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7. Significances of Medicinal Plants for the Betterment of Human Life

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7.1 Abstract:

Adam and Eve lived in heaven and they were familiar neither about the disease nor suffering; once they were expelled then they discovered misery and disease. Necessity is the mother of invention, therefore, since ancient time's man has searched for remedies to combat against several diseases Ever since the ancient times, in search for rescue of their disease, people looked for drugs in nature. The use of plants as medicine is increasing worldwide.

Some of the plants have been found to possess significant antibacterial, antifungal, anticancer, anti-inflammatory and anti-diabetic properties. Medicinal plants are important source to combat the serious diseases in all over the world. Medicinal plants are useful for curing human diseases and play an important role in healing due to presence of phytol chemical constituents. The natural and unique medicinal plants are used for curing various ailments. The significance of medicinal plants in the treatment of diseases increases every day. These plants have healing properties and the present chapter focuses on the medicinal uses of plants.

Keywords: medicinal plants, sustainable human health, treatment of diseases……

7.2 Introduction:

The term of medicinal plants include a various types of plants used in herbal methods and some of these plants have a medicinal activities. These medicinal plants consider as a rich resources of ingredients which can be used in drug development and synthesis. Moreover, some plants consider as important source of nutrition and as a result of that these plants recommended for their therapeutic values. These plants include ginger, green tea and some others plants. Early, in the 19th century there was a landmark in the knowledge and use of medicinal plants. It has been estimated that about 13,000 species of plants have been employed as traditional medicines by various cultures around the world. . A list of over 20,000 medicinal plants has been published[2-9]. Some of the drugs believed to be obtained from plants are aspirin, atropine, artemisinin, colchicine, digoxin, ephedrine, morphine, physostigmine, pilocarpine, quinine, quinidine, reserpine, Taxol, tubocurarine, vincristine and vinblastine. Historically, man has explored the nature for two major needs: food for survival and herbs for relieving of pain and diseases. . Worldwide, consumers have a positive intention toward the herbal products. Presently, herbal medicines are often used for healthcare in both developed and developing countries. It is a fact that herbal medicines are natural products and proved to be safe both due to their less side-effect while being used to treat diseases[10-16]. The Indian holy book, Vedas, mentions treatment with plants, which are abundant in country. Many spice plants, such as nutmeg, pepper, clove, etc., that have been used even today originated from India. The use of medicinal plants is increasing worldwide, in view of the tremendous expansion of traditional medicine and a growing interest in herbal treatments. Plants are used in medicine to maintain health physically, mentally and spiritually as well as to treat specific conditions and ailments. Traditional medicine has maintained its popularity in the developing world and its use is rapidly spreading in industrialized countries. Many of the pharmaceuticals currently available to physicians have a long history of use as herbal remedies, including opium, aspirin, digitals and quinine. The use of medicinal plants is increasing worldwide, in view of the tremendous expansion of traditional medicine and a growing interest in herbal treatments.

7.3 Classification of Medicinal Plants:

Classification of medicinal plants is depending on the criteria used. In general, medicinal plants are arranged according to their active storage organs of plants, particularly roots, leaves, flowers, seeds and other parts of plant. They are valuable to mankind in the treatment of diseases.

I. Based on Usage:

The herbs are classified in four parts: medicinal herbs, culinary herbs, aromatic herbs, and ornamental herbs.

- Medicinal Herbs have curative powers and are used in making medicines because of their healing properties like marigold, lemon balm, lavender, Johnny-jump-up, feverfew etc.
- Culinary Herbs are probably the mostly used as cooking herbs because of their strong favours like oregano, parsley, sweet basil, horseradish, thyme etc.
- Aromatic Herbs have some common uses because of their pleasant smelling flowers or foliage. Oils from aromatic herbs can be used to produce perfumes, toilet water, and various scents. For e.g. mint, rosemary and basil etc.
- Ornamental Herbs are used for decoration because they have brightly colored flowers and foliage like lavender, chives, bee balm and lemongrass.

II. Based on the Active Constituents:

According to the active constituents all herbs are divided into five major categories: Aromatic (volatile oils), Astringents (tannins), Bitter (phenol compounds, saponins, and alkaloids), Mucilaginous (polysaccharides), and Nutritive (food stuffs).

- **Aromatic herbs:** The name is a reflection of the pleasant odor that many of these herbs have. They are used extensively both therapeutically and as flavorings and perfumes. Aromatic herbs are divided into two subcategories: stimulants and nerviness.
- **Stimulant herbs:** increase energy and activities of the body, or its parts or organs, and most often affect the respiratory, digestive, and circulatory systems. e.g., fennel, ginger, garlic, lemongrass.
- **Astringent Herbs:** tannins in Astringent Herbs have the ability to precipitate proteins. They affect the digestive, urinary, and circulatory systems, and large doses are toxic to the liver. They are analgesic, antiseptic, an abortive, astringent, emmenagogue, hemostatic, and styptic.

