



A Comprehensive Review on *Mimosa pudica*

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ABSTRACT :

Mimosa pudica is a short-lived evergreen shrub also known as the "touch-me-not" plant, Chui Mui, or Shame plant. Different parts of this plant have healing properties. The roots are bitter, astringent, spicy, and cooling, and are used to treat ulcers, inflammation, asthma, diarrhea, urinary issues, and fistulas. The plant contains an alkaloid called mimosine, and extracts from its leaves have substances similar to adrenaline. It shows promising medicinal effects like antibacterial, antivenom, antifertility, anticonvulsant, antidepressant, and aphrodisiac properties. Traditionally, this herb has been used to treat urogenital problems, dysentery, sinus issues, and is applied on wounds. The juice from fresh crushed leaves is used both inside and outside the body for piles, cuts, and wounds. It is also applied externally on skin cracks, wounds, and ulcers. The plant's ability to stop bleeding helps manage bleeding in piles. *Mimosa pudica* grows in open areas, especially along roadsides, farmland, and waste spaces. It has prickly stems and small, fluffy, pink ball-shaped flowers that bloom in summer. Its anti-inflammatory properties help reduce inflammation and prevent secondary infections.

Keywords : *Mimosa pudica*, Inflammation, Anti-depressant, Asthma, Ulcers.

INTRODUCTION :

Mimosa pudica L. is a type of herb that grows as an annual or perennial plant. It is known as lajjalu in Ayurveda and has been found to have several beneficial properties, including helping with asthma, relieving pain, stop bleeding from cuts, skin problems like rashes, burn and itching. It also has calming, vomiting-inducing, and strengthening effects. Traditionally, it has been used to treat a variety of conditions like hair loss, diarrhea, dysentery, sleep issues, tumors, and infections in the urinary and reproductive systems. Research on the plant has found that it contains compounds such as alkaloids, a non-protein amino acid called mimosine, flavonoids, sterols, terpenoids, tannins, and fatty acids. Two distinct movements are commonly seen in *Mimosa pudica*, known as ojigi-so in Japanese. One is the quick movement of the leaves when they are touched or exposed to heat, and the other is a slower, regular movement called nyctinastic movement, which follows a natural body clock. The leaves can adjust their response to repeated mechanical or electrical stimuli, and they will reopen after some time. The more intense the stimulus and the longer the time between stimulations, the longer it takes for the leaves to adjust. Leaves that have adapted to mechanical stimulation can still react to electrical stimulation and vice versa.

Synonym : Laajvanti, Touch me not, Chhui-mui.

Parts used : Whole plant, leaves and roots.

Classical and common names :

Ayurveda – Lajjalu, Namaskari, Samangaa, Samokchini, and Shamipattraa.

Siddha – Thottal Chinungi

Vernacular names

Sanskrit – Lajja

English – Sensitive plant

Hindi – Laajvanti and Chhui-mui

Bengali – Lajjabati

Telugu – Attapatti and Peddanidrakanni

Tamil – Tottaaladi and Thottalchnungi

Kannada – Lajja, Nachika and Mudugu-davare
Malayalam – Tintarmani

Scientific Classification :

Biological Source :	Mimosa pudica
Family:	Fabaceae (pea family)
Subfamily:	Caesalpinoideae
Kingdom:	Plantae
Order:	Fabales
Clade:	Mimosoid clade
Genus:	Mimosa



Fig. *Mimosa Pudica* Plant

▪ Macroscopy :**1) Root :**

The shape is cylindrical and tapers towards the end, with smaller branches coming off, some of which have even smaller ones. The size can be as thick as 2 centimeters. The surface is either rough or has long, wrinkled lines. The color is a mix of grayish-brown and brown. When cut open, the inside is pale yellow. The texture is hard and woody, with a fibrous bark. It has a strong smell. When tasted, it feels slightly astringent.

