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Future Prospects of Medicinal Plants.

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ABSTRACT

Medicinal plants have been playing an essential role in the plants have always been at forefront virtually all cultures of civilizations. Herbal plants play an important role in preventing and treating of human diseases. People have been using plants as a traditional medicine for thousand years ago. In the 21st century, the pharmacological effects of medicinal plants have been considered as a promising future drug/medicine for the management of health care. Medicinal plants are used as a medical resource in almost all cultures. Ensuring the safety, quality and effectiveness of medicinal plants and herbal drugs development of human culture. As a source of medicine, Medicinal very recently became a key issue in industrialized and developing countries. Therefore, the aim of the present review is to understand the knowledge of the medicinal plants as a future source of herbal drugs.

Keywords: Medicinal plants, Traditionl Systems, Herbal Medicine, Medicinal plant perspective.

I. INTRODUCTION

Human beings have depended on nature for their simple requirements as being the sources for medicines, shelters, food stuffs, fragrances, clothing, flavours, fertilizers and means of transportation throughout the ages. For the large proportions of world's population medicinal plants continue to show a dominant role in the healthcare system and this is mainly true in developing countries, where herbal medicine has continuous history of long use. The development and recognition of medicinal and financial aids of these plants are on rise in both industrialized and developing This relationship between plants and man has grown and many plants came to be used as medicines. The growth of knowledge to cure diseases continued at an accelerating pace and a number of new plant-derived drugs increased likewise. Nature has bestowed our country with an enormous wealth of medicinal plants; therefore, India has often been referred to as the Medicinal Garden of the world. The clinical use of plants described in Indian Vedas for curing different diseases. In the present context, the traditional system of medicine is widely accepted and practiced by people worldwide. At this stage, India has a unique position in the world where a number of recognized Traditional system of medicine i.e. Ayurveda, Siddha, Unani, Homeopathy, Yoga and Naturopathy.

Medicinal plants have been recognized as potential drug candidates because they possess drug like properties. In diversified industries the contribution of plants is remarkable such as fine chemicals, cosmetics, pharmaceuticals and drugs and industrial raw materials etc. For the development of new drug discovery medicinal plants perform a dynamic part. Medicinal plants have proved their sole role in coping with a number of deadly diseases including cancer and the diseases associated with viral onslaught viz, Hepatitis, AIDS etc.The knowledge of medicinal plants was gradually developed and passed on from one individual to other, which foundation for traditional medicine throughout the world.

The foundations of typical traditional systems of medicine for thousands of years that have been in existence have formed from plants. The plants remain to offer mankind with new medicines. Some of the beneficial properties ascribed to plants have recognised to be flawed and medicinal plant treatment is based on the experimental findings of hundreds to thousands of years. The earliest reports carved on clay tablets in cuneiform date from about 2600 BC are from Mesopotamia; among the materials that were used were oils of Commiphora species (Myrrh), Cedrus species (Cedar), Glycyrrhiza glabra (Licorice), Papaver somniferum (Poppy juice) and Cupressus sempervirens (Cypress) are still used today for the cure of diseases extending from colds and coughs to inflammation and parasitic infections. The traditional medicine practice is widespread in

