Pisco Med Publishing

doi: 10.18282/i-cm.v6i1.570

Review Article

Medicinal plants for curing human diseases

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Abstract: Medicinal plants have been playing an essential role in the development of human culture. The role of medicinal plants in human health is clearly enormous. Plant-derived agents are also being used for the treatment of cancer. The use of plants as medicine is increasing worldwide. Some of the plants have been found to possess significant antibacterial, antifungal, anticancer, and anti-inflammatory properties. Medicinal plants are important source to combat the chronic diseases and infections all over the world. The natural and unique medicinal plants are frequently used to treat various ailments. The significance of medicinal plants in the treatment of diseases increases every day. These plants have healing properties, and the present paper focuses on the medicinal uses of plants. World Health Organization (WHO) reported that 95% of the earth's population depend upon traditional medicine for their health care needs and most of this therapy involves the use of plant extracts and their active components. Through the recent research studies on herbal plants or medicine, there have been great developments in the pharmacological evaluation of various plants that can be used in medicine.

Keywords: Medicinal Plants; Sustainable Human Health; Treatment for Diseases

Received: 13th March 2023; **Accepted:** 25th April 2023; **Published Online:** 19 May 2023

1. Introduction

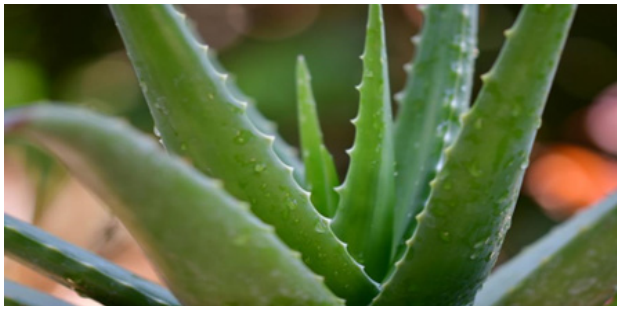
Human beings have been depending on nature for their simple requirements as being the sources for medicines, shelters, food stuffs, fragrances, clothing, flavours, fertilizers, and means of transportation in the world. For the large proportions of world's population, medicinal plants continue to show a dominant role in the healthcare system. These medicinal plants[1–9] are considered as rich resources of ingredients that can be used in drug development and synthesis. Moreover, some plants are considered as the important source for their therapeutic values. These plants include ginger and green tea. It has been estimated that about 40,000 plants have been employed as traditional medicines by various cultures around the world. Some of the drugs that can be obtained from plants include aspirin, morphine, ephedrine, quinine, reserpine, taxol, and vinblastine. Presently, herbal medicines

are often used for healthcare in both developed and developing countries. The term of medicinal plants includes various types of plants used in herbal methods and some of these plants have biological activities. It is a fact that herbal medicines are natural products and proved to be safe due to their less side-effect while being used to treat diseases[3,10–18]. 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.

2. Plants as drugs

A number of plant species are being used in human health around the world. Plant species contain active ingredients such as alkaloids and terpenoids (**Table 1**). These ingredients have been used and found effective as sweeteners, anti-infections and anti-bacterial agents. For instance, the bark of *Alstoniaboonei* contains alkaloids and histamine, which are useful in the treatment of fever, dizziness, and high blood pressure. Ginger (*Zingiber officinale*) and Garlic (*Allium sativum*) 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.

2.1 Aloe vera (*Aloe barbadensis*)



Aloe vera is a multipurpose plant that has been used for ages for its medical benefits. Its anti-inflammatory, antibacterial, and wound-healing effects are well established. Aloe vera is commonly used to treat burns, sunburns, wounds, and bruises. It may also be used to treat acne and soothe skin disorders including eczema and psoriasis. Aloe vera gel can be applied to the skin directly or consumed as a beverage or supplement. Apart from its surface use, aloe vera is said to provide internal health advantages such as assisting digestion, increasing immunological function, and lowering inflammation in the body. Aloe vera is a natural, safe, and useful plant that may be utilised for a variety of purposes.