III. Based on Nature:

Natural products are compounds consisting essentially of carbon derived from natural sources and that generally have very diverse and interesting properties. Some of the most relevant applications of the Natural Organic Products are using it as Fuels, plastics, fats, soaps, sugars.

Soap: it is the sodium salt of a fatty acid. Have a partly hydrophilic (dissolves in water) and other lipophilic (fat dissolves dirt).

Sugars: these are natural polyhydroxialdehides or polyhydroxiketones with different functions: structure, energy storage components of the nucleic acids, etc. They are formed by photosynthesis in plants and are classified into monosaccharides (glucose), disaccharides (sucrose) and polysaccharides (cellulose, starch, etc.).

IV. Based on their Physiological Activity:

Approximately one half of the medicines used today are natural products, i.e. alkaloids, antibiotics or synthetic analogs. For that it is usually employed a classification that represents the physiologic activity, such as hormones, vitamins, antibiotics and mycotoxins.

Even though the compounds belonging to each group have different structures and biogenetic origins, a narrow relationship is occasionally between those aspects and activity.

Plants as Drugs: A number of plant species are being used in various human health's around the world. Plant species contain active ingredients such as alkaloids, phenols, tannins and terpenoid (Table.1 and Table.2). These ingredients have been used and found effective as sweeteners, anti-infections and anti-bacterial.

For instance, the bark of *Alstonia boonei* contains alkaloids and histamine, which are useful in the treatment of fever, dizziness and high blood pressure. Ginger (*Zingier officinal*) (Source[17]) and Garlic (*Allium sativum*) (Source[18]) are spicy additions to food that has long been used to maintain human health. It is not an exaggeration to say that medicinal plants have a great role to play in sustainable human health.

Plants have been used as a source of drugs by mankind for several thousand years. With the advancement of synthetic organic chemistry most of the active constituents of plants used in medicine were synthesized. World Health

Organization (WHO) reported that 80% of the earth's population rely on traditional medicine for their primary health care needs and most of this therapy involves the use of plant extracts and their active components.

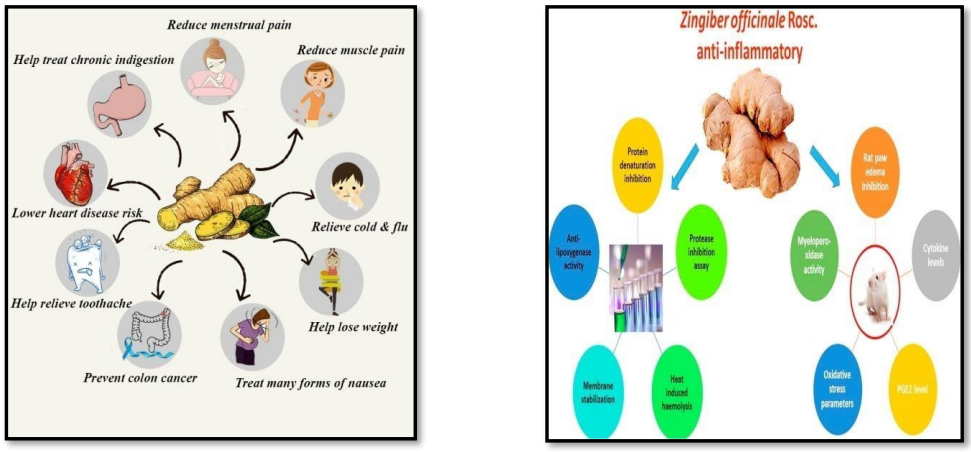

Image 7.3: Medicinal and Anti-inflammatory functions of Ginger (*Zingiber officinale*).

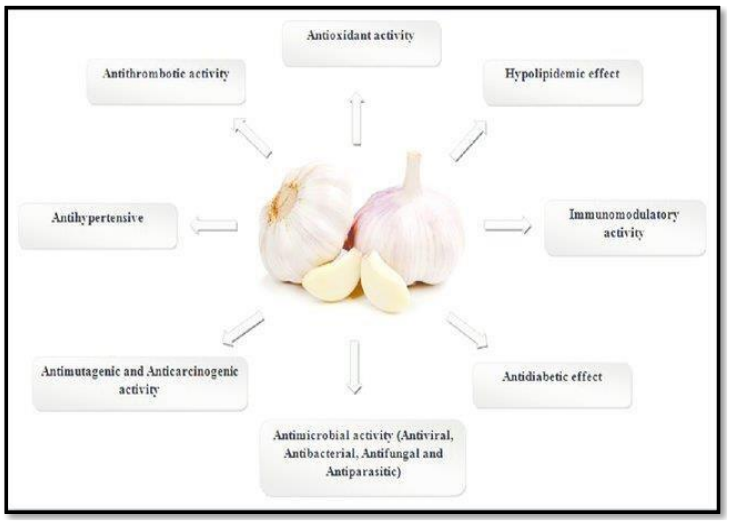

Image 7.4 Medicinal Uses of Garlic (*Allium sativum*)

