

HERBAL MEDICINE FOR CONSTIPATION

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ABSTRACT:

Constipation is a common gastrointestinal problem affecting a large proportion of the population. Traditional herbal medicine has been used for centuries to treat constipation, and recent research has begun to provide evidence for their effectiveness. This review aims to provide an overview of the herbal medicines commonly used for constipation, including their mechanism of action, pharmacological properties, and clinical evidence supporting their use. Some of the commonly used herbal medicines for constipation include Senna, Psyllium, Aloe vera, and Triphala. The review highlights that herbal medicines can be a safe and effective option for managing constipation, and further research is needed to better understand their mechanisms of action and optimal dosages.

Keywords: Constipation, Triphala, Nausea, Inflammation

INTRODUCTON:

Constipation is a common gastrointestinal disorder that affects people of all ages, genders, and lifestyles. While there are several conventional treatments available, many people prefer natural remedies such as herbal medicine. In this review article, we will explore the use of herbal medicine for constipation and examine the evidence supporting their effectiveness.

GINGER

Ginger is a common spice that has been used for centuries to treat digestive problems, including constipation. It works by stimulating the digestive system and increasing bowel movements.

Ginger can be consumed in several forms, including fresh ginger, ginger tea, and ginger supplements. Ginger, also known by its scientific name *Zingiber officinale*, is a commonly used herb in pharmacy and traditional medicine. Here are some key pieces of information related to ginger and its use in pharmacy.

Pharmacological properties

Ginger contains several biologically active compounds, including gingerols, shogaols, and

zingeronone, which have antioxidant, anti-inflammatory, and analgesic properties. These compounds are believed to be responsible for many of the health benefits associated with ginger. Uses in pharmacy: Ginger has been used in pharmacy to treat a variety of conditions, including nausea, vomiting, motion sickness, and inflammation. It is also sometimes used as a flavoring agent in medicines to improve taste.

Forms available: Ginger is available in many forms, including fresh ginger root, powdered ginger, ginger extract, and ginger oil. It can be consumed orally as a tea, capsule, or tincture, or applied topically as a cream.

Morphology of Ginger

Ginger is a flowering plant that belongs to the Zingiberaceae family. Its morphology includes the following:

Rhizome

Ginger has a thick, fleshy, and branched underground stem called a rhizome, which is used for culinary and medicinal purposes.

Leaves

The leaves of ginger are long, narrow, and lance-shaped, with a pointed tip. They are arranged alternately on the stem, and they are about 15-20 cm long.

Stem

The stem of ginger is about 1 meter tall, and it is erect with a few branches. The stem is green and covered with a waxy layer that protects it from moisture loss.

Flowers

The flowers of ginger are cone-shaped and grow on a separate stalk. They are usually yellow, white, or pink in color, and they have a pleasant fragrance.

Roots

The roots of ginger are thin and fibrous, and they are used as a spice in cooking.

Biological Source of Ginger

Ginger (*Zingiber officinale*) is a flowering plant that belongs to the Zingiberaceae family. It is native to Southeast Asia and is widely cultivated in tropical and subtropical regions around the world. The part of the ginger plant that is most commonly used for culinary and medicinal purposes is the rhizome, which is the underground stem of the plant. The rhizome is harvested after the plant has matured for about 6 to 10 months, and it is the source of the characteristic spicy, pungent flavor and aroma of ginger. Ginger has been used for thousands of years in traditional medicine systems such as Ayurveda and Traditional Chinese Medicine (TCM), as well as in modern Western medicine, for its anti-inflammatory, analgesic, and antioxidant properties.

Chemical Constituents of Ginger

Ginger (*Zingiber officinale*) is a flowering plant that belongs to the Zingiberaceae family. The primary bioactive compounds found in ginger are:

Gingerols and shogaols. These are the main bioactive compounds in ginger and are responsible for its pungent taste and aroma. They have anti-inflammatory, antioxidant, and anti-cancer properties.

Gingerdiols

These are gingerols that have been dehydrated and have different pharmacological properties.

Zingerone

This is a ketone found in ginger and has anti-inflammatory and antioxidant properties.

