

International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

Volume 4, Issue 1, July 2024

Exploring the Therapeutic Potential of India's Most Widely Used Traditional Medicinal Plants

Subrata Debnath¹ and Dr. Manoj Dilip Patil²

Research Scholar, Department of Pharmacy¹ Professor, Department of Pharmacy² Sunrise University, Alwar, Rajasthan, India

Abstract: Medicinal plants have been used since the Vedic era. In rural India, around 80 percent of the population more or less uses the traditional type of medicines. There are about 45,000 medicinal plant species in India, with concentrated spots in the region of Eastern Himalayas, Western Ghats and Andaman and Nicobar Island. The officially documented plants with medicinal potential are around 3000 but traditional practitioners use more than 6000. India is the largest producer of medicinal herbs and is called the botanical garden of the world. Nowadays in developing countries, assurance of the protection, quality and usefulness of medicinal plants and herbal products has now become a key issue. Almost every portion of the plant has its own medicinal properties. Medicinal plants possess many other properties like antioxidant, antiinflammatory, anti-parasitic, anti-hemolytic, antibiotic, anti-insecticidal plant species which are helpful for mankind in many ways but the author tried to focus on explaining the traditional medicinal usage of 32 plant species in this review article.

Keywords: Ethnobotany, Ayurveda, Phytotherapy, Herbs, Remedies, Healing, Indigenous, Ayurveda

I. INTRODUCTION

The lifestyle of the plants is very adaptable. Approximately 10% of all vascular plants have therapeutic uses. Traditional medicine is used by over 80% of people worldwide (WHO, 2022). All living things across the universe benefit from every portion of the plant (Bamola et al., 2018). Because they are excellent suppliers of several strong and effective medications, these medicinal plants are essential to preserving human health. These herbs have been used for thousands of years to cure and prevent a wide range of illnesses, including respiratory conditions like asthma (Dogra et al., 2015).

Deep observation of nature and an awareness of ancient medical knowledge are the foundations for illness therapy. For instance, jaundice, leucorrhea, conjunctivitis, and hearing may all be treated using Aegle marmelos leaves. According to Shukla et al. (2010) and Narayan (2022), fruits provide a sense of style. nutrition and vitality. The bioactive substances coumarin, xanthotoxol, imperatorin, aegeline, and marmeline are found in bel's fruits, bark, leaves, seeds, and roots. These substances have antimicrobial, immunogenic, antifertility, anti-diabetic, anti-cancer, and insecticidal properties. Additionally, it has astringent and carminative properties and is an effective treatment for snakebite (Gurjar et al., 2015).

The use of plant products for the treatment of illnesses and the rejuvenation of bodily systems dates back more than 5,000 years, as shown by the Indian, Egyptian, Chinese, Greek, and Roman civilizations (Kanta et al., 2019). It has been shown that using plants as a source of study to find medicinally active chemicals produces a substantial amount of scientific output (Manzano et al., 2020). The ability of pharmacists and doctors to address the issues that have arisen with the expansion of professional services in facilitating human life has been enhanced by their understanding of the evolution of concepts pertaining to the use of medicinal plants as well as the evolution of awareness (Nishant, 2016).

Spices and herbs including onion, garlic, ginger, turmeric, clove, cardamom, cinnamon, cumin, coriander, fenugreek, fennel, ajwain, bay leaf, hing, and more are used in Indian cuisine. All of them are used in Ayurvedic treatment, either as medication or in diet (Petrovska, 2012). Herbal remedies that help reputenate body cells,

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Volume 4, Issue 1, July 2024

improve nutrients, promote immunity, and raise energy levels include ashwagandha and brahmi (Patro, 2016). Between 50,000 and 80,000 blooming plants are utilized medicinally around the world. Because to habitat degradation and overharvesting, at least 15,000 of these might become extinct (Roberson, 2008). An excellent substitute for anti-snake venom may also be found in the kingdom of plants. The tribal tracts are the repository of knowledge and information on the many applications of plants and animals (Prakash and Verma, 2021). Traditionally, medicinal herbs have been utilized as folk medicine to treat snake bites (Roshana and Sanmugarajah, 2018). Ethnobotany has developed over the last century into a multidisciplinary scientific field that examines the link between humans and plants. Due to excessive human activities like careless development, population growth, the effects of tourism, deforestation, etc., certain plants are now in danger of becoming extinct and should be preserved (Mahesh and Satish, 2008; Prakash and Verma, 2022).

