

# COMMON MEDICINAL PLANTS AND THEIR ACTIVE PHYTO CHEMICALS

## Abstract

Plants have been utilized as medicinal plants from pre historic times. Traditional systems of medicine widely practised in whole world. India has been known to be very rich in medicinal plants. These Medicinal plants are living and are renewable natural resources. The forest areas have been the traditional source of medicinal plants and herbs. These medicinal plants are used in various diseases and according to WHO report, over 80% of world's population depend on traditional medicine largely plant based for their primary health care needs. Curing with medicinal plants is considered very safe as there is no or minimal side effects. The use of herbal drugs does not dependent on any age groups. Apart from the medicinal uses, herbs are also utilize in making food, dyes perfumes etc.

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## I. INTRODUCTION

The utilization of medicinal plants is as old as human civilization [1, 2]. From the Vedic era Indian health care system is based on plants [3]. Lots of books on medicinal plants were written by Nagarjun, Chakradatta, Sharangadhar and Bangasen.

India shows a rich plant biodiversity due to different types of agro-climatic, ecological and edaphic conditions. It has various types of ecosystems ranging from coldest place the Dry Cold Desert of Ladakh (Nunra Valley with  $-57^{\circ}\text{C}$ ) to Temperate, Alpine and sub- Himalayas, Rain forests with high rainfall, Wet Evergreen humid areas of Western Ghats and Arid and Semiarid regions of Peninsular India, Dry Desert condition of Rajasthan and Gujarat to the Tidal Mangroves of Sunderbans. About 17500 flowering plants have been found in India out of which more than 2000 plants are utilized in various classical system of medicine like Ayurveda, Siddha, Unani Tibetan and Homeopathy. Among all traditional systems of medicine, Homeopathy is a newer one and has been developed in the eighteenth century by Samuel Hahnemann a German physician and chemist.

India's medicinal plants occurred in forest of the Western and Eastern Ghats, the Vindhya, Chhota Nagpur Plateau, Aravalis and Himalayas. Some medicinal plants are found in the temperate and alpine areas and higher altitudes they includes species of high medicinal value. Analysis of habitats of medicinal plants indicates that they are distributed across various habitats. Few medicinal plants falls in the lower plants group like lichen, fern, algae etc. Majority of the medicinal plants belongs to higher flowering plants like trees (33%), Shrubs (20%), Herbs (32%), Climber (12%) and others 3%.

## II. MEDICINAL PLANTS

These medicinal plants are known as drug plants [4]. Chemical drugs obtained from these medicinal plants referred as phytochemicals. All these plants contains active compound which defines the medicinal properties of these medicinal plants. These drugs are classified according to plants from which they are obtained [5, 6]. These drugs used to cure diseases of gastro-intestinal tract, respiratory system, cardio-vascular system, autonomic nervous system and central nervous system [7, 8, 9]. These medicinal plants act as anticancer, antispasmodics, antirheumatics, anthelmintics, astringents, antimalarial and acting on skin and mucous membrane[10,11,12].

The crude drugs are obtained from various parts of plants are classified as organized and unorganized drugs. These are includes Seeds, Leaves, Barks, Wood, Roots, Rhizomes, Flowers, Fruits, Entire drugs, Dried lattices, Resins, Dried juices, Gums and Dried extracts. Phytochemicals present in drugs are bioactive chemical constituents present in various parts of plants[13]. The main phytochemical present in medicinal plants are glycosides, cardiac glycosides, steroids, terpenoids, tannins, alkaloids, flavonoids, saponins, anthraquinones, and reducing sugars [14]. Some of the commonly used medicinal plants according to their phytochemicals are described below-

**1. Medicinal Plants Containing Glycosides:** Glycoside are naturally occurring organic compounds in plants or animal sources in which a carbohydrate portion, consisting of one or more sugars or uronic acids, is combined with a hydroxyl compound.