Terpenoids

These are compounds that give ginger its distinctive aroma and flavor. Some terpenoids found in ginger include zingiberene, sesquiphellandrene, and bisabolene.

Oleoresins

These are a mixture of essential oils and resins that are responsible for the pungent taste and aroma of ginger.

Phenolic compounds

These are compounds found in ginger that have antioxidant and anti-inflammatory properties. Some examples include gingerol-related phenolics, flavonoids, and phenolic acids.

Carbohydrates

Ginger contains a variety of carbohydrates, including fructose, glucose, and sucrose.

Proteins and amino acids

Ginger contains small amounts of protein and amino acids, including arginine, glutamic acid, and aspartic acid.

These chemical constituents of ginger work together to provide various health benefits, including reducing inflammation, aiding digestion, and lowering blood sugar levels.

Chemical Test of Ginger

There are several chemical tests that can be performed on ginger to identify its constituents. Here are a few examples:

Test for starch:

Add a few drops of iodine solution to a small amount of ginger. If starch is present, the iodine will turn blue-black.

Test for essential oils:

Crush a small amount of ginger and add it to a beaker of warm water. The essential oils will rise to the surface and form a film.

Test for alkaloids:

Add a small amount of ginger to a beaker of warm water and then add a few drops of dilute hydrochloric acid. If alkaloids are present, they will form a precipitate.

Test for phenolic compounds:

Add a small amount of ginger to a beaker of warm water and then add a few drops of ferric chloride solution. If phenolic compounds are present, the solution will turn blue or green.

ALOE VERA

Synonyms

Barbados aloe
 Medicinal aloe
 True aloe
 Indian aloe
 First aid plant
 Burn plant
 Lily of the desert
 Elephant's gall
 Savila
 Jadamanseri

Aloe vera is a succulent plant species that has been used for medicinal purposes for centuries. It contains a clear gel that is rich in bioactive compounds, such as polysaccharides,

anthraquinones, and glycoproteins, which are thought to have therapeutic properties.

In the field of pharmacy, aloe vera is often used as an ingredient in topical products for its anti-inflammatory, moisturizing, and wound-healing effects. It is commonly found in creams, gels, lotions, and ointments designed to soothe and heal minor skin irritations, such as sunburns, insect bites, and cuts. Aloe vera has also been studied for its potential use in treating a variety of skin conditions, such as psoriasis, eczema, and acne. Research has suggested that aloe vera may help reduce inflammation and promote skin regeneration, making it a potentially useful addition to the treatment of these conditions.

Additionally, aloe vera has been investigated for its potential use in treating digestive disorders, such as constipation and irritable bowel syndrome. The plant's gel has a mild laxative effect and may help soothe the digestive tract, though more research is needed to fully understand its effects. It is important to note that while aloe vera is generally considered safe when used topically or taken orally in small doses, it can cause side effects in some individuals. It may cause skin irritation or allergic reactions in some people, and high doses of the plant's latex (found just under the plant's skin) can cause diarrhea and other digestive issues. As with any herbal supplement or medication, it is important to talk to a healthcare professional before using aloe vera for medicinal purposes.

Morphology of Aloe Vera

Aloe vera is a succulent plant with a distinctive morphology. It has thick, fleshy, lanceolate leaves that grow in a rosette pattern. The leaves are typically green, but they may turn reddish-brown in full sun or during periods of drought. The leaves are also serrated along the edges and can grow up to 60-90 cm long. Aloe vera has a shallow root system and a stem that is often short or absent. Instead, the plant has thick, juicy leaves that store water, allowing it to survive in arid conditions. The leaves contain a gel-like substance that is commonly used for medicinal purposes. The plant also produces a tall spike-like inflorescence that can reach up to 90-100 cm in height. The inflorescence bears tubular, yellow or orange flowers that are arranged in dense clusters. The flowers are usually pollinated by

hummingbirds, although they can also be pollinated by insects.