2) Stem :

The stem is cylindrical, measuring up to 2.5 cm in width; it has few spines and is covered with long, soft hairs that run along the length of the plant. The outside is light brown, while the inside is grey. The bark is fibrous and can be easily separated from the wood underneath.

3) Leaf :

The leaves are compound, with one or two pairs of sessile, hairy pinnae that are arranged alternately, have petioles, and are stipulate. The leaflets are 10 to 20 pairs in number, each about 1.2 centimeters long and 0.3 to 0.4 centimeters wide. They are sessile, obliquely narrow or linear oblong in shape, with an obliquely rounded base and an acute tip. The surfaces are nearly hairless and have a yellowish green color.

4) Flower :

Pink, with a round top, prickly stems; a very small cup-like structure; petals pink, four pointed and oval-shaped; four stamens that stand out; a stemless ovary; many seeds inside.



5) **Fruit :**

Lomentum is simple, dry, 1 to 1.6 centimeters long, and 0.4 to 0.5 centimeters wide. It has indehisced segments and persistent sutures. The sutures have two to five seeds, each with yellowish spreading bristles. The seeds are 0.3 centimeters long, smooth, and straw-colored.

6) **Seed :**

Compressed, oval-shaped, brown to gray in color, measuring 0 to 0.3 centimeters in length and 2.5 millimeters in width, with a central ring present on both sides.

▪ **Extraction :**

To prepare a *Mimosa pudica* extract, start by washing and drying the plant material. Next, grind it into a fine powder. Place the powder in a solvent such as 50 to 90 percent ethanol or methanol and let it soak. After soaking, filter the mixture to separate the liquid from the solid parts. Then, evaporate the solvent to leave behind the concentrated extract.

Method using cold leaching and ultrasound (for high-purity total flavonoids) :

1. Prepare the plant material: Start by cleaning the fresh *Mimosa pudica* leaves well, let them dry in the shade, and then grind them into a fine powder.
2. Cold leach: Place the powder in a 70-90% ethanol solution and let it soak for 20 to 40 minutes to make the first extracting solution.
3. Ultrasonic extraction: Use an ultrasonic machine to extract the solution for 10 to 30 minutes at room temperature.
4. Concentrate: Use reduced pressure distillation to remove the liquid, leaving behind a thick paste.
5. Purify: Run the paste through a macroporous adsorption resin and wash it with an ethanol solution that gradually increases in strength, at a flow rate of 3 to 5 ml per minute.
6. Final extraction: Collect the part of the solution that contains 40-60% ethanol and perform reduced pressure condensation to get the final extract.

Method using simple soaking and filtration (for general extracts) :

1. Prepare the plant material: Wash the *Mimosa pudica* leaves or other parts of the plant, then let them dry in the shade. Once dry, grind them into a fine powder.
2. Soak: Put the powder into a sealed container and add a liquid like 50% methanol or 80% ethanol. Mix them in a ratio of about 1 part powder to 5 parts liquid, which means 20 grams of powder with 100 milliliters of liquid.
3. Extract: Let the mixture sit for 24 to 72 hours, and stir or shake it now and then to help the extraction process.
4. Filter: Separate the liquid from the solid parts by filtering. You might have to do this several times, using filters that get smaller each time, to make sure all the solid bits are removed.
5. Evaporate: Heat the liquid slowly to remove the solvent, or use a rotary evaporator for a better and faster way to get the concentrated extract.