- **Indian Senna**  
Synonyms - Senna leaf  
Biological source- It consists of dried leaf of *Cassia angustifolia* or *Cassia senna* Vahl. It belongs to family Leguminosae.  
Geographical source- It is cultivated in Tinnevelley, Madurai, and Ramanathanpuram districts of Tamil Nadu.  
Active constituents- Two main Anthraquinone glycosides called as Senoside A and Senoside B (not less than 2.5 percent) is present in this plant which accounts for its purgative property.  
Uses- It is mainly used in perpetual constipation.
- **Hypericum**  
Synonyms- Goat weed  
Biological source- It consists of dried aerial parts of **Hypericum perforatum Linn.** It belongs to family Hypericaceae.  
Geographical source- It is distributed in Western Himalayas.  
Active constituents- It contains naphthodiathrones, hypericin (0.06 to 0.75 percent) and hyperforin.  
Uses- It is used in treatment of anxiety, moderate depression, seasonal affective disorders.
- **Aloe Vera**  
Synonyms- Gritkumari  
Biological source- It consists of juice of **Aloe barbadensis Miller.** It belongs to family Liliaceae.  
Geographical source- It is cultivated in many parts of India including North West Himalayan region.  
Active constituents- All the varieties of Aloe are the major sources of anthraquinone glycosides. The active phytochemical is aloin which is the mixture of glucosides like barbaloinisobarbaloin, aloe-emodin.  
Uses- Aloes is mainly used as purgative on colon. Aloe gel which is viscous and clear liquid is used in therapeutic applications, cosmetic products. This gel helps to remove dead tissue due to its aloctine.
- **Digitalis**  
Synonyms- Foxglove leaves  
Biological source- It consists of dried leaves of **Digitalis purpurea.** It belongs to family Scrophulariaceae.  
Geographical source- Found in various parts of India.  
Active constituents - Digitalis contains 0.2-0.45 percent mixture of both primary and secondary cardiac glycosides like Purpurea glycoside A and B and digitoxin.  
Uses- It is used in treatment of congestive heart failure. Digitalis shortens the length of systole, thus giving more time to rest between contractions. It helps in slowing ventricular rate in atrial fibrillation, arterial flutter, supraventricular tachycardia and premature extra systoles.

- **Thevetia**  
Synonyms- Yellow oleander  
Biological source- These are dried seeds of **Thevetia peruviana Merrill**. It belongs to family Apocynaceae.  
Geographical source- Found throughout India.  
Active constituents - Thevetia kernels are very rich in cardio active glycosides, which mainly triosides. Thevetin is major and active constituent of Thevetia.  
Uses- Thevetia is very poisonous. It is used as Febrifuge. seeds are used as abortifacient and purgative in rheumatism and dropsy. Peruvosides is used in treatment of mild cardiac insufficiency and weak heart.
- **Indian squill**  
Synonyms- Jangli pyaz  
Biological source- It consist of dried slices of the bulbs of **Urginea indica Kunth**. It belongs to family Liliaceae.  
Geographical source- Grown on sea coasts including Konkan, and Saurashtra. It is also found in lower Himalayas.  
Active constituents- Contains about 0.3 percent of cardiac glycosides. Scillaren A and Scillaren B are the major cardiac glycosides.  
Uses- It is cardiotoxic, stimulant and an expectorant. When used in large dose it is used as emetic and cathartic while in small dose mainly used as diuretic.
- **Dioscorea**  
Synonyms- Yam  
Biological source- It consist of dried tubers of **Dioscorea deltoidea**. It belongs to family Dioscoreaceae.  
Geographical source- Found in North western Himalayas from Kashmir and Punjab.  
Active constituents- The chief active constituent is diosgenin and its glycosides, smilagenin and epimilagenin.  
Uses- Mainly used in synthesis of corticosteroids, sex hormone and oral contraceptives. It is also used in treatment of rheumatic arthritis.
- **Safed Musali**  
Synonyms- Indian spider plant  
Biological source- It consists of dried peeled roots of the plant **Chlorophytum borivillianum**. It belongs to family Liliaceae.  
Geographical source- It is cultivated on commercial scale in Madhya Pradesh, Maharashtra, Southern Rajasthan and North Gujarat.  
Active constituents- Safed musali contains 39 to 42 percent of carbohydrates, proteins 8-12 percent, saponin 2- 4 percent, sapogenin 0.18 – 0.2 percent.  
Uses- It is used in Ayurvedic system of medicine as well known tonic for general debility and aphrodisiac.
- **Satavari**  
Synonyms- Satmuli  
Biological source- It consist of dried roots and leaves of the plant **Asparagus racemosus Wild**. It belongs to family Liliaceae.  
Geographical source- It is found in all tropical parts of India.

Active constituents- Its root contains 4 steroid saponins (Shatavarin I-IV).