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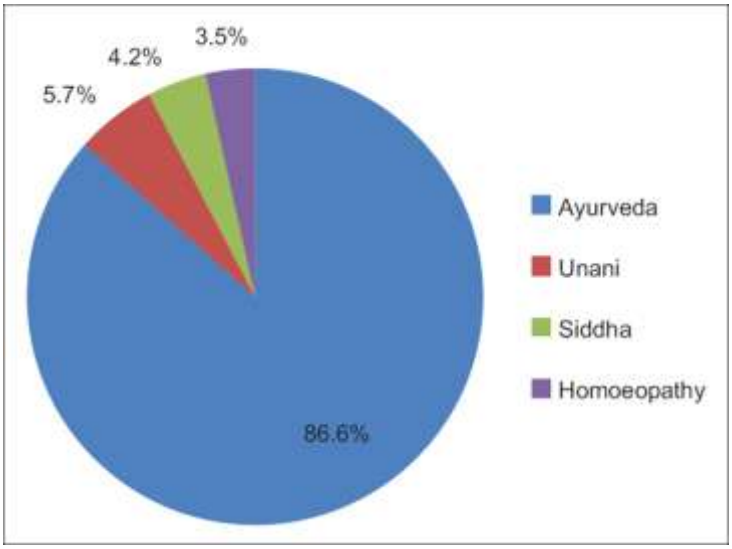
China, India, Japan, Pakistan, Sri Lanka and Thailand. About 40% of the total medicinal consumption is attributed to traditional tribal medicines alone by China. In Thailand, herbal medicines make use of legumes encountered in the Caesalpiniaceae, the Fabaceae, and the Mimosaceae. It is estimated that in mid-90s, more than US$2.5 billion have resulted from the sales of herbal medicines. The herbal medicinal preparations are more in demand than mainstream pharmaceutical products in Japan. Even today, plants are not only indispensable in health care, but form the best hope of source for safe future medicines.In spite of the fact that now we have at our command a number of modern drugs, it is still genuinely urgent to discover and develop new therapeutic agents. It has been estimated that the acceptable therapy is available only for one third of the known human ailments. Therefore, the fight against diseases must be carried on relentlessly. Traditional plant medicines still enjoy significant position in the modern-day drug industries due to the minor side effects as well as thesynergistic action of the combination of compounds.

Traditional System of Medicine

1.Ayurvedic

Meaning of Ayurveda is the "Science of life". Ayurveda is an ancient health care system which evolved in India dates back to about 5000 years ago. As per the ancient literatures on Ayurveda, it was practiced during Vedic period of INDIA.

Herbal treatments are the most popular form of Traditional Medical System. The plant-based traditional medicine systems continue to play a crucial role in the health care system. The demand of herbal based medicine, health products, pharmaceuticals, food supplements, nutraceuticals, cosmetics are increasing worldwide. as per the records of the National Medicinal Plant Board (NMPB), the Indian herbal industry may like to increase in order of Rs. 80 to 90 billion by 2020. However, India is moving forward in popularising of the Traditional Medical System of AYUSH (Ayurveda, Yoga, Unani, Siddha and Homeopathy) in health care sector through global networks. Ayurveda is similar to Galenical medicine in that it is based on body humours (Dosas) and the inner life force (prana) that is believed to maintain digestion and mental activity. The living and the non-living environment, including humans, are considered to be elements: earth (Prithvi), water (Jada), fire (Tejac), air (Vaju) and space (Akasa). Ayurveda can offer drug free society for curing the diseases and management of quality of life. In order to augment the traditional system of India, Government of India has set up a National Level Policy for growth, promote and development of the Traditional System of Indian Medicine. The Ministry of AYUSH has created the separate Departments for Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy collectively known as AYUSH.



Fig–Percentage of plant species under different systems of IndianMedicine.

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2. African traditional medicine

African traditional medicine is ancient and perhaps the most diverse of all medicinal systems. Africa is considered to be the cradle of humankind, with a rich biological and cultural diversity and marked regional differences in healing practices. Unfortunately, even today the systems of medicines are poorly recorded. The documentation of medicinal uses of African plants is becoming increasingly urgent because of the rapid loss of the natural habitats of these plants due to human activities. The African continent is reported to have one of the highest rates of deforestation in the world. African traditional medicine in its varied forms is holistic, involving both the body and the mind. The healer typically diagnoses and treats the psychological basis of an illness before prescribing medicines to treat the symptoms. Well known African medicinal plants include Acacia senegal (gum arabic), Agathosma betulina (buchu), Aloe ferox (Cape aloes), Aloe vera (north African origin), Artemisia afra (African wormwood), Aspalanthus linearis (rooibos tea), Boswellia sacra (frankincense), Catha edulis (khat), Commiphora myrrha (myrrh), Harpagophytum procumbens (devil's claw), Hibiscus sabdariffa (hibiscus, roselle), Hypoxis hemerocallidea (African potato), Prunus africana (African cherry). Madagascar has contributed Catharanthus roseus (rosy periwinkle) and has the potential of contributing more in view of the diversity
of the flora and fauna.

