

## THE PHARMACOLOGICAL SIGNIFICANCE OF TRADITIONAL MEDICINAL PLANTS: A REVIEW

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### ABSTRACT

Since the Vedic era, medicinal plants have been employed. For thousands of years, they have been employed to heal and prevent a variety of maladies, as well as epidemics. Certain medicinal plants are also employed as delectable condiments, to flavor, to pigment, and to preserve food. The plant's medicinal properties are present in nearly every part. Many varieties of secondary metabolites are present in medicinal plants, and they are used to manufacture remedies and play a significant role in the treatment of various diseases. A significant number of the plants are also reported to have a variety of other properties, such as anti-oxidant, anti-inflammatory, anti-insecticidal, anti-parasitic, antibiotic, and anti-hemolytic properties. These properties are also extensively used by tribal peoples worldwide. This review article details the traditional medicinal applications of 21 plant species from various families.

**Keywords-** Efficacy, Phytochemicals, Traditional Uses, Safety.

### 1. INTRODUCTION

There is evidence of the therapeutic potential of plant products being used in the treatment of maladies and for the revitalization of body systems in Indian, Egyptian, Chinese, Greek, and Roman civilizations dating back more than five thousand years. In India, plants with therapeutic potential are extensively utilized by all demographics, both as traditional remedies in various indigenous medical systems such as Siddha, Ayurveda, and Unani, and as refined products in the pharmaceutical industry. Phytochemical investigations for biological or pharmacological activity have been conducted on only 250,000-500,000 of the approximately 4.5 million plant species in India. The bioactive constituents or plant extracts may be employed to treat a variety of diseases, and they would serve as a new formulation for the discovery of novel drugs in the pharmaceutical industry. A person's vitality level is increased, nutrients are increased, body cells are restored, and immunity is enhanced by herbal medicines like Brahmi and Ashwagandha. In an environmentally sustainable manner, medicinal and aromatic plants can significantly contribute to the improvement of the subsistence livelihoods of rural individuals, particularly women, while preserving the biodiversity of these natural products. Currently, the World Health Organization (WHO) estimates that traditional medicine is the primary source of healthcare for up to 80% of the global population. The development of indigenous remedies and the utilization of medicinal plants for the treatment of a variety of diseases offer substantial economic advantages. As a result of the scarcity of modern health facilities, poverty, ignorance, and the limited availability of communication means, the majority of individuals, particularly those in rural areas, are still compelled to use traditional remedies for their everyday afflictions. The health of individuals and communities is significantly influenced by medicinal plants. Some chemical active substances in plants cause a defined physiological effect on the human body, which is the source of their medicinal value. Plants are regarded as a plethora of bioactive compounds and may serve as an alternative source of mosquito control agents. The pharmacological activities of secondary metabolites or phytochemicals from plants are noteworthy, including anti-oxidative, anti-allergic, antibiotic, hypoglycaemic, and anti-carcinogenic properties. These secondary metabolites safeguard the cells from the harm inflicted by unstable molecules known as free radicals. There is an increasing interest in the use of natural antimicrobial compounds, particularly those extracted from plants, to preserve food. It is therefore imperative to conduct a search for plants that possess medicinal properties.

Nevertheless, elder males and females aged 41-70 possess both knowledge and awareness regarding herbal remedies. Currently, the gradual extinction of medicinal plants may be a result of the decrease in their use by the younger generation.

#### Medicinal values

**Abrus precatorius Linn-** Abrus precatorius plants have developed under favorable conditions; however, their deep roots are exceedingly challenging to eradicate. Additionally, the plant's aggressive growth, hard-shelled seeds, and capacity to sucker render an infestation exceedingly challenging to eradicate and prevent re-infestation. Glyphosate and other herbicides are efficient; however, they necessitate precise application to prevent them from causing more damage than good.