Uses- It is used as Galactogogue, diuretic and tonic. Roots are largely used for preparation of medicinal oil in treatment of rheumatism and nervine disorder. In Ayurveda it is used threatened abortion and safe delivery.

- **Brahmi**

Synonyms- Foxglove leaves, Bacopa

Biological source- It is obtained from leaves and stem of **Bacopa moniera**. It belongs to family Scrophulariaceae.

Geographical source- It is succulent herb found throughout India.

Active constituents- It contains Bacosides A and B.

Uses- It is used as nervine tonic, in the treatment of epilepsy, asthma and insanity. The alcoholic extract of entire plant has anti cancer activity.

- **Momordica**

Synonyms- Bitter gourd, karela

Biological source- It consist of fresh fruits of plant known as **Mormordica charantia**. It belongs to family Cucurbitaceae.

Geographical source- Cultivated as perennial climber throughout India.

Active constituents- Charantin, a steroidal saponin is present in its fruit and leaves which shows blood sugar lowering activity. Momordicin is also present in its fruit.

Uses- It is stomachic, carminative tonic and cooling and also used for the treatment of rheumatism, gout and disorder of spleen and liver. It is used for treatment for diabetes mellitus.

- **Jalbrahmi**

Synonyms- Mandukparni

Biological source- It is herb of **Centella asiatica**. It belongs to family Umbelliferae.

Geographical source- It grows in wet areas of India.

Active constituents- It mainly contains saponins in the form of triterpenoid.

Uses- Used as nervine tonic. Also used in skin diseases, leprosy and syphilis. This drug shows spasmolytic, sedative, anti anxiety and anti stress action.

- **Mustard**

Synonyms- Black mustard

Biological source- These are dried ripe seeds **Brassica juncea**. It belongs to family Cruciferae.

Geographical source- In India it is grown in Uttar Pradesh, Bihar, Bengal as rabi crop. Found in various parts of India.

Active constituents- Mustard seed contains 4 percent of isothiocyanate glycoside called sinigrin.

Uses- It is condiment. It is used as emetic internally in high doses while as counter irritant and rubefacient externally.

- **Stevia**

Synonyms- Candy leaves

Biological source- It is obtained from dried roots and leaves of **Stevia rebaudiana Bertoni** It belongs to family Asteraceae.

Geographical source- It is cultivated in some parts of India.

Active constituent- Steviosides and rebaudiosides.

Uses- It is mainly used as antidiabetic and as sweetening agent.

- **Chirata**

Synonyms- Chirayata

Biological source- It is obtained from dried plant of **Swertia chirata**. It belongs to family Gentianaceae.

Geographical source- Chirata is found in Kashmir, Meghalaya, Madhya Pradesh and Khasi hills in India.

Active constituent- It contains Gentiopicrosin.

Uses- It is used as stomachic and antipyretic.

- **Kalmegh**

Synonyms- Andrographis

Biological source- It is obtained from dried leaves and tender shoots of plant **Andrographis paniculata**. It belongs to family Acanthaceae.

Geographical source- It is annual herb found throughout India.

Active constituent- It mainly contains Andrographolide.

Uses- It is used as bitter tonic, anthelmintic and hepato protective.

## 2. Medicinal Plants Containing Tannins: Tannins are polyphenolic substances found in many plants as secondary metabolites. These are water soluble in nature used mainly in chemical and pharmaceutical industry.

- **Myrobalan**

Synonyms- Harda

Biological source- It is obtained from dried mature fruits of **Terminalia chebula**. It belongs to family Combretaceae.

Geographical source- It is found in sub Himalayan tracks, Assam, Madhya Pradesh, Maharashtra and Bihar.

Active Constituent- Chebulic acid, Chebulagic acid and Gallic acid

Uses- It is used as astringent, purgative, stomachic and ingredient of triphala churna

- **Arjun**

Synonyms- Arjun

Biological source- It is obtained from dried stem bark of **Terminalia arjuna**. It belongs to family Combretaceae.

Geographical source- It is common in Indian Peninsula. It is very common in Chota Nagpur region.

Active Constituent- Ellagic acid, and beta sitosterol.

Uses- It is used as cardiostimulant and hypotensive.

- **Bahera**

Synonyms- Bellaric myrobalan

Biological source- It is obtained from dried ripe fruits of **Terminalia bellerica**. It belongs to family Combretaceae.