3. American traditional medicine (North, Central and South)

A. North America

In the USA, just like in many other cultures, the indigenous healer or Shaman treated illnesses by addressing both the physical and spiritual dimension of diseases. These Shamanistic ceremonies involve chanting, dancing and other rituals aimed at expelling evil forces so that the patient or the community as a whole can be heale Among the well known medicinal plants of the United States are Echinacea (Echinacea purpurea) and Goldenseal (Hydrastis canadensis). During most of the 20th century, herbs or botanicals have been regarded with skepticism and the practice of herbal medicine went into decline. Plants wereviewed mainly as a potential source of pure chemical compounds for the development of medicine. In recent years, herbs and botanicals have become very popular in the USA and Canada but they are still considered as nutritional supplements rather than medicines in their own rights.

B. Central and South America

Just like Africa, Central and South American countries have rich and diverse healing cultures, which are poorly known and have not been properly recorded. They will no doubt be a source of new herbal remedies in the years come. South and Central America have made enormous contributions to agriculture and a large number of food crops such as maize, potatoes, tomatoes, pumpkins, cassava, peanuts and sweet potato originate from there. Traditional American Indian medicinal herbs are used extensively but the influence of Spanish, European, East Asian and African medical systems is obvious.

4. Australian and Southeast Asian medicine

This region has witnessed a resurgence of interest in traditional medicine and many countries now promote research into medicinal plants as a potential source of new remedies. The Aborigines had a complex healing system but much of the traditional knowledge in Australia was lost before it could be systematically recorded. In contrast, many healing practices such as those of Malaysia, Thailand, Vietnam, New Zealand, Borneo, and the Polynesian Islands remain intact and are being recorded and developed. A strong Chinese influence is being observed in most countries. Among the well-known medicinal products originating from this region are Croton tiglium (purging croton), Duboisia hopwoodii (pituri), Eucalyptus globulus (bluegum), Melaleuca alternifolia (tea tree), Myristica fragrans (nutmeg and Mace), Piper methysticum (kava kava), Strychnos nux-vomica (strychnine), Styrax benzoin (benzoin) and Syzygium aromaticum (cloves).

5. Chinese traditional medicine

The civilizations of China and India were flourishing when only modestly sophisticated cultures were developing in Europe. Expectedly writings on medicinal plants and the aesthetics of vegetation were numerous. This ancient system of medicine, believed to be more than 5 000 years old, is based on two separate theories about the natural laws that govern good health and longevity. The Traditional Chinese medicine was systematized and written between 100 and 200 BC (Before Christ). The most complete reference to Chinese herbal prescription is the Modern Day Encyclopedia of Chinese materia medica published in 1977. It lists nearly 6000 medicines out of which 4 800 are of

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plant origin. treatment is based on symptoms and on a pattern of imbalances, often detected by taking the pulse or observing the patient's tongue. Warming or hot herbs, such as ginger and cinnamon, are used to treat ailments associated with cold symptoms such as cold hands, abdominal pains and indigestion.

In common with Western and African traditional medicines, Chinese herbs are usually given in fixed mixtures or formulas of up to 20 herbs, carefully prepared according to traditional recipes. There are hundreds such recipes being used alongside with Western medicines. As in other healing cultures,traditional recipes are used preferentially against chronic illnesses while acute or serious illnesses are cured by Western medicines. The spread of traditional Chinese medicine to most continents has undoubtedly contributed to the current popularity of herbal medicines throughout the world. Examples of famous Chinese medicinal plants are Angelica polymorpha var. sinensis (dang gui), Artemisia annua (qing hao).