Table 1. Commonly used plants as herbal drugs

Plants name	Plants parts use in disease
Aloe vera	The peelings of the leaves are used in skin burn and also used in facial creams.
Kalmegh	The plant is used for malarial fever.
Bhandari	Leaves are used in cough and cold.
Dhawra	Leaves are used in diarrhea.
Pilikatari	The extract is used in various skin diseases.
Neem	Bark is useful in malarial fever.
Punarnava	The plant is used in urinary troubles and in skin diseases.
Sadabahar	The leaves and flowers are used to reduce sugar level.
Nagarmotha	The tubers are used in urinary and heart troubles.
Aka Bedu	The plant is used for body pain relief.
Tulsi	The leaves are used to cure cough, cold, and ulcers.
Nirgundi	The extract of the leaves is used in body pain.

doi: 10.18282/i-cm.v6i1.570

2.2 Chamomile (*Matricaria chamomilla*)

Chamomile is a natural herb that has been used to heal a range of diseases for antiquity. It is often used as a natural sedative for anxiety and sleeplessness, as well as a digestive aid for stomach cramps and bloating. Chamomile can be administered topically as a calming and anti-inflammatory medication to treat skin disorders such as eczema and psoriasis. Chamomile is also used to ease menstrual cramps and contains anti-inflammatory qualities that may help reduce inflammation in the body. Overall, chamomile is a versatile and useful plant that has several health advantages. It is frequently used as a tea or as a supplement.

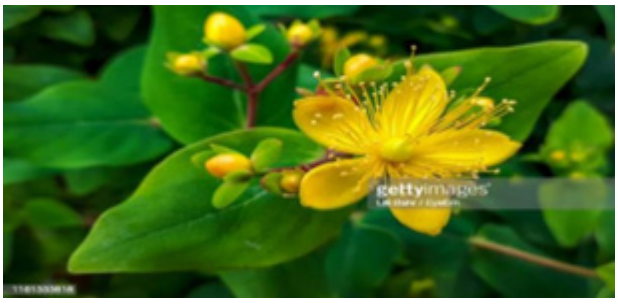
2.3 Ginger (*Zingiber officinale*)

Ginger has been used for millennia as a medicine due to its anti-inflammatory and antiemetic qualities. It is frequently used to alleviate nausea, vomiting, and other digestive issues such as bloating, gas, and indigestion. Ginger has also been shown to reduce pain and inflammation caused by osteoarthritis, rheumatoid arthritis, and other musculoskeletal problems. It can also help to strengthen the immune system and decrease cholesterol levels. According to some studies, ginger may have anti-cancer qualities and may aid in the prevention and treatment of certain forms of cancer. Moreover, ginger may be ingested in a multitude of forms, including fresh, dried, or powdered ginger, and it can be added to food or beverages such as tea, smoothies, or juices, making it a versatile ingredient.

2.4 Sage (*Salvia officinalis*)

Sage is a versatile herb that has been used for millennia for medical and culinary uses. It is often used in cooking because of its powerful perfume and unique flavour. Sage has a variety of medicinal properties, including the capacity to relieve sore throats and coughs, decrease inflammation, and promote digestion. Sage tea is frequently used to treat respiratory infections and menstrual cramps. The plant is also said to increase memory and attention, making it a popular study aid during test season. Sage also contains antibacterial qualities and may be used to clean wounds and injuries. It is also said to have a relaxing impact on the mind and body, which is why it is frequently used.

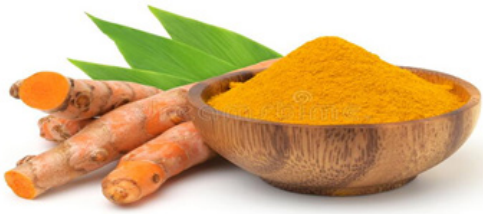
2.5 St. John's Wort (*Hypericum perforatum*)