Geographical source- It is found in all deciduous forest of India( Madhya Pradesh, Uttar Pradesh, Punjab, Maharashtra etc.)

Active Constituent- Galloic acid, Chebulagic acid.

Uses- It is used as astringent and ingredient of triphala churna.

- **Amla**

Synonyms- Indian goose berry

Biological source- It is obtained from dried as well as fresh fruits of **Embelica officinalis**. It belongs to family Euphorbiaceae.

Geographical source- It is found in all deciduous forest of India.

Active Constituent- Vitamin C, Phylleblin, Tannins.

Uses- It is used as Diuretic, laxative, ingredient of Triphala and chyavanprash.

- **Ashok**

Synonyms- Ashok

Biological source- It is obtained from dried stem bark of **Saraca indica**. It belongs to family Leguminosae.

Geographical source- It is found in many parts of India.

Active Constituent- Catechol and Ketosterol.

Uses- it is used as Uterine tonic and oxytocic.

- **Amra**

Synonyms- Mango

Biological source- It is obtained from dried bark of **Mangifera indica**. It belongs to family Anacardiaceae.

Geographical source- It is cultivated throughout India.

Active Constituent- Tannins, Catechin and Mangiferin

Uses- It is mainly used as antioxidant and antidiarrhoeal

### 3. Medicinal plants containing fixed oils , fats and waxes

- **Arachis oil**

Synonyms- Peanut oil

Biological source- It is obtained from the seed kennels of cultivated varieties of **Arachis hypogaea Linn**. It belongs to family Leguminosae.

Geographical source- It is cultivated in many parts of India.

Active Constituent- Glycerides of oleic acid, linoleic acid and palmitic acid.

Uses- The drug is mainly used as base for oily injectables nutritive.

- **Linseed oil**

Synonyms- Linseed oil

Biological source- It is obtained from fully ripe seeds of **Linum usitatissimum Linn**. It belongs to family Linaceae.

Geographical source:- It is cultivated in India.

Active Constituent- Oleic acids, linoleic acids, linolenic acids

Uses- It is recommended for external applications like lotions and liniments. It is used in treatment of scabies, skin diseases and in preparation of non staining iodine ointment.

- **Sasame oil**  
Synonyms- Teel oil  
Biological source- It is fixed oil obtained from **Sesamum indicum**. It belongs to family Pedaliaceae.  
Geographical source- The plant is indigenous to India.  
Active Constituent- Glycerides of oleic acid, palmitic acids and sesamolin  
Uses- It is mainly used as a vehicle for intramuscular oily injections.
- **Olive oil**  
Synonyms- Oleum Olivae  
Biological source- It is fixed oil obtained from ripe fruit of **Olea europaea Linn**. It belongs to family Oleaceae.  
Geographical source- It is found in the states of Rajasthan.  
Active Constituent- oleic acids, palmitin and linolenic acids  
Uses- It is used in as a vehicle for oily suspensions for injection. It is an emollient and soothing agent for inflamed surfaces. It is used to soften the skin and crusts in eczema psoriasis.
- **Cotton seed oil**  
Synonyms- Cotton oil  
Biological source- It is fixed oil obtained from the dried matured seeds of **Gossypium herbaceum**. It belongs to family Malvaceae.  
Geographical source- It is cultivated in Gujarat, Maharashtra and Telangana.  
Active Constituent- Glycerides of saturated and unsaturated fatty acids  
Uses- It is used as pharmaceutical aid in solid state as a substitute for hard. It is also used as pediculicide, acaricide and laxative in veterinary medicine.
- **Neem oil**  
Synonyms- Margosa oil  
Biological source- It is non edible fixed oil obtained from fully matured seeds of **Azadirachta indica Juss**. It belongs to family Meliaceae.  
Geographical source- It is commonly found in Maharashtra, Rajasthan, Madhya Pradesh, Uttar Pradesh and Tamil Nadu  
Active Constituent- Glycerides of saturated and unsaturated fatty acids  
Uses:- Its nimbin, nimbidin and related compounds possess anti viral activity. It is used in medicated soaps for skin diseases. It also act as spermicidal .
- **Karanj oil**  
Synonyms- Karanj oil  
Biological source- It is non edible semi drying fixed oil obtained from the seeds of **Pongamia glabra Vent**. It belongs to family Papilionaceae.  
Geographical source- It is found throughout India along streams and rivers .  
Active Constituent- Glycerides of fatty acids. It also contain sitosterol  
Uses- Karanj oil used in the treatment of herpes, leucoderma, scabies and other cutaneous diseases, Also used as rheumatism.



