working illuminates multiple branches of scientific and social studies.

There are no two views about the promising potential of the treasures sought by the tribal groups, which today can stand tall based on every measure of technology. To safeguard the knowledge, documentation coupled with the know-how of the usage of the plants is the initial step. This is a progressive age for the growth of a data pool giving a fourth dimension to the flavors of yesteryears. The information gathered, if evaluated with the evolving techniques can bring a new medicinal revolution in the world. The magical approach, the energetic approach, the dynamic approach towards drugs is of great importance, but the synergy benefit of the chemical approach should be the order of the day. These secondary metabolites discourage infecting organisms to enter their personal arena possibly because of their aromatic nature. The data extracted needs to be validated producing an exact replication of the conditions in vitro, later to be diagnosed with certain chemicals enhancing the capacities of the plant extract. The antimicrobial activity of the material can be turned into a drug after working on the results. Various techniques to measure the activity of the drugs against the pathogens need to be designed. Once the research experimental parts are completed, the perseverance of the plant part as a mother source material, and its further development in vitro through tissue culture will prove an edge advantage for the generations to come.

One cannot stop here with the advances seen all over the world for precision and perfection. Computer science is the lifeline, thus, conversion of the collected data into molecular structure for further research and formulations can keep the traditional flag hoisted through the upcoming area of bioinformatics. It should be easier to tally the genomes of the new drugs by the algorithm technique. Once the data are analyzed a series of permutations and combinations can be performed to match the needs, leading to fresh structures of drugs. Thus, DNA mapping and protein sequencing can be a blue print to materialize effectively drug discovery. The immature development of the concept “molecular modeling” can gain
shape. Tissue culture, bioinformatics, molecular biology along with the traditional knowledge base of medicinal plants, can rescue mankind for years to come.

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