St. John's Wort is a medicinal plant that has been used to cure a range of diseases for generations. It is most typically used to treat mild to

severe depression since it includes antidepressant ingredients. St. John's Wort is thought to operate by raising serotonin, dopamine, and norepinephrine levels in the brain, which are all neurotransmitters involved in mood regulation. Since it has a relaxing impact on the neurological system, it is also used to treat anxiety and sleeplessness. St. John's Wort also contains anti-inflammatory and analgesic qualities; thus, it can be used to treat pain and inflammation caused by disorders like arthritis. St. John's Wort may also be beneficial in treating premenstrual syndrome (PMS) and may have antiviral and antibacterial characteristics, according to certain research. Nevertheless, because St. John's Wort might interfere with some drugs, such as antidepressants, birth control pills, and blood thinners, it is critical to consult with a healthcare practitioner before using this herb.

2.6 Turmeric (*Curcuma longa*)



Turmeric is a spice that has been utilised in traditional medicine for millennia. It is well-known for its anti-inflammatory and antioxidant characteristics, which make it effective in the treatment of a wide range of ailments. Turmeric can be used to treat arthritis-related pain and inflammation, as well as to improve digestion. It has also been shown to help in the treatment of some cancers and Alzheimer's disease. Turmeric may be used to treat a range of skin disorders, including acne and psoriasis. Turmeric may also be used to decrease cholesterol and manage blood sugar levels, making it beneficial for those with diabetes or other metabolic problems. Overall, turmeric is a versatile spice with a wide range of applications.

2.7 Garlic (*Allium sativum*)

Garlic is a popular medicinal herb that has been used for millennia to cure a wide range of health issues. It has antibacterial and anti-inflammatory effects, making it effective in the treatment of illnesses like colds, flu, and other respiratory diseases. Garlic can also cut cholesterol, improve blood pressure, and prevent heart disease. It has been demonstrated to improve immune function and lower the risk of some forms of cancer. Garlic is also good for digestive health since it can aid with bloating, gas, and indigestion. It can also be used topically to treat skin disorders such as acne, eczema, and psoriasis. Garlic comes in a variety of forms, including fresh cloves, supplements, and extracts.

2.8 Lavender (*Lavandula*)

Lavender is a well-known medicinal herb with several applications. Because of its relaxing effects, it is a good therapy for anxiety, stress, and sleeplessness. To induce relaxation and increase sleep quality, lavender essential oil can be added to bathwater or used in aromatherapy. Since lavender contains anti-inflammatory and antibacterial characteristics, it is also used topically to treat skin problems such as acne, eczema, and psoriasis. Because

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of its pleasant scent, it is a common component in perfumes and soaps. In addition to its medical properties, lavender is used in cooking and baking to impart a distinct flavour to meals. Overall, lavender is a versatile plant with several applications and is a popular natural cure for a wide range of diseases.

2.9 Neem (*Azadirachta indica*)

Neem, commonly known as Indian Lilac, is a versatile plant with a wide range of medicinal and therapeutic applications. In traditional medicine, neem leaves, oil, and bark are used to treat a number of health ailments, including skin disorders, fever, inflammation, and infections. Neem is also a natural insect repellent and is used to keep pests away from crops and gardens. Its antibacterial characteristics make it an efficient acne, eczema, and psoriasis therapy. Because of its capacity to enhance scalp health and encourage hair development, neem oil is a prominent component in natural hair care products. Neem oil is used in soaps and other home items for its cleaning and disinfecting characteristics, and it is also utilized as a natural insecticide. Overall, neem is a useful plant with multiple applications and advantages for both human health and the environment.

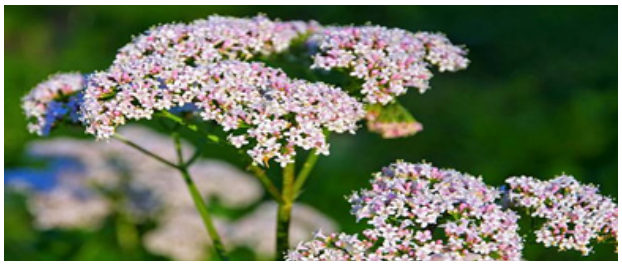
2.10 Eucalyptus (*Eucalyptus globulus*)

