Department of biology

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Medicinal Plant

Stage (Third)

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Introduction To Medicinal Plant

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History of medicinal plants

The oldest written evidence of medicinal plants' usage for preparation of drugs has been found on a Sumerian clay slab, approximately 5000 years old. It comprised 12 recipes for drug preparation referring to over 250 various plants, some of them alkaloid such as poppy (***Papaver somniferum***), henbane (***Hyoscyamus niger***), and mandrake (is the root of a plant, historically derived either from plants of the genus ***Mandragora*** found in the Mediterranean region.

The Chinese book on roots and grasses "Pen T'Sao," written by Emperor Shen Nung circa 2500 BC, 365 drugs (dried parts of medicinal plants), many of which are used even nowadays such as the following: camphor, , ginseng, jimson weed, cinnamon bark, and ephedrine extracted from ephedra which used for treat the bronchitis.

The Indian holy books Vedas mention treatment with plants, which are abundant in that country. Reserpine compound which isolated from ***Rauvolfia serpentine*** roots and used to treat the nervous system problems and high pressure during Indian civilization.

Khelin compound which extracted from ***Ammi visnaga*** fruits and used to treat the kidney stones and increase the diuretic. This happen during Egypt civilization longtime ago.

Early 19th century was a turning point in the knowledge and use of medicinal plants. The discovery, substantiation, and isolation of alkaloids from poppy (1806), ipecacuanha the dried root of ***Cephaelis ipecacuanha***, (1817), quinine (1820), pomegranate (***Punica granatum***) (1878), and other plants, then the isolation of glycosides, marked the beginning of scientific pharmacy. With the upgrading of the chemical methods, other active substances from medicinal plants were also discovered such as tannins, saponosides, etheric oils, vitamins, hormones, etc.

Classification of medicinal and aromatic plants.

Classification of medicinal plants is organized in different ways depending on the criteria used. In general, medicinal plants are arranged according to their active principles in their storage organs of plants, particularly roots, leaves, flowers, seeds and other parts of plant.

Medicinal plants are classified in many ways. Some of them are

1. According to the usage.
2. According to the active constituents.
3. According to the period of life.

4. According to their taxonomy.

1- According to the usage

The herbs are classified in four parts: Medicinal herbs, culinary herbs, Aromatic herbs, Ornamental herbs.

A. Medicinal Herbs

Medicinal herbs have curative powers and are used in making medicines because of their healing properties like milk thistle *(**Silybum marianum***).

B. Culinary Herbs

Culinary herbs are probably the mostly used as cooking herbs because of their strong flavors like mint (*Menthe spicata*), parsley (***Petroselinum crispum***) and basil (***Ocimum basilicum***).

C. Aromatic Herbs

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 example: mint, rosemary (***Rosmarinus officinalis***), basil etc.

D. Ornamental Herbs

Ornamental herbs are used for decoration because they have brightly colored flowers and foliage like lavender, chive.

2- According to the active constituents

The herbs are divided into five major categories: Aromatic (volatile oils), Astringents (tannins), Bitter (phenol compounds, saponins, and alkaloids), Mucilaginous (polysaccharides), and Nutritive (foodstuffs).

A. Aromatic Herbs

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 (***Foeniculum vulgare***), ginger (***Zingiber officinale***), garlic (***Allium sativum***), lemon grass (***Cymbopogon citratus***) .

Nerving Herbs are often used to heal and soothe the nervous system, and often affect the respiratory, digestive, and circulatory systems as well. They are often used in teas or in encapsulated form, e.g. catnip **(*Nepeta cataria*).**

B. Astringent Herbs

Astringent Herbs have tannins, which have the ability to precipitate proteins, and this "tightens," contracts, or tones living tissue, and helps to halt discharges. They affect the digestive, urinary, and circulatory systems, and large doses are toxic to the liver. They are analgesic, antiseptic. For example: peppermint, red raspberry.

C. Bitter Herbs

Bitter Herbs are named because of the presence of phenols and phenol glycosides, alkaloids, or saponins, and are divided into four subcategories: laxative herbs, diuretic herbs, saponin-containing herbs, and alkaloidcontaining herbs .

Laxative Bitter herbs include, antipyretic, hypotonic, blood purifier. For example: yucca, barberry, Gentian.

Diuretic Herbs induce loss of fluid from the body through the urinary system. The fluids released help cleanse the vascular system, kidneys, and liver. They are antibiotic, antipyretic, and antiseptic, and blood purifier. For example: blessed thistle (***Silybum marianum***) and parsley . **Saponin-containing Herbs** are known for their ability to produce frothing or foaming in solution with water. The name "saponin" comes from the Latin word for soap. They emulsify fat soluble molecules in the digestive tract, and their most important property is to enhance the body's ability to absorb other active compounds.

Saponins have the ability to effectively dissolve the cell membranes of red blood cells and disrupt them. They are alterative, ant catarrhal, antispasmodic, and aphrodisiac, emmenagugue, cardiac stimulant, and increased longevity in nature. For example: alfalfa, yucca and ginseng,

D. Mucilaginous Herbs

Mucilaginous herbs derive their properties from the polysaccharides they contain, which give these herbs a slippery, mild taste that is sweet in water. All plants produce mucilage in some form to store water and glucide as a food reserve. Since most mucilage are not broken down by the human digestive system, but absorb toxins from the bowel and give bulk to the stool, these herbs are most effective topically as poultices s, and are also used topically in the digestive tract. When used as extracts, they have a demulcent action on the throat .

E. Nutritive Herbs

These herbs derive both their name and their classification from the nutritive value they provide to the diet. They are true foods and provide some medicinal effects as fibber, mucilage, and diuretic action. But most importantly they provide the nutrition of protein, carbohydrates, and fats, plus the vitamins and minerals that are necessary for adequate nutrition. For example: apple, asparagus, banana, barley grass, broccoli, cabbage, carrot, lemon, oat straw, onion, orange, papaya, pineapple, red clover.

2-According to the period of life

Herbs also can be classified as annuals, biennials, and perennials. Annuals bloom one season and then die. Biennials live for two seasons, blooming the second season only. Once established, perennials live over winter and bloom each season.

Annual herbs complete their life cycle in one year; start them from seed.

Annual herbs include:

Fennel • Marjoram • Parsley Anise • Basil • Borage • Chamomile

Perennial herbs grow for more than one season and include sweet marjoram, parsley, mint, sage, thyme and chives.

Biennial herbs are plants, which live two season and bloom in the second season only. Include for example: Caraway (***Carum carvi***).