**Aegle marmelos (Linn.) Correa-** The bael tree is a source of furocoumarins, such as xanthotoxol and the methyl ester of alloimperatorin, as well as flavonoids, rutin, and marmesin. It also contains a variety of essential oils and alkaloids, including á-fargarine (allocryptopine), O-isopentenylhalfordinol, and O-methylhalfordinol. Bael fruit is a gift from the

environment that provides humanity with significant medicinal benefits. For an extended period, all components of this tree, including the stem, bark, root, foliage, and fruit, have been utilized as medicinal substances. The Tree of the Bael is a blessed tree that possesses a variety of therapeutic properties. However, the practical applications of these properties are still being evaluated. In addition to the aforementioned activity, there are a few additional activities that are of significance. The leaves of *Aegle marmelos* are beneficial for the treatment of jaundice, leucorrhea, conjunctivitis, and defenses. Energy and nutrition are provided by fruits. It is employed as a carminative and astringent, as well as a viable treatment for serpent bites.

**Allium sativum Linn-** Alliin, ajoene, diallyl polysulfides, vinylidithiins, and S-allylcysteine are sulfur-containing chemicals that may be obtained from fresh or crushed garlic; other compounds that can be obtained include enzymes, saponins, flavonoids, and Maillard reaction products.

**Aloe barbadensis Mill-** Aloe vera is employed on facial tissues as a moisturizer and anti-irritant to alleviate irritation of the nostrils. Cosmetic companies frequently incorporate exudate or other derivatives from Aloe vera into a variety of products, including cosmetics, tissues, moisturizers, detergents, sunscreens, incense, grooming lotion, and conditioners.

**Butea monosperma Linn-** Timber, resin, forage, medicine, and pigment are all products of *Butea monosperma*. The wood, which is supple and dingy white, is durable under water and is employed for water scooping and well-curbs. Ghee is poured into the fire using spoons or ladles made of this tree in a variety of Hindu rituals. It is possible to obtain high-quality charcoal from it.

**Calotropis procera R. Br-** "Cardiac aglycones" are steroidal heart poisons that are present in the watery fluid. These chemicals are members of the same chemical family as those found in foxgloves (*Digitalis purpurea*). The steroidal component consists of a C/D-cis ring junction, a second hydroxyl group affixed to the C14 carbon, an  $\alpha,\beta$ -unsaturated- $\gamma$ -lactone in the C17 position, and a hydroxyl group in the C3 $\beta$  position.

**Carica papaya Linn-** Raw papaya fruit, devoid of seeds and epidermis, is frequently consumed. The immature green fruit can be consumed when prepared, typically in the form of stews, salads, and curries. Green papaya is employed in Southeast Asian cuisine in both fresh and prepared forms. The epidermis, interior, and seeds of papayas contain a variety of phytochemicals, such as carotenoids and polyphenols, as well as benzyl isothiocyanates and benzyl glucosinates. The levels of these compounds increase as the papaya ripens. The cyanogenic substance prunasin is also present in papaya seeds.

**Cuscuta reflexa Roxb-** Many alpha-glucosidase inhibitors are found in *Cuscuta reflexa*. A novel flavanone-reflexin, tetrahydrofuran derivatives, and coumarin were extracted from *Cuscuta reflexa* stems. Anti-steroidogenic and antimicrobial properties were found in stem methanol extracts. *Cuscuta reflexa* is used in Ayurvedic medicine for eye and heart disorders. Constipation, gas, liver problems, and bilious affection benefit from decoction stems.

**Hibiscus rosa-sinensis Linn** - An extract from *Hibiscus rosa-sinensis* flowers absorbs UV radiation and may be useful in cosmetic skin care.

**Mentha spicata Linn-** Spearmint oil comes from *Mentha spicata*. The primary ingredient in spearmint oil is R-(-)-carvone, which gives it its fragrance. Limonene, dihydrocarvone, and 1,8-cineol are abundant in spearmint oil. Spearmint oil has less menthol and menthone than peppermint oil. Sometimes used to shampoos and soaps, it flavors tooth paste and candy. Spearmint essential oil fumigant kills adult moths.