**▪ Uses of Mimosa Pudica :**

Part of Plant	Traditional and Medicinal Uses
Roots	<ul style="list-style-type: none">• Anti-venom: The root extract has been found to inhibit the activity of snake venom.• Diuretic: It has been traditionally used to help with problems related to the urinary system and kidney stones.• Digestive issues: A decoction made from the plant is used to treat dysentery, diarrhea, and bleeding piles.• Fever and jaundice: It is used to treat fever and jaundice in traditional systems of medicine such as Ayurveda and Unani.• Wounds and ulcers: A paste or extract is applied externally to help heal wounds and ulcers.• Gynecological disorders: It is included in herbal formulations to address problems related to the female reproductive system.
Leaves	<ul style="list-style-type: none">• Wound healing: The leaves are crushed into a paste or extract and applied directly to cuts, wounds, and ulcers to help stop bleeding and speed up the healing process.• Skin conditions: It is used to relieve itching, treat acne, eczema, and other skin problems that involve inflammation.• Hemorrhoids (Piles): A paste made from the leaves can be applied to the affected area to reduce swelling and stop bleeding.• Diarrhea and dysentery: A drink made by boiling the leaves helps manage diarrhea and control bowel movements because of its ability to tighten body tissues.• Respiratory issues: Powder made from the leaves or a drink made from them can help ease coughing, reduce congestion, and manage mild asthma symptoms.• Urinary tract infections: A preparation made from both the leaves and seeds is used to treat infections in the urinary tract.• Mental health: Drinking a calming tea made from the leaves may help reduce anxiety and improve sleep.
Seeds	<ul style="list-style-type: none">• Urinary tract infections: A decoction made from the seeds and leaves is used to treat urinary infections.• Men's health: The seed powder has been traditionally used to help with problems such as low sperm count and premature ejaculation.• Drug delivery: The mucilage from the seeds has been studied for use in making drugs that release medicine slowly over time.
Whole plant (or aerial parts)	<ul style="list-style-type: none">• Wound healing: Ointments made from the plant's shoots have been found to help with healing wounds.• Depression and anxiety: The plant's extracts have been traditionally used in Mexico and China to ease symptoms of depression and anxiety.• Rheumatism: The entire plant is used to treat rheumatism and muscle pain.• Cancer: In some traditional medicine systems, parts of the plant are used to treat specific cancers.• Diabetes: The whole plant is used in certain traditional medicines to help control diabetes.• Blood purifier: A preparation made by boiling the whole plant is used to clean the blood.
Flowers	<ul style="list-style-type: none">• Antibacterial, Antivenom, Antifertility, Anticonvulsant, Antidepressant, Aphrodisiac and several other pharmacological effects.• Anti-inflammatory Properties: The plant has substances that might help reduce inflammation in the body.

▪ Geographical Studies :

Mimosa pudica, which is originally from tropical America, has become established in many parts of India's tropical and subtropical areas. It is often seen in a variety of states across these regions.



Mimosa pudica is a plant that has spread widely across India, even though it is not native to the region. It is considered an invasive species that grows well in areas that have been disturbed or in tropical climates. Despite this, it is also valued for its medicinal uses in traditional Indian medicine.

The name of *Mimosa Pudica* as recognized in the states of India is listed below :

State/Region	Regional Name(s)
All India (General)	Touch-me-not, Humble Plant, Shameplant, Lajwanti
Andhra Pradesh	Attappatti
Assam	Nilajban
Gujarat	Reesamani
Haryana	Chuimui
Karnataka	Muttidare Muni, Nachika, Nachige mullu
Kerala	Thottavadi, Thottavaadi
Madhya Pradesh	Lajwanti
Maharashtra	Lajalu, Laajari
Odisha	Lajakoli, Lajkui
Tamil Nadu	Thottaar siungi, Thottalchnungi, Tottaladi
Telangana	Attappatti, Peddanidrakanni
Tripura	Lazzabati
West Bengal	Lajjabati
Bihar	Jhaphi
Chhattisgarh	Chuimui, Lajwanti
Punjab	Lajwanti, Tankaari
Goa	Lojechi Okol, Lajechei Vhonkol
Rajasthan	Lajwanti, Chuimui
Nagaland	Lajwanti
Mizoram	Hlonuar
Himachal Pradesh	Chuimui
Manipur	Kangphal ikaithabi, Lam ikaithabi
Jharkhand	Lajwanti
Uttar Pradesh	Chuimui, Lajwanti
Meghalaya	Chuimui
Sikkim	Lajjawanti, Buhari jhar
Uttarakhand	Chuimui, Lajwanti
Delhi	Lajwanti, Chuimui

▪ Available Marketed Formulations of *Mimosa Pudica* :

Marketed products made from *Mimosa pudica* are commonly found in many forms like Transdermal patches, Topical gels, Topical Cream, Nanoemulgel, Polyherbal Handwash, Toothpaste & Homeopathic remedies.