6. European medicine

In the ancient Western world, the Greeks contributed significantly to the rational development of the use of herbal drugs. However, the European healing system is said to have originated with Hippocrates and Aristotle whose own ideas were rooted in ancient beliefs from India and Egypt. Greek and Roman medicine was based on the belief that the world is composed of four elements—earth, wind, fire and water. Each of these has its corresponding humours, linked to the four vital fluids in the body. The four humours—blood, phlegm, black bile and yellow bile, influence both health and temperament (respectively sanguine, phlegmatic, melancholic and choleric). In order to restore balance, drastic measures such as blood letting (reducing excess blood) and purging (to remove excess black bile) was used. The fourhumours were also associated with cold, heat, dampness and dryness and each of these had a corresponding range of cold, hot, damp or dry herbs that were supposedly able to restore imbalances. European tradition also had many regional influences that influenced local folk practices and traditions. It is generally accepted to be the first European herbal and was the standard reference in Europe for more than 1000 years, providing the base for most of the later herbals. As early as AD 800, medicinal plants were cultivated according to a standardized layout in monasteries in Central Europe. Herbal medicine was part of everyday life in many countries in Europe and to this day has remained a popular method of treating ailments but is often considered to be supportive rather than curative. To date in several European countries, the use of herbal tea is still very popular. In addition to these, 'natural products' taken in their crude form (unprocessed) as teas or decoctions, more sophisticated phytomedicines (standardized and formulated extracts of plants, often subject to rigorous testing in humans) remain a popular alternative to medicinal products derived from pure synthetic chemicals. A large number of traditional herbal remedies in Europe have become widely known as a result of commercialization and a number of active compounds have been isolated from medicinal plants and are used today as single chemical entities.

7. Classical Arabic and North African traditional medicine

The oldest written information in the Arabic traditions comes from the Sumerians and Akkadians of Mesopotamia, thus originating from the same areas as the archeological records of Shanidar IV.Pollen of several species of plants, presumably used as medicines, was discovered among which are: Centaurea solstitialis (Asteraceae), Ephedra altissima (Ephedraceae), Althea sp. (Malvaceae) amongst others. Although this may not be a findingwith direct bearing on the culture of Shanidar, these species or closely related ones from the same genus, are still important today in the phytotherapy of Iraq and also known from other cultural traditions. These species may well have been typical for the Neanderthal people and may also be part of a tradition for which Shaidar IV represents the first available record. The Middle East is known as the cradle of civilisation and many plants cultivated nowadays were domesticated in this region. The Babylonians, Assyrians and Sumerians recorded herbal remedies in cuneiform writing on umerous clay tablets.

The monasteries in countries such as England, Ireland, and Germany were responsible for preserving the remains of Western knowledge. But it was the Arabs who were responsible for the preservation of much of the Greco-Roman expertise, and for expanding it to include the use of their own resources, together with the Chinese and Indian herbs, till then unknown to the Greco-Roman world. The Arabs were the first to establish privately owned drug stores in the 8th century. The Persian pharmacist, physician, philosopher and poet, Avicenna, contributed much to the sciences of pharmacy and medicine throughout works such as

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Canon medicinae, regarded as the "final codification of all Greco-Roman medicine".

Among the famous medicinal plants of the Middle East and Egypt are: Allium cepa (onion), Astracantha gummifera (tragacanth), Carthamus tinctorius (safflower), Carum carvi (caraway), Ferula assafoetida (asofoetida), Lawsonia inermis (henna), Papaver (opium poppy), Peganum harmala (syrian rue), Prunus dulcis (almond), Punica granatum (pomegranate), Rosa x damascena (damask rose), Ricinus communis (castor oil plant), Salvadora persica (toothbrush tree), Senna alexandrina (senna), Sesamum indicum (sesame), Trachyspermum ammi (ajowan), Trigonella foenum-graecum (fenugreek) and Vitis vinifera (grape). A list of some botanical drugs used in traditional medicine, which have led to useful modern drugs are shown in Table 1.1. However, it should be noted that concern has been raised on the toxicity of Kava pyrones and that their anxiolytics have been positively reviewed.