All segments of the population in India make extensive use of therapeutic potential, both as processed pharmaceutical products and as traditional medicines in various indigenous medical systems like as Siddha, Ayurveda, and Unani (Srinivasan et al., 2007). According to Ullah et al. (2014), phytochemicals are naturally occurring substances found in fruits, vegetables, and plants that combine with fiber and minerals to fight illness. Secondary metabolites such as alkaloids, phytosterols, glycosides, phenols, flavonoids, and diterpenes are found in medicinal plants. These secondary metabolites provide medicinal plants a great potential for healing (Yadav et al., 2017).

India's health care system heavily relies on the ancient tradition of using medicinal plants as a source of medication. Due to the rising incidence of adverse medication reactions and the expense of the contemporary medical system, interest in traditional remedies is expanding quickly among the general population, academics, and the government. According to Dar et al. (2017), there have been surges in interest in the study of natural product chemistry in light of this. The therapeutic plants linked to traditional knowledge must be documented immediately since they are in danger of disappearing (Bisht et al., 2013). The documenting, identification of the plant species utilized, and manufacture of herbal remedies are thus essential for the preservation of this traditional knowledge. Involving the local populations in the production of the most widely used medicinal plants will be prudent (Jima and Megersa, 2018).

Traditional uses of some plants as medicine The author of this study attempted to describe the traditional medicinal use of 32 plant species (Table 1; Photos 1–32) for the treatment of a variety of illnesses, including diabetes, fever, asthma, menstruation problems, constipation, stomach discomfort, piles, diarrhea, jaundice, snake bites, skin conditions, and more. This review paper's primary goal is to increase our understanding of the beneficial medicinal plants that are found in our environment.

Both cultivated and wild plant species are included in this group. Rather of being shrubs, trees, or climbers, the majority of therapeutic plants are herbs.

Leaves, roots, flowers, bark, fruits, rhizomes, and other plant components were used for therapeutic reasons. The synthesis of secondary metabolites by plants is what gives them their therapeutic properties. Agro-industrial technologies must be used in the production of herbal medicines, as well as in the cultivation and processing of medicinal plants.

S. No.	Botanical Name	Common Name	Family	Parts used	Habit	Plant Properties
1.	Aegle marmelos	Bel (Photo 1)	Rutaceae	Fruit, Leaves	Tree	Fruit is used for constipation, reduce cholesterol, reduce cancer risk, help in scurvy and Snakebite. Leaves used for Jaundice, conjunctivitis, reduce swelling.

Table 1: Medicinal plants with their properties.