- **Black mustard oil**

Synonyms- Sarson oil

Biological source- it is fixed oil obtained from matured seeds of **Brassica nigra L.** or **Brassica juncea L. Czern.** It belongs to family Brassicaceae

Geographical source- It is cultivated many parts of India.

Active Constituent- Allyl isothiocyanate and fatty acid glycerides

Uses- Medicinal properties of this plant is due to presence of allyl isothiocyanate, which act as local irritant and emetic. It act as rubefacient and vesicant when applied externally. Also used as condiment.

#### 4. Medicinal plants containing Terpenoids

- **Cummin**

Synonyms- Jira

Biological source- It is obtained from plant **Cuminum cyminum.** It belongs to family Umbelliferae.

Geographical source- In India it is cultivated in all states except Assam and Wset Bengal.

Active constituent- Cuminaldehyde, alpha pinene, beta pinene and phellandrene

Uses- It is used as Carminative and stimulant. It is also used in treatment of diarrhoea and dyspepsia.

- **Lavender oil**

Synonyms- Common lavender

Biological source- It is obtained from plant **Lavendula officinalis.** It belongs to family Labiateae.

Geographical source- Active constituent- Esters linalyl acetatelinalool, geraniol, cineol and pinene

Uses- It is used as Aromatic and carminative.

- **Eucalyptus oil**

Synonyms- Dinkum oil

Biological source- It is obtained from plant **Eucalyptus globulus.** It belongs to family Myrtaceae.

Geographical source- It grows on large scale in Kerala, Tamil Nadu and other states.

Active constituent- Cineole camphene phellandrene

Uses- It is used as antiseptic and expectorant. It is also to treat counter irritation, cough and chronic bronchitis.

- **Peppermint oil**

Synonyms- Mentha oil

Biological source- It is obtained from plant **Mentha piperita.** It belongs to family Labiateae.

Geographical source- It is cultivated in Jammu and tarai region of Uttar Pradesh.

Active constituent-Menthol, Pulegon, Menthone and menthofuram

Uses- It is used as Carminative, stimulant, and antiseptic.

- **Coriander**  
Synonyms- Coriander fruit  
Biological source- It is obtained from plant **Coriandrum sativum** . It belongs to family umbelliferae.  
Geographical source- In India It is widely cultivated in Andhra Pradesh, Maharashtra, West Bengal, Uttar Pradesh, Rajasthan and Jammu Kashmir.  
Active constituent-Coriandeol, coriandryl acetate, L- borneol and geraniol, pinene  
Uses- It is used as Craminative, stimulant and aromatic.
- **Ajowan**  
Synonyms- Carum copticum  
Biological source- It is obtained from plant **Trychysremum ammi**. It belongs to family Umbelliferae.  
Geographical source- In India it is extensively cultivated in Madhya Pradesh, Uttar Pradesh, Gujarat, Rajasthan, Mahatashta.  
Active constituent- Volatile oil, proteins, thymol, p cymene, terpinine and carbohydrates.  
Uses- It is used as Antispasmodic, stimulant, carminative, antiseptic, antifungal, insecticide and anthelmintic.
- **Garlic**  
Synonyms- Allium  
Biological source- It is obtained from plant **Allium sativum**. It belongs to family Liliaceae.  
Geographical source- In India it is found in almost all states and cultivated as a spice crop.  
Active constituent- Allicin, alliin, iron, phosphorus, copper, propyl disulphide  
Uses- It is used as stimulant, disinfectant, condiment, rubefacient carminative, expectorant and anthelmintic.
- **Fennel**  
Synonyms- Fennel fruit  
Biological source- It is obtained from plant **Foeniculum vulgare**. It belongs to family Umbelliferae.  
Geographical source- It is cultivated in Gujarat, Punjab, Maharashtra, Rajasthan, Uttar Pradesh and West Bengal.  
Active constituent- Fenchene, anethal and ketone  
Uses- It is used as carminative, aromatic, stimulant, expectorant and flavour.
- **Tulsi**  
Synonyms- Holy basil  
Biological source- It is obtained from plant **Oscimum sanctum**. It belongs to family Labiateae.  
Geographical source- It is found throughout India.  
Active constituent- Eugenol, methyl eugenol, carvacrol, caryophylline  
Uses- It is used as stimulant, insecticidal, antibacterial, aromatic, anticatarrhal, spasmodic, diaphoretic, antiperiodic, stomachicand good immunomodulatory.