Fig. 1: Aloe vera

Biological Sources of Aloe Vera

Aloe vera is a succulent plant species that belongs to the genus *Aloe*. It is native to the Arabian Peninsula but has been widely cultivated throughout the world, particularly in Africa, India, and other arid regions. Aloe vera is a perennial plant that grows in clusters and produces thick, fleshy leaves. The gel found inside the leaves is commonly used for medicinal and cosmetic purposes.

Chemical Test of Aloe Vera

There are various chemical tests that can be done on Aloe vera to determine its composition and properties. Here are some common chemical tests:

Thin-layer chromatography (TLC):

This test can be used to identify the various chemical compounds in Aloe vera gel. TLC involves separating the different compounds in a sample using a thin layer of silica gel, and then analyzing the separated compounds using various reagents.

Spectrophotometry:

This technique can be used to measure the concentration of various components in Aloe vera, such as polysaccharides, anthraquinones, and flavonoids. Spectrophotometry involves measuring the absorbance of light by a sample at different wavelengths.

High-performance liquid chromatography (HPLC):

This technique can be used to separate and quantify the various compounds in Aloe vera, including aloin, aloesin, and aloie-modin. HPLC involves passing a sample through a column filled with a stationary phase, and then measuring the retention times and peak heights of the separated compounds.

Fourier transform infrared spectroscopy (FTIR):

This technique can be used to identify the functional groups present in Aloe vera. FTIR involves passing infrared radiation through a sample and analyzing the absorption and transmission of the radiation by the sample.

Gas chromatography-mass spectrometry (GC-MS):

This technique can be used to identify and quantify the volatile compounds in Aloe vera, such as terpenes and esters. GC-MS involves separating the compounds in a sample using gas chromatography, and then analyzing the separated compounds using mass spectrometry.

Chemical Constituents

Aloe vera is a plant species belonging to the family Asphodelaceae. It is widely used for medicinal purposes due to its various therapeutic properties. The gel and latex extracted from the leaves of the plant contain a wide range of chemical constituents, including, these are natural compounds found in the latex of the aloe vera plant, which are responsible for its laxative properties. Some common anthraquinones found in aloe vera include aloin, emodin, and barbaloin.

Polysaccharides:

Aloe vera gel contains a variety of polysaccharides, including acemannan, which is known for its immune-boosting properties. These compounds also have anti-inflammatory and antioxidant effects.

Enzymes:

Aloe vera contains several enzymes, including amylase, lipase, and protease. These enzymes can aid digestion and help break down sugars, fats, and proteins.

Minerals:

Aloe vera contains several essential minerals, including calcium, magnesium, potassium, and sodium. These minerals are important for maintaining the body's electrolyte balance and supporting various physiological processes.

Vitamins:

Aloe vera contains a variety of vitamins, including vitamins A, C, and E. These vitamins have antioxidant properties and can help protect the body against oxidative stress.

Phenolic compounds:

Aloe vera contains several phenolic compounds, including coumarins, flavonoids, and tannins. These compounds have antioxidant and anti-inflammatory effects and may help protect the body against various diseases.

PEPERMINT PLANT

Synonyms

Mentha piperita L. Peppermint oil Mint Spearmint. Peppermint, also known as peppermint, is a plant species in the genus *Mentha*. It is a perennial herb that is native to Europe and Asia, but is now widely cultivated in many parts of the world. The plant has square-shaped stems and dark green leaves with serrated edges. It produces small, pink or purple flowers in the summer. The leaves and flowers of the plant are highly aromatic and are used in various culinary and medicinal applications. Peppermint is commonly used to make herbal teas and as a flavoring in food and beverages. It is also used in the production of essential oils, which are used in aromatherapy and as a flavouring in cosmetics, soaps, and other products. Medicinally, peppermint is believed to have a number of health

benefits. It is commonly used to treat digestive issues such as bloating, indigestion, and nausea. It may also have analgesic and anti-inflammatory properties and is sometimes used to alleviate headaches and muscle pain.

Morphology of Peppermint

Root system:

Peppermint has a fibrous root system that spreads horizontally just below the surface of the soil.

Stem: The stem of peppermint is square-shaped and can grow up to 90 cm tall. It is also branched, with multiple nodes where the leaves and flowers emerge.