Herbal Medicine

Herbal medicine or phytomedicine is the use of plants for medicinal and therapeutic purpose for curing of diseases and improve human health. Plants have secondary metabolites called phytochemicals**.** Plants use as food and in traditional medicine are more likely to yield pharmacologically active compounds. The medicinal properties of plants have been investigated in the recent scientific developments throughout the world, due to their potent therapeutic efficacy and antioxidant activities, no side effects and economic viability. Medicinal plants are serving as raw material for drugs which are effective and reasonable health care for people. However, all plants synthesize phytochemicals, which are beneficial for our health as they cannot be synthesized in the human body. It has been observed that numerous plants have pharmacological effects due to the presence of metabolites. Plant-metabolites are organic compounds which can be classified into primary metabolites and secondary metabolites. Primary metabolites are organic compounds include glucose, starch, polysaccharide, protein, lipids and nucleic acid which are beneficial for growth and development of the human body. Plants synthesize secondary metabolites which include alkaloids, flavonoids, saponins, terpenoids, steroids, glycosides, tannins, volatile oils etc., The therapeutic efficacy of plants is because of these secondary metabolites for curing many diseases. Phytochemicals are pharmacologically active compounds. These include alkaloids have an antispasmodic, antimalarial, analgesic, diuretic activities; Terpenoids are known for their antiviral, anthelmintic, antibacterial,anticancer, antimalarial, anti-inflammatory properties; Glycosides are reported for antifungal and antibacterial properties; Phenols and flavonoids have an antioxidant, anti-allergic, antibacterial properties etc. and Saponins are reported to have anti-inflammatory, antiviral, plant defence activities. People have been using plants as a medicine without scientific knowledge and proper guidance for thousand years ago.

Using plants as medicines it is considered as a natural healing Medical System. It has been scientifically established that every part of plants has medicinal properties include flower, root, and stem, leafs, fruits, seed and whole plants. However, it has been observed that some plants are not safe for health because they contain some toxic compounds which show adverse effects in the body. Herbal medicine is widely practiced in worldwide. For centuries, people have turned to natural remedies to cure common ailments such as colds, allergy, upset stomachs and toothaches and the trend is constantly increasing. Thus, there has been a shift in universal trend from synthetic to herbal medicines, which we can say 'Return to Nature' for the prevention of diseases and ailments. Nature has been a source of medicinal plants. Plants have several pharmacological roles such as antioxidant, antiviral, anticancer, antimicrobial, antifungal and antiparasitic. Plants have free radical scavenging molecules, including flavonoids, phynolics, anthocynins and vitamins, which show antioxidant like activity. However, plants derived medicines are far superior than the well defined drugs. For example, the quality and availability of raw materials is always a problem, the principles of handling are also unknown and also the quality control, i.e. standardization and stability are practically applicable but not too much easy. Herbal medicines are for superior than the synthetic drugs because they are naturally occurring, easily available without cost and have minimum side effects. Majority of plants have medicinal properties, i.e. most pharmaceutical drugs are originally derived from plants.The herbal medicines / traditional medicamentshave therefore been derived from rich traditions of ancientcivilizations and scientific heritage.

❖ **Some Medicinal Plants Which Have High Medicinal Values**

1. BhumiAmla

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It belongs to euphorbiaceae family and its scientific name is Phyllanthus niruri. The chemical constituents of this plant are mainly alkaloids, in the form of lignins and phyllanthins. It has a very high medicinal value for having hepatoprotective, antiviral, anticancer, antidiabetic, antibacterial and anti-inflammatory properties. The few studies reveal that the aqueous extract from this plant taken over a period of seven days in a patient suffering from induced hepatic damage from the drug nimesulide showed hepato-protective effect. In few studies the Bhumi Amla is showing the anti-cancer effect like P. neruri extracts, protects liver from hepatocarcinogenesis. Its root extracts inhibit growth of murine lymphocytic lukemia. It also showed anti-metastatic effects on human lungs and breast cancer cell lines.