## 5. Medicinal plants containing Alkaloids

- **Rauwolfia**

Synonyms- Sarpgandha

Biological source- It is obtained from root and rhizome of plant **Rauwolfia serpentina**. It belongs to family Apocynaceae.

Geographical source- In India it is cultivated in Uttar Pradesh, Bihar, Orissa, Tamil Nadu, West Bengal, Karnataka, Maharashtra and Gujarat.

Active constituent- It contains reserpine and rescinnamine.

Uses- It is used as hypertensive tranquilliser.

- **Vinca**

Synonyms- Catharanthus

Biological source- It is obtained from entire plant **Catharanthus roseus**. It belongs to family Apocynaceae.

Geographical source- It is found in many parts of India.

Active constituent – It contains Vincristin and vinblastine.

Uses- It is mainly used as anticancer drug.

- **Datura herb**

Synonyms- Angel's trumpet

Biological source- It is obtained from dried leaves of plant **Datura metel var. fastuosa**. It belongs to family Solanaceae.

Geographical source- It is found in many parts of India.

Active constituent – It contains Scopolamine, hyocyamine and atropine.

Uses- It is used as Anticholinergic. It is also used in duodenal ulcers.

- **Gloriosa**

Synonyms- Glory lily

Biological source- It is obtained from dried rhizome of plant **Gloriosa superba**. It belongs to family Liliaceae.

Geographical source- It is found in Tamil Nadu.

Active constituent – Colchicine is the main phytochemical present in this medicinal plants.

Uses- It is used in treatment of gout and cancer.

- **Bhringraj**

Synonyms- Keshraja

Biological source- It is obtained from entire plant of **Eclipta alba**. It belongs to family Asteraceae.

Geographical source- It is found all over India.

Active constituent – It contains Wedilolactone and ecliptine.

Uses- It is used as brain tonic and hepato protective. It helps to improve complexion

- **Bhuiamla**

Synonyms- Phyllanthus

Biological source- It is obtained from aerial parts of plant **Phyllanthus amarus**. It belongs to family Euphorbiaceae.

Geographical source- It is found throughout India.  
Active constituent – It contains Phyllanthin and niruriside.  
Uses- It is used as anti HIV and hepato protective.

- **Punernava**

Synonyms- Rakta punernava

Biological source- It is obtained from dried herb of **Boerhaavia diffusa** . It belongs to family Nyctaginaceae.

Geographical source- It is found wild throughout India .

Active constituent – It contains Punernavoside and boerwinone.

Uses- It is used in treatment of jaundice and as diuretc.

- **Vasak**

Synonyms- Adulsa

Biological source- It is obtained from leaves of plant **Adhatoda vasica**. It belongs to family Acanthaceae.

Geographical source- It is found in Sub-Himalayan .

Active constituent – It contains Vasicine and vasicinone.

Uses- It is used as Antitussives and expectorant.

- **Ashwagandha**

Synonyms- Asgandha

Biological source- It is obtained from dried roots of **Withania somnifera**. It belongs to family Solanaceae.

Geographical source- In India occur in Uttar Pradesh, Punjab plains, Rajasthan and Gujarat.

Active constituent – It contains Withanine, somniferine, and withanolide.

Uses- It is used as sedative and antirheumatic.

- **Tea**

Synonyms- Thea

Biological source- It is obtained from leaves leaf buds of plant **Thea sinensis**. It belongs to family Theaceae.

Geographical source- In India large areas of land are put under cultivation of tea.

Active constituent – It contains Caffeine and theobromine.

Uses- It is used as CNS stimulant and diuretic.

### III. SUMMARY

Medicinal plants are very important for human and these are gift for us from nature. The phytochemicals found in medicinal plants are very effective in curing of many diseases and have no side effects. As a result conservation of medicinal plants is very important. There are numerous ways to conservation these valuable source like by setting up of biosphere reserves, sanctuaries, national parks, gene banks, pollen banks and DNA libraries. We should protect medicinal plants outside their natural habitats by cultivating and maintaining these plants in botanical gardens. Protection and Preservation of medicinal plants are very essential.

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