Leaves:

The leaves of peppermint are dark green, slightly hairy, and have a toothed edge. They grow opposite each other on the stem, are about 4 cm long and 1.5 cm wide.

Flowers:

The flowers of peppermint grow in whorls around the stem, with each whorl containing several small, purple or pink flowers. The flowers bloom in mid to late summer.

Aroma:

Peppermint is well-known for its strong, minty aroma which comes from the volatile oils found in the leaves and stems.

Overall, the morphology of the peppermint plant is quite distinct and easily recognizable, making it a popular choice for herbalists and gardeners alike.

Biological Source of Peppermint

The peppermint plant (*Mentha x piperita*) is a hybrid plant that is believed to have originated from the crossbreeding of water mint (*Mentha aquatica*) and spearmint (*Mentha spicata*).

Peppermint is a perennial herb that is widely cultivated for its aromatic leaves and essential oil, which are used for culinary, medicinal, and cosmetic purposes. It is native to Europe and Asia, but is now widely grown in many parts of the

world, including North America, where it is commonly found in gardens and naturalized in some regions.

The plant can grow up to 90 cm in height and has square stems with dark green leaves that are serrated and slightly hairy. Its flowers are purple, pink, or white and appear in terminal spikes in mid to late summer. The essential oil extracted from the leaves of the peppermint plant is high in menthol, which gives it its characteristic refreshing and cooling scent and flavor.

Chemical Test of Peppermint

Peppermint is a plant that contains several chemical compounds, including menthol and menthone, which are responsible for its characteristic aroma and flavor. Here are some chemical tests you can perform to identify the presence of these compounds in peppermint.

Menthol test:

Dissolve a small amount of peppermint oil in a solvent, such as ethanol, and add a few drops of a solution of potassium permanganate. If menthol is present, the solution will turn from purple to brown. Menthone test: Add a few drops of a solution of nitric acid to a small amount of peppermint oil. If menthone is present, the solution will turn yellow.

Essential oil test:

Place a small amount of peppermint leaves in a distillation apparatus and extract the essential oil. The oil can be identified by its characteristic aroma and flavor.

TLC (Thin Layer Chromatography) test:

Extract the essential oil from peppermint and spot it on a TLC plate. Use a developing solvent such as hexane, ethyl acetate or methanol to separate the compounds. Different compounds in the oil will migrate to different distances on the plate and can be visualized using UV light or by staining the plate with appropriate reagents.

Chemical Constituents of Peppermint

Peppermint (*Mentha x piperita*) is a plant species in the *Mentha* genus, which belongs to the Lamiaceae family. Peppermint leaves and oil have a long history of use in traditional medicine, culinary arts, and aromatherapy. The primary chemical constituents of peppermint plant are:

Menthol:

It is the primary active ingredient in peppermint oil, responsible for its characteristic cooling and soothing effects. Menthol has analgesic, anti-inflammatory, and decongestant properties.

Menthone:

It is a monoterpene ketone that contributes to the minty aroma and flavor of peppermint oil. Menthone has antiseptic and antifungal properties.

Limonene:

It is a monoterpene hydrocarbon that is found in many citrus fruits and peppermint oil. Limonene has a refreshing aroma and is used as a natural insect repellent.

Cineole (Eucalyptol):

It is a monoterpene oxide that has a cooling and refreshing effect on the respiratory system. Cineole is also found in eucalyptus oil and has antiseptic and expectorant properties.

Piperitone:

It is a monoterpene ketone that is a precursor to menthol biosynthesis. Piperitone has insecticidal properties and is used as a flavoring agent in the food industry.

Rosmarinic acid:

It is a phenolic compound that has antioxidant and anti-inflammatory properties. Rosmarinic acid is also found in rosemary, sage, and thyme.

Flavonoids:

Peppermint contains several flavonoids, including luteolin, hesperidin, and eriocitrin, which have antioxidant and anti-inflammatory properties.

Tannins:

Peppermint contains tannins, which have astringent properties and are used in the treatment of diarrhea and other gastrointestinal disorders.