2. Chitraka

It belongs to a plumbaginaceae family and its scientific name is Plumbago zeylanica. Initially P. zeylanica is a toxic plant but on purification this can also be preferred as a medicinal plant which has high medicinal values. In olden days, it was used as a stimulant, laxative, abortifacient, anti-periodic and in the treatment of intestinal parasites dysentery, muscular pain and anaemia. This plantconsists of different chemical components such as naphthoquinones, alkaloids, glycosides, flavonoids,carbohydrates, tannins, fats, steroids and proteins. The few studies showing the anti-bacterial effects like the root extract containing alcoholic compounds from P. zeylanica was tested against certain bacterial species (Salmonella, Staphylococcus, E. coli). This alcoholic extract proved to exhibit a strong anti-bacterial effect against those bacteria and it is also having the anti inflammatory activity like extract of chitraka contains some inflammatory properties which are very useful in diseases like osteoarthritis and rheumatoid arthritis.

3. Marigold

It belongs to calenduleae family and its scientific name is Calendula officinalis. They are commonly known for the analgesic, anti-inflammatory, bactericide, wound healing and anti-septic properties. Marigold being a diuretic, it detoxifies the blood. It is havingotherapplications like it builds the immune system and purifies the lymphatic system. It detoxifies the digestive system, and treats liver gall-bladder dysfunction. It acts as an anti-inflammatory agent by reducing swelling and soothes the treated areas. Extracts of C. officinalis is used for treating varicose veins and also it promotes healthy tissue growth.

Medicinal herbs in the future

Medicinal herbs have a hopeful future since there are about half a million plants around the world, most of them have not yet been studied in medical practice, and current and future studies on medical activities can be effective in treating diseases. In the development of human culture medicinal plants have played an essential role. Studying medicinal plants helps to understand plant toxicity and protect human and animals from natural poisons. The beginning of the development of herbal medicines was concurrent with the development of chemistry and isolation,

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purification, and determination of plant compounds.

The importance of traditionalMedicine has also recognized by World Health Organization (WHO) and has created strategies, guidelines and standards for botanical medicines. For the cultivation, processing of medicinal plants and the manufacture of herbal medicines agroindustrial technologies need to be applied. Therefore, the environmental code of ethics that preserves biodiversity in the processes of exploiting natural resources to discover natural drugs should be considered. Good agricultural practice (GAP) for medicinal plants are planned to regulate production and ensure quality and facilitate the standardization of herbal drugs. GAP is an approach that uses high-quality, safe and non-contaminated (raw drugs) herbal medicinesto help solve various problems.

GAP includes comprehensive items such as environmental ecology, production locations, germplasm, cultivation, collection and quality aspects of pesticide detection, macroscopic or microscopic validation, chemical identification of active compounds, and checking of metal elements.Although many people nowadays use herbal medicines as a constituent of primary health care, there are still many concerns about the safety and efficacy of using plants. While herbal medicines can potentially contribute to the advancement of healthcare, many major challenges need to be addressed before effective adherence of herbal medicines to traditional medicine. Finally, several questions about safety, accurate dose, duration of treatment, side effects, acute and chronic toxicities as well as the standardization of herbal medicines and natural products should be answered. If these issues are resolved, medicinal plants can be used as a safe, effective, and affordable form of health care.

II. CONCLUSION

In the next few decades, herbal medicine may become a new era of medical system for the management of human diseases.About 80% world population rely on traditional medicine for primary health care.There is a need to advance research for the development and characterization of new natural drugs with the aid of better screening methods from plants and other natural sources.But when we compare the technological materials with natural products, they are highly hazardous and toxic but the natural products are easy to use and are on the safer side, and they consist of very high advantages like eco-friendly, bio-degradable, easily available, and with least side effects.As science advanced, it became possible to use AYUSH to solve the new challenges of modern healthcare system.

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