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2.	Acacia nilotica	Babool (Photo 2)	Fabaceae	Baboolgum , Bark, Flower	Tree	Babool gums heal and stop the bleeding of wound. Bark helps to get rid of cough, cold and chest congestion. Flower powder mixed with water is given orally to animal twice a day to cure jaundice.
3.	Allium sativum	Lahsun (Photo 3)	Amaryllida ceae	Bulb	Herb	Have antibiotic properties, 3-4 cloves are taken raw twice a day to get relief from gastric and stomachache. It also lowers the cholesterol level in the blood, prevent heart attack and brain haemorrhage.
4.	Asparagus racemosus	Satavari (Photo 4)	Asparagac eae	Tuber, Root	Herb	Support lactation, reduces infertility and symptoms of menopause, Aphrodisiac, Rheumatism.
5.	Aloe barbadensis	Gwarpatha (Photo 5)	Liliaceae	Leaf pulp	Herb	Treat sunburn, lower blood sugar level, cure fever and also useful for all types of skin related problem.
6.	Azadirachta indica	Neem (Photo 6)	Meliaceae	Leaves and Bark	Tree	Leaf is used to treat leprosy, intestinal worm, stomach upset, and skin ulcer. Bark is used for malaria, intestinal ulcers, skin disease, pain and fever.
7.	Bacopa monnieri	Brahmi (Photo 7)	Plantagina ceae	Leaves	Herb	Boosting memory; reduce inflammation, anxiety and stress, treat insomnia, heals wound and prevent hair fall.
8.	Butea monosperma	Palas (Photo 8)	Fabaceae	Bark, Root	Tree	Bark used to treat dyspepsia, diarrhea, ulcers, sore throat and snakebite. Roots are used in tuberculosis, easing bowel movement, boosting sexual function, treats hypertension.
9.	Calotropis procera	Madar (Photo 9)	Asclepiada ceae	Latex	Shrub	To treat ringworm; useful in skin and respiratory diseases.
10.	Carica papaya	Papita (Photo 10)	Cariaceae	Latex of fruits and leaves	Tree	Latex fruit is used to treat ringworm and eczema, reduce risk of heart disease, prevents bloating and digestive disorder. Leaves are used in treating dengue fever, supports skin and bair health.

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Impact Factor: 7.57

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11.	Cinnamomum verum	Dalchini (Photo 11)	Lauraceae	Bark, Oil	Tree	Mood enhancer; useful in bronchitis, asthma, cardiac disorder, fever, flu, cough, edema, stimulate appetite.
12.	Cuscuta reflexa	Amarbel (Photo 12)	Convolulac eae	Whole plant	Parasit ic herb	To treat jaundice, urination disorder, dysuria, eye and skin disorder, muscle and joints pain, cough, blood purifier, to treat bilious disorder, wound, inflammation and to reduce swelling.
13.	Curcuma longa	Haldi (Photo 13)	Zingiberac eae	Rhizome	Herb	Used for rheumatoid arthritis, skin cancer, small pox and chicken pox, UTI, wound healing, liver ailments; Powder mixed with ghee is used to cure swelling, pain of muscle and bone.
14.	Dalbergia sisso	Shisham (Photo 14)	Fabaceae	Leaves	Tree	Leaf paste mixed with water is given to animal to cure blisters and leg sore, used for body and stomach irritation, anemia, ulcers, eye diseases.
15.	Embilica officinalis	Amla (Photo 15)	Euphorbiac eae	Fruit	Tree	Used for hair care, eye care, diuretic, blood purifier, respiratory health; to treat anemia, Cough, cold, laxative, hypertension.
16.	Evolvulus	Shankhpushpi (Photo 16)	Convolulac eae	Roots and leaves	Herbs	Sharpen the memory, relive stress and anxiety, and improve sleep, used in Alzheimer's disease and Dementia.
17.	Ficus racemosa	Gular (Photo 17)	Moraceae	Fruit, Leaves, Roots	Tree	Fruit relieves constipation, leaves are useful in diabetes, high cholesterol and skin diseases. The sap root is given in diabetes.
18.	Hibiscus rosa sinensis	Gurhal (Photo 18)	Malvaceae	Flower and	Shrub leaves	Flowers used in treatment of excessive and painful menstruation, cystitis, venereal diseases, mumps, cough and cold. Juice of flowers and leaves are useful in hair treatment.