Eucalyptus is an Australian tree that is now grown in various regions of the world, including South America, Europe, and Asia. Its essential oil, which includes chemicals like eucalyptol, which has antibacterial, antiviral, and anti-inflammatory activities, is widely utilised for its therapeutic benefits. Coughs, colds, and bronchitis are all frequent ailments treated with eucalyptus. It is also used to treat muscular and joint discomfort, as well as to lower fever. Aromatherapy uses its essential oil to induce relaxation and stress reduction. Because of its antibacterial characteristics, eucalyptus may also be used as an insect repellent and a cleaning agent. It is also utilised in the manufacture of paper, furniture, and building products.

2.11 Rosemary (*Rosmarinus officinalis*)

Rosemary is a common plant with culinary and medicinal characteristics that has been used for ages. In addition to its culinary use, rosemary is said to provide a number of health advantages. It is well-known for improving memory and attention, and it is frequently used to alleviate headaches and reduce muscular and joint pain. Rosemary also possesses anti-inflammatory and antioxidant qualities, which make it effective for treating arthritis and enhancing general immunological function. Its essential oil is frequently used in aromatherapy to assist relaxation and stress reduction. Moreover, when used in hair care products, rosemary is said to increase hair growth and enhance scalp health. Overall, rosemary is a versatile plant with several health advantages and applications.

2.12 Valerian (*Valeriana officinalis*)

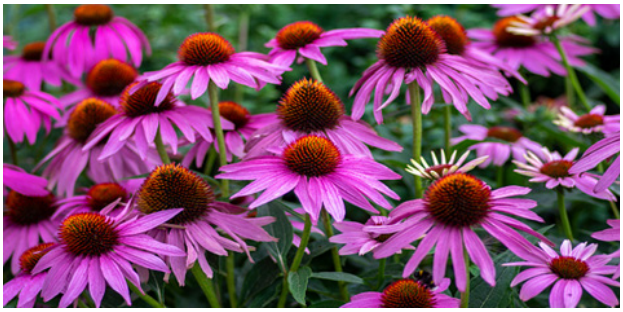


Valerian, also known as *Valeriana officinalis*, is a plant that has been used for millennia for its sedative and anxiolytic properties. It is often used to treat anxiety and insomnia owing to its ability to soothe the nervous system and induce relaxation. Valerian can be taken orally as a supplement or made as a tea to promote sleep and alleviate anxiety symptoms. It is also used to treat headaches, muscular and joint discomfort, and menstrual cramps. Valerian has been demonstrated to have a comparable impact as pharmaceutical sleep aids, but with fewer side effects and a lower risk of addiction. Nevertheless, it is important to note that valerian can interact with other drugs and may not be safe for everyone, so before using valerian supplements, it is best to check a healthcare expert. It should also not be used for long periods of time without medical supervision.

2.13 Yarrow (*Achillea millefolium*)

Yarrow, commonly known as *Achillea millefolium*, has a long history of medical usage. Because of its anti-inflammatory and diaphoretic characteristics, which assist to lower fever and encourage sweating to eliminate toxins from the body, it is often used to treat fever, colds, and flu. Yarrow is also used to treat digestive issues including bloating and gas, and it may be made into a tea to aid digestion and ease stomach cramps. Because of its antibacterial and anti-inflammatory characteristics, yarrow may be used topically to heal wounds, cuts, and bruises, and it can also be used to reduce swelling and inflammation associated with illnesses such as arthritis. Yarrow has also been used to treat menstrual cramps, since it is thought to help regulate menstrual flow and decrease discomfort. Nevertheless, while yarrow has traditionally been used for medical purposes, additional study is needed to validate its usefulness and safety.