**Nerium oleander Linn-** *Nerium oleander* has been considered dangerous because several of its components may be hazardous, particularly to animals, in high concentrations. Ingesting cardiac glycosides like oleandrin and oleandrinogenin may be harmful and have a restricted therapeutic index.

**Acacia marmelos Linn-** Lemons provide 64% of the Daily Value of vitamin C in 100 g. Insignificant amounts of other vital nutrients. Lemons contain polyphenols, terpenes, and tannins. Citric acid is high (47 g/l in juice) like other citrus fruits.

**Mimosa pudica Linn-** Mimosine, a poisonous alkaloid in *Mimosa pudica*, exhibits antiproliferative and apoptotic properties. D-glucuronic acid and D-xylose form *Mimosa pudica* seed mucilage.

**Syzygium cumini (Linn.) Skeels-** Chinese and Unani digestive medicine. Fruit vinegar and wine are made. Its vitamin A and C content is high.

**Evolvulus alsinoides Linn-** This plant is utilized in East Asian traditional medicine for its psychoactive and nootropic characteristics.[28] Claims are not medically confirmed. *E. alsinoides* produces scopoletin, umbelliferone, scopolin, and 2-methyl-1,2,3, 4-butanetetrol.

**Dalbergia sissoo Roxb. Ex. DC-** The freshwater snail *Biomphalaria pfeifferi* eggs were killed by *Dalbergia sissoo* fruit ethanol.

**Curcuma longa Linn-** Turmeric has been used in Ayurvedic and Siddha medicine to treat dyspepsia, throat infections, colds, and liver diseases, as well as wounds and skin sores.

**Tagetus erecta Linn-** When yellow maize is scarce, dried flower petals crushed to a powder are added to chicken feed to color egg yolks and broiler skin.

This is still used, but now as an extract, which may have cheaper transit and storage costs, higher stability, and better usage. It also improves crustacean coloration.

**Withania somnifera Linn. Dunal-** Traditional Indian medicine has employed the plant's long, brown, tuberous roots for millennia. Yemenis call it ubab and grind the dried leaves into a powder to make a treatment for burns and wounds. *Withania somnifera* leaves reduce edema and joint discomfort.

**Bacopa monnieri (L.)-** Ayurvedic asthma and epilepsy treatments include bacopa. In Ayurveda, it treats ulcers, tumors, ascites, enlarged spleen, inflammations, leprosy, anemia, and gastroenteritis. Many health issues may be treated with the herb. The herb reduces stress, neutralizes allergies, treats indigestion, and improves memory.

**Ficus racemosa Wau. Cat-** Ayurvedic texts mention *Ficus racemosa* Linn. (FR) (Family Moraceae). *F. racemosa* fruits, bark, and root are used in traditional medicine to treat diabetes and other ailments. *F. racemosa* has anti-inflammatory, hepatoprotective, and hypoglycemic properties in experiments.





**Fig. 1:** Photographs of the traditionally used some Medicinal plants

**Table 1:** Traditional medicinal plants used in the treatment of human and animals ailments

S. No.	Botanical Name	Common Name	Family	Used Part	Habit	Plant Properties
1.	Abrus precatorius Linn.	Ghunchu	Fabaceae	Leaves	Shrub	Leaf juice is mixed with coconut oil and applied over the painful swellings of the body
2.	Aegle marmelos (Linn.) Correa.	Bel	Rutaceae	Fruit	Tree	Half of a ripe fruit is eaten twice a day for 3-4 days to cure constipation
3.	Allium sativum Linn.	Lahshun	Amaryllidaceae	Bulb	Herb	3-4 cloves are taken raw twice a day for a week to get relief from stomach pain and gastric