SENNA**Synonyms**

Alexandrian senna
 Tinnevelly senna
 Indian senna
 Cassia senna
 Khartoum senna
 Nubian senna
 True senna
 Fan xie ye (Chinese name for senna)
 Sonamukhi (Hindi name for senna)
 Swarnapatri (Sanskrit name for senna)

Senna is a plant commonly used in pharmacy for its laxative properties. The plant contains anthraquinone glycosides, which stimulate the colon and promote bowel movements. Senna is available in various forms, including tablets, capsules, and teas. It is often used to treat constipation, as well as to prepare patients for certain medical procedures, such as colonoscopies. It is important to note that long-term use of senna can lead to dependence and other adverse effects, such as electrolyte imbalances and dehydration. It is recommended that senna be used only for short-term relief of constipation under the guidance of a healthcare professional. Additionally, pregnant and breastfeeding women, as well as children under the age of 12, should avoid using senna unless directed by a healthcare professional.

Morphology of Senna

Senna is a genus of flowering plants in the family Fabaceae. The morphology of Senna varies depending on the species, but in general, they are shrubs or small trees with pinnate leaves and

yellow or white flowers. Here are some common characteristics of Senna morphology:



Fig.2: Senna Leaves

Leaves:

The leaves of Senna are pinnate, meaning that they are composed of multiple leaflets arranged along a central axis. The leaflets are usually oval or lance-shaped and have a smooth or slightly toothed margin.

Flowers:

Senna plants produce large, showy flowers that are typically yellow or white in color. The flowers have five petals and are arranged in clusters or spikes.

Fruits:

The fruits of Senna are usually long, narrow pods that contain several seeds. The pods are typically brown or black and can be up to several inches long.

Roots:

Senna plants have a taproot system, which means that they have a single, thick main root that extends deep into the soil.

Biological Source of Senna Plant

Senna is a plant species in the legume family (Fabaceae), which is native to tropical regions of Africa and cultivated in many other parts of the world. The two most common species of Senna used in medicinal preparations are *Senna alexandrina* and *Senna obtusifolia*.

Senna is known for its leaves, which are used for their laxative properties. The active compounds responsible for the laxative effect are called anthraquinone glycosides, mainly sennosides A and B. These compounds are found in the leaves of the Senna plant.

In summary, the biological source of senna is the leaves of the Senna plant, particularly *Senna alexandrina* and *Senna obtusifolia*.

Chemical Test of Senna Plant

Senna is a plant that contains anthraquinone glycosides, which are responsible for its laxative properties. There are several chemical tests that can be performed to identify the presence of these glycosides in Senna:

Froth test:

Take a small quantity of Senna powder and add it to water. Shake it vigorously and observe if a froth is formed. Froth formation indicates the presence of saponins.

Hydrolysis test:

Take a small quantity of Senna powder and add it to dilute hydrochloric acid. Heat the mixture and observe for a yellow coloration, which indicates the presence of anthraquinone glycosides.

Borntrager's test:

Take a small quantity of Senna powder and add it to a mixture of chloroform and ammonia. Shake the mixture well and then add a few drops of dilute sulfuric acid. A pink or red coloration indicates the presence of anthraquinone glycosides.

Baljet test:

Take a small quantity of Senna powder and add it to a mixture of benzene and ammonia. Shake the mixture well and then add a few drops of dilute hydrochloric acid. A pink or red coloration indicates the presence of anthraquinone glycosides.

Chemical Constituents of Senna Plant

Senna is a medicinal plant that is commonly used as a laxative. The chemical constituents of senna include anthraquinone glycosides, flavonoids, and sennosides. Anthraquinone glycosides are the primary active constituents responsible for the laxative properties of senna. They are also known as senna glycosides, and include compounds such as sennosides A and B, rhein, aloe-emodin, and chrysophanol. Flavonoids are another group of chemical constituents found in senna, which are responsible for its antioxidant and anti-inflammatory properties. Flavonoids found in senna include kaempferol, isorhamnetin, and quercetin. Other chemical constituents found in senna include essential oils, resins, tannins, and mucilage. These compounds may also contribute to the medicinal properties of senna.

REFERENCE

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