2.14 Echinacea (*Echinacea purpurea*)



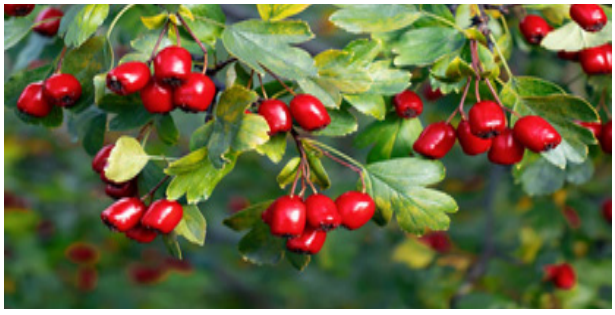
Echinacea is a well-known medicinal plant for its immune-boosting qualities. Because of its capacity to activate the immune system, it is often used to prevent and cure colds, flu, and upper respiratory infections. Other illnesses that can be treated with echinacea include urinary tract infections, ear infections, and skin infections. Moreover, echinacea contains anti-inflammatory effects, making it effective in the treatment of rheumatoid arthritis and other autoimmune illnesses. Echinacea is also used to treat anxiety, chronic fatigue syndrome, and migraines; however, additional study is needed to support these claims. Echinacea comes in a variety of forms, including capsules, pills, tinctures, and teas, and is accessible at most health food stores and pharmacies. But, before consuming echinacea, it is necessary to contact with a healthcare practitioner, especially if they have a medical condition or are taking any drugs.

doi: 10.18282/i-cm.v6i1.570

2.15 Calendula (*Calendula officinalis*)

Calendula, sometimes known as marigold, has a number of therapeutic applications. Because of its anti-inflammatory and antibacterial characteristics, it is often used topically to treat skin problems such as eczema, rashes, and wounds. Calendula can also be used to treat digestive issues such as indigestion and bloating, as well as to ease menstrual cramps. Calendula has been shown to have anti-inflammatory properties when taken orally, and may be useful in the treatment of inflammatory disorders such as arthritis. Calendula is also renowned for its antioxidant qualities, which may aid to protect cells from free radical damage. Calendula is a versatile and valuable medicinal herb that may be used to cure a variety of ailments.

2.16 Hawthorn (*Crataegus monogyna*)



Hawthorn is a plant that has been used in traditional medicine for millennia to treat a number of health problems. The plant's leaves, berries, and flowers are used to create medicine. Hawthorn is generally used to promote heart health and treat cardiovascular diseases such as high blood pressure, chest discomfort, and irregular heartbeats. It works via dilation of blood arteries, which increases blood flow and lowers heart pressure. Hawthorn is also used to promote digestion, reduce anxiety and stress, and increase the immune system. It also contains antioxidant capabilities that can help protect cells from free radical damage. Hawthorn is available as capsules, extracts, and teas. Before using hawthorn, as with any herbal therapy, it is best to contact with a healthcare practitioner, especially if they have a pre-existing medical condition or are taking medication.

2.17 Ginkgo biloba (*Gingko biloba*)

Ginkgo biloba is a medicinal plant that has been used in traditional medicine for generations. It is now widely used to improve cognitive performance and treat a wide range of diseases including anxiety, depression, and dementia. Flavonoids and terpenoids found in Ginkgo biloba have potent antioxidant and anti-inflammatory activities. These substances aid in the protection of the brain against oxidative stress and free radical damage, which can lead to cognitive decline and neurodegenerative illnesses. Ginkgo biloba is also thought to increase blood flow to the brain, which can help with memory and focus. It is often used to treat age-related cognitive decline as well as to alleviate Alzheimer's and dementia symptoms. Moreover, ginkgo biloba may have anti-anxiety and anti-depressant properties, making it effective in the treatment of anxiety and depression symptoms. Overall, ginkgo biloba is a versatile plant with several potential health advantages, so it is widely utilised as a natural medicine for a number of diseases.

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2.18 Milk thistle (*Silybum marianum*)

Milk thistle is a plant that has been utilised for generations for its therapeutic benefits. The most well-known application of milk thistle is to promote liver health. Milk thistle includes silymarin, an antioxidant and anti-inflammatory molecule that protects liver cells from damage caused by pollutants and free radicals. Milk thistle has been demonstrated to enhance liver function in patients suffering from liver disease such as cirrhosis, hepatitis, and fatty liver disease. Milk thistle has also been used to lower cholesterol levels, reduce insulin resistance in type 2 diabetic patients, and enhance skin health by lowering the severity of psoriasis and acne. Milk thistle is available in a range of preparations, including capsules, tinctures, and teas. It is usually regarded safe, but it may interfere with some drugs, so it is necessary to consult doctors before using milk thistle pills.