These products use different parts of the plant such as seeds, leaves, and roots, based on what they're meant to do.

Available marketed formulations of *Mimosa pudica* are as follows :

A. Transdermal Patches :

Transdermal patches made from *Mimosa pudica* are a new area of study that uses the plant's healing qualities to deliver medicine without needles. This plant has been found to help with reducing inflammation, fighting free radicals, and aiding in skin repair, thanks to chemicals like flavonoids, tannins, and mimosine. Scientists are testing these patches by mixing the plant's extract into a sticky patch that sticks to the skin. This method could help treat problems in specific areas of the body or throughout the whole body, make it easier for patients to follow their treatment plans, and avoid some of the problems that come with taking medicine by mouth.

Key Applications : Anti-Inflammatory therapy, wound healing, anti-oxidant & skin protection.



B. Topical gels :

These gels are made by adding extracts from the plant's roots, leaves, or a sticky substance called mucilage from its seeds into a gel base. The goal is to take advantage of the plant's ability to help wounds heal, fight infections, and reduce inflammation.

Key Applications : Wound healing, anti-microbial properties, anti-inflammatory effects, anti-oxidant action.

C. Nanoemulgels :

A nanoemulgel made with *Mimosa pudica* uses the plant's medicinal extracts in a gel form made from nanoparticles. This helps deliver the active ingredients more effectively to the skin. It brings together the advantages of nanoemulsions, which help the ingredients penetrate the skin better, and gels, which are stable and easy to spread, making it a powerful way to carry the plant's active compounds.

Key Applications : Wound healing, anti-inflammatory, anti-microbial, skin health & other traditional uses.

D. Polyherbal Preparations :

Polyherbal remedies that include *Mimosa pudica* mix the "shy plant" with other natural ingredients to make powerful combinations. In Ayurveda, *Mimosa pudica* is called lajjalu and has been used for its ability to heal wounds, fight infections, and reduce inflammation. When paired with other herbs, these benefits become even stronger.

Key Applications : Wound healing & skin health, anti-diarrheal, anti-depressant, anti-anxiety, UTI's & anti-inflammatory.

There are various types of polyherbal formulations available such as- Handwash, wound healing gel, herbal cold cream, Churna's like Samangadi Churna, Pushyanug Churna, Brihat Gangadhara Churna.

E. Homeopathic Formulations :

In homeopathy, *Mimosa pudica* also known as the "touch-me-not" plant, is made into a mother tincture and then diluted further. This remedy has been traditionally used to help with various conditions, especially inflammation, nerve-related pain, and some gynecological issues.

Key Applications : Inflammation & pain, neurological issues, gynecological complaints, urogenital & digestive health, skin conditions & other traditional uses.

▪ Conclusion :

In conclusion, *Mimosa pudica* stands out as a fascinating plant not only due to its unique morphological characteristics and sensitive movements but also because of its wide-ranging pharmacological and ethnobotanical significance. This comprehensive review has highlighted its botanical identity, global distribution, and diverse morphological traits, underscoring its adaptability and ecological value. Furthermore, *Mimosa pudica* has long been recognized in traditional medicine systems for its therapeutic properties, including anti-inflammatory, antimicrobial, wound healing, and antioxidant activities. These uses have led to the development of various marketed formulations, demonstrating its growing importance in the pharmaceutical and nutraceutical industries. However, despite its promising applications, further scientific validation and standardization of its bioactive compounds are essential to fully harness its medicinal potential. Overall, *Mimosa pudica* remains a plant of great interest for future research and development in both botanical and biomedical fields.

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