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19.	Mentha spicta	Pudina (Photo 19)	Laminacea e	Leaves	Herb	Help in digestion; treats asthma, cure headache, eases stress and depression, nausea, skin cleanser, oral care, improve memory, treat bloody dysentery.
20.	Mimosa pudica	Lajwanti (Photo 20)	Fabaceae	Roots and leaves	Herb	Roots and leaves are crushed and filtered; one spoon of filtrate is taken with water to cure loose motion; leaves are used in hemorrhoids and urinary
						infections, sinus, sores, piles and fistula.
21.	Nerium oleander	Kaner (Photo 21)	Apocynace ae	Latex	Tree	Latex reduces muscle pain, useful in painful menstrual periods, leprosy, malaria, ringworm.
22.	Nyctanthes arbor-tristis	Harsingar (Photo 22)	Oleaceae	Leaves and flowers	Tree	Given for treating chronic fever, scurvy, arthritis, rheumatism, joint pain.
23.	Ocimum sanctum	Tulsi (Photo 23)	Lamiaceae	Leaves	Herb	Boost immunity, cures cold, cough, fever, lowers blood pressure, purifies blood, heal infections; treat respiratory and gastrointestinal disorders.
24.	Plumeria alba	Gulchin (Photo 24)	Apocynace ae	Leaves and root bark	Tree	Leaves are used in muscle pain and root bark is used in ts, blennorrhagia.
25.	Peeper longum	Pippali (Photo 25)	Piperaceae	Fruit, Root	Herb	Appetizer; used in bronchitis, cough, cold, lung problems, arthritis.
26.	Saraca indica	Ashoka (Photo 26)	Caesapinan ceae	Bark flower	Tree	Relieves menstrual pain, uterine disorder, manage skin related problems.
27.	Syzygium cumuni	Jamun (Photo 27)	Myrtaceae	Fruit, Seed	Tree	Used in heart disease, arthritis, stomach pain; crushed seeds for diabetes.
28.	Santalum album	Chandan (Photo 28)	Santalacea e	Heartwood	Tree	Useful in skin disorder, cough, burning, jaundice, bronchitis, fever, UTI.
29.	Tagetus erecta	Genda (Photo 29)	Asteraceae	Flowers and lea	ves	Herb Flower powder mixed with water is given animal to cure hydrophobia. Juice of leaves is used to cure ear pain, to treat skin inflammation, eczema and sunburns.

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30.	Tinospora cordifolia	Giloe (Photo 30)	Menisperm aceae		Stem	Herb Immunity booster; useful in throat infection, pile, gout, fever, jaundice, dengue fever.
31.	Withania sominifera	Ashwagandha (Photo 31)	Solanaceae	Root	Herb	Ashwagandha powder is used to treat diseases like diabetes, cancer, anxiety, infertility; also improve mood and memory; reduces stress.
32.	Zingiber officinale	Adrak (Photo 32)	Zingirbera ceae	Root	Herb	Used to treat cold, nausea, arthritis, migraines, and throat infection.

II. CONCLUSION

traditional medicinal plant species in India-such as Azadirachta indica (neem), Withania somnifera (ashwagandha), Ocimum sanctum (tulsi), Curcuma longa (turmeric), and Tinospora cordifolia (giloy)—exemplify the remarkable therapeutic wisdom of indigenous healing systems. Across centuries, these botanicals have demonstrated a broad spectrum of pharmacological activities, including antimicrobial, anti-inflammatory, antioxidant, immunomodulatory, and adaptogenic effects, which modern phytochemical and clinical investigations increasingly validate. Their diverse bioactive compounds-alkaloids, flavonoids, terpenoids, and phenolics-offer promising leads for novel drug development, while their long-standing use underscores safety and cultural acceptability. However, challenges remain in standardizing extract preparations, elucidating precise mechanisms of action, and ensuring sustainable cultivation to meet growing demand without compromising biodiversity. Future research should therefore focus on rigorous clinical trials, quality-control methodologies, and integrative strategies that marry traditional knowledge with contemporary pharmaceutical science. By doing so, we can both honor India's rich ethnomedicinal heritage and harness its full potential to address current and emerging health challenges.

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