2.19 Dandelion (*Taraxacum officinale*)

Dandelion, also known as *Taraxacum officinale*, is a flowering plant that may be found all over the world. It has been used medicinally for ages and is well recognised for its ability to enhance liver function and help digestion. Dandelion includes vitamins A, C, and K, as well as iron, calcium and potassium. Sesquiterpene lactones, which have anti-inflammatory effects, are also present. Dandelion is often used to boost liver health, since it stimulates liver function and promotes bile formation. It is also used to help with digestion by increasing the synthesis of digestive enzymes and decreasing bloating and gas. Dandelion is also thought to have diuretic qualities, which means it can aid in increasing urine output while decreasing water retention. Moreover, dandelion has anti-inflammatory properties and can be used to treat inflammation and swelling in illnesses such as arthritis. The leaves, blossoms, and roots can also be eaten fresh or cooked like a vegetable. Nevertheless, before using dandelion as a supplement or as a therapy for any ailment, visit a healthcare expert.

2.20 Aka Bedu (*Ficus palmata*)

Himalayan fig or *Ficus palmata*, commonly known as Aka Bedu is a natural occurring plant in the region of Himachal Pradesh, Rajasthan, and Uttrakhand. It is also known as Wild Himalayan fig. The fruits are sweet, juicy, and excellent when eaten raw. They may also be used to make a variety of items, including jam, jelly, and squash. Due to the presence of white latex right below the epicarp, it also exhibits astringency. The fruits can be made less astringent by submerging them in water for 10 to 15 minutes before consumption. They only have a short shelf life. One can eat figs raw, dried, canned, candied, and preserved. The fruit overall is of great quality. Young growth and unripe wild fig fruits are cooked and consumed like vegetables. They are first boiled; the water is squeezed out of them; and then they are fried. These figs are used

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in medicinal purposes for pain killing, and curing other diseases. They are yet to be explored as nanomaterial. Zinc oxide nanoparticles are synthesized from extract for exploring antioxidant, antimicrobial, and cytotoxicity in mice. This plant is of great medicinal value and could be utilized in medical, biomedical and forensic applications. The plants are widespread in locations up to 1,000 metres above sea level. These trees are sporadically found in the forests, but they thrive close to settlements in fields, wastelands, and other places. Minerals, vitamins A, B1, B2, and C, dietary fibre, vital amino acids, and phenolic compounds are all abundant in figs. The *Ficus palmata* plant is used to treat a number of illnesses, including fungal infections, hypoglycemia, tumours, ulcers and gastrointestinal issues. It also shows anti-proliferative properties. There are many potential uses of figs in the culinary and pharmaceutical industries because very little processing has been done on them. Due to its flavour, colour and scent, it exhibits very excellent sensory acceptance.

3. Conclusion

There is a promising future of medicinal plants as there are about half million plants around the world, and most of them are not investigated yet for their medical activities and their hidden potential of medical activities could be decisive in the treatment of present and future studies. In the development of human culture, medicinal plants have played an essential role, for example in religions and different ceremonies. Among the variety of modern medicines, many of them are produced indirectly from medicinal plants, for example aspirin. Many food crops have medicinal effects, for example garlic. Studying medicinal plants helps to understand plant toxicity and protect human and animals from natural poisons. Medicinal plants belong to a big plant group with a great interest due to its pharmaceutical, cosmetic and nutritional application. This interest can be due to several factors, including therapeutic needs, the remarkable diversity of both chemical structures and biological activities. 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, cancer, rheumatism, inflammation, jaundice, hepatic obstruction, pain, cold, and cough. Remedies from medicinal plants are used with success to treat these diseases. 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.

Conflict of interest

All authors declare no conflict of interest.

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