Medicinal plants have provided mankind a large variety of potent drugs to all eviate or eradicate infections and suffering from diseases in spite of advancement in synthetic drugs, some of the plant-derived drugs still retained their importance and relevance.

The use of plant-based drugs all over world is increasing. Through recent researches on herbal plants or medicine, there have been great developments in the pharmacological evaluation of various plants used in traditional systems of medicine.

Table 1: Some medicinal plants having good antioxidant potential.

Name of the Plant	Part of the Plant	Active Component(s)
Acorus calamus	Rhizomes	Alkaloids
Aegle marmelos	Leaves	Alkaloids, Terpenoids, Saponins
Aloe vera	Leaf	Vitamin A,C,E, Carotenoids
Andrographis paniculata	Whole plant	Diterpenes, Lactones
Carica papaya	Leaves	Terpenoids, Saponins, Tanins
Cassia fistula	Bark	Flavonoids

Table 2: Commonly used plants as herbal drugs

Sr. No.	Plants Name		Plants Parts use in Disease
1.	*Abutilonindicum* (Kanghi)		Seeds are used as laxative and in hemorrhoids (piles)
2.	*Senegalia catechu or Acaciacatechu* (Khair)		The bark of the tree is used in chronic diarrhea.
3.	Acacianilotica (Babul)		The twig of the plant is used as natural toothbrush.
4.	Adhatodavasica (Vasaka)		The leaves are given to cure asthma.
5.	Aloevera (Gwarpatha)		The peelings of the leaves are used in skin burn and also used in facial creams.
6.	Andrographis (Kalmegh)	paniculata	The plant is used for malarial fever.
7.	Anisomelos (Bhandari)	indica	Leaves used in cough and cold.
8.	Anogeissus (Dhawra)	latifolia	Leaves are used in diarrhea.
9.	Argemone (PiliKatari)	mexicana	The extract is used in various skin diseases.
10.	Azadirachta indica (Neem)		Bark is useful in malarial fever.
11.	Boerhaavia diffusa (Punarnava)		Plant used in urinary troubles and in skin diseases.
12.	Catharanthus roseus (Sadabahar)		The leaves and flowers are used to reduce sugar level.

Sr. No.	Plants Name	Plants Parts use in Disease
13.	Cyperus scariosus	The tubers are used in urinary and heart troubles.
	(Nagarmotha)	
14.	Datura metel L.(Dhatura)	Smoke of seeds inhaled in bronchial troubles.
15.	Gymnema sylvestre (Gurmar)	The leaves of the plant are used in diabetics.
16.	Ocimum sanctum (Tulsi)	The leaves are used to cure cough, cold and ulcers.
17.	Urginea indica (Jangli pyaj)	The juice of the bulb is used in respiratory disorders.
18.	Vitex negundo (Nirgundi)	The extract of the leaves is used in body pain.

The role of medicinal plants in human health is clearly enormous. Out of the 252 drugs considered as basic and essential by the World Health Organisation (WHO), 11% are exclusively of plant origin and a significant number are synthetic drugs obtained from natural precursors.

It is estimated that 60% of anti-tumor and anti-infectious drugs already on the market or under clinical trial are of natural origin. Plant derived agents are also being used for the treatment of cancer. Several anticancer agents including vincristine, Taxol, vinblastine, derivatives, irinotecan and topotecan and etoposide derived from epipodophyllotoxin are in clinical use worldwide.

7.4 Conclusion:

Medicinal plants belong to a big plant group with a great interest due to its pharmaceutical, cosmetic and nutritional application. Herbal medications are free from side effects and toxicity. Presently many countries face large increases in the number of people suffering from diseases like diabetes, diarrhea, cancer, rheumatism, inflammation, jaundice, hepatic obstruction, pain, cold, cough, etc. remedies from medicinal plants are used with success to treat the disease.

Plants have provided humans with many of their essential needs. However, medicinal plants are threatened as a result of human impact and uncontrolled wild collection, it is therefore recommended that deliberate efforts are essential for continuous supply of these plant species.

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