4.	<i>Aloe barbadensis</i> Mill.	Gwarpatha	Liliaceae	Leaf pulp	Herb	About 2 teaspoons of juice is taken thrice a day for 3-4 days to cure fever
5.	<i>Butea monosperma</i> Linn.	Palas	Fabaceae	Root	Tree	Root are used in tuberculosis
6.	<i>Calotropis procera</i> R. Br.	Madar	Asclepiadaceae	Latex of whole plant	Shrub	The latex is useful in the treatment of the ringworm and skin disease
7.	<i>Carica papaya</i> Linn.	Papita	Cariaceae	Latex of fruit	Tree	Latex fruit is used in ringworm and eczema
8.	<i>Cuscuta reflexa</i> Roxb.	Amarbel	Convolvulaceae	Whole plant	Parasitic Herb	Juice of the plant mixed with juice of <i>Saccharum officinarum</i> is given in doses of about 3-4 teaspoons twice a day is given for 10-12 days to treat jaundice
9.	<i>Hibiscus rosa-sinensis</i> Linn.	Gudhal	Malvaceae	Root	Shrub	Juice of the root about 3 teaspoons is given 3 times a day for 3-4 days in case of cough and cold
10.	<i>Mentha spicta</i> Linn.	Pudina	Lamiaceae	Leaf	Herb	2-3 teaspoons of leaf juice is given thrice a day for 3-4 days to treat bloody dysentery
11.	<i>Nerium oleander</i> Linn.	Kaner	Apocynaceae	Latex of plant	Tree	Latex applied on muscles pain of limbs
12.	<i>Acacia mormelos</i> Linn.	Babool	mimosaceae	Flower	Tree	Flower powder mixed with water is given orally to animal twice a day to cure jaundice
13.	<i>Mimosa pudica</i> Linn.	Lajwanti	Mimosaceae	Roots and leaves	Herb	Roots and leaves are crushed and filtered; one teaspoon of filtrate is taken with water twice a day to cure loose motion
14.	<i>Syzygium cumini</i> (Linn.) Skeels.	Jamun	Myrtaceae	Bark	Tree	Crush its bark with the bark of bamura ( <i>Acacia catechu</i> ) in equal amount and filter it. Take 5 ml. of filtrate with 5 ml. water twice a day in gripping and indigestion
15.	<i>Evolvulus alsinoides</i> Linn.	Shankhahuli	Convolvulaceae	Leaves	Herb	20-25 leaves are crushed and mixed in 200 ml. whey and taken orally twice a day for 2 days in gripping
16.	<i>Dalbergia sissoo</i> Roxb. Ex. DC.	Shisham	Fabaceae	Leaves	Tree	Leaf paste mixed with water is given to animal twice a day to cure blisters and leg sore
17.	<i>Curcuma longa</i> Linn	Haldi	Zingiberaceae	Rhizome	Herb	Rhizome powder with rock salt and pure ghee is to cure the swelling of nipple for animals

18.	Tagetus erecta Linn.	Genda	Asteraceae	Flower	Herb	Powder mixed with water is given to animals to cure hydrophobia
19.	Withania somnifera Linn. Dunal	Ashwagandha	Solanaceae	Root	Herb	Given to animals to cure retard placenta
20.	Bacopa monnieri Linn.	Brahmi	Plantaginaceae	Leaves	Herb	Boosting memory
21.	Ficus racemosa Wau. Cat.	Gular	Moraceae	Root	Tree	The sap of root is given in diabetes

## 2. CONCLUSIONS

The aforementioned research shows that plants are incredibly adaptable. Every plant component benefits all life in the cosmos. These 21 medicinal plants were examined for treating human and animal problems such stomach ache, constipation, piles, dysentery, jaundice, diabetes, fever, asthma, menstruation disorders, snake bites, skin diseases, and more in this brief review effort. These plants are natural and cultivated. More herbs than shrubs, trees, or climbers were therapeutic. The medicinal parts of plants were leaves, roots, flowers, bark, fruits, rhizomes, etc.

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