

Date of Acceptance: 08<sup>th</sup> Apr, 2024Date of Publication: 16<sup>th</sup> Apr, 2024**AN OVERVIEW ON ETHNOBOTANICAL USES AND PHARMACOLOGICAL  
POTENTIAL OF *Mimosa Pudica* PLANT**Harshal S. Morwal\*, Tejas V. Band, Swapnil P. Dalvi, Dimpal P. Jadhav, Deepak B. Somavanshi, Yogesh S. Ahire,  
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**ABSTRACT:**

*Mimosa Pudica*, commonly known as the "sensitive plant" or "touch-me-not," holds significant ethno-botanical importance and has garnered attention for its pharmacological potential. This review provides an overview of the ethno-botanical uses and pharmacological properties of *Mimosa Pudica*. *Mimosa Pudica* has a rich history of traditional medicinal uses across various cultures. Pharmacological investigations have demonstrated diverse activities of *Mimosa Pudica* extracts and isolated compounds, including anti-inflammatory, antioxidant, antimicrobial, antidiarrheal, analgesic, antipyretic, wound healing, and neuroprotective effects. These findings suggest the therapeutic potential of *Mimosa Pudica* in managing various diseases and health conditions. *Mimosa Pudica* stands as a promising botanical species with ethno-botanical uses deeply rooted in traditional medicine and a growing body of scientific evidence supporting its pharmacological potential. Further research is warranted to elucidate the mechanisms of action, optimize dosages, and explore its clinical applications. Integration of traditional knowledge with modern scientific approaches may lead to the development of novel therapeutic agents derived from *Mimosa Pudica* for the benefit of global health and wellness.

**KEYWORDS:** *Mimosa Pudica*, Alkaloids, Antioxidant, Antimicrobial, Anti-inflammatory.**INTRODUCTION**

*Mimosa Pudica* plant is sensitive plant. It is derived from word "Mimic" means to allude. "Allude" mean the sensitivity of leaf and "Pudica" mean bash full or shrinking. *Mimosa* plant is also called as humble plant, sleeping grass, shame plant, touch me not plant and lajjalu plant. [1] It undergoes changes in their leaf orientation at night so they show nyctinastic movement. In Ayurveda these plants have more ornamental value. They have response to the electrical and mechanical stimulation. This plant is having seis monastic movement. The leaves of these plant fold inward and drop when touched or shaken. [2] These plants protect themselves by self defense mechanism. It has photosynthetic rate upto 40%. It contains electrical as well as mechanical stimulation of *Mimosa Pudica*. Therefore, it leads to the falling down of petioles and closing of a pinna. [3] *Mimosa* contains a specialized structure which is quite similar to various structure of animals. *Mimosa* contains a phloem cell which are necessary for the conduction pathway. *Mimosa* contains motor organs which plays properties similar to animal muscle. *Mimosa* plant contain a neutral capacity which manifest itself through nervous system. [4]

**Botanical Description and Taxonomy:**

This plant is small and rarely exceed 2.5 to 20 cm in height. It is unbranched and has woody erect stem. The leaves are 3.8 to 12.7 cm long. The leaves has 8 to 20 pairs of leaflets. The leaflets are present in the opposite side. The leaflets are 1 cm long. The pair of leaflets are becoming smaller downward and terminal pair are largest. The colour of flower is yellow. Flowers are crowded at pieces of the peducles. Flowers are 8 mm across. It is a dimorphic. The sepals have parallel nerves which are 7mm long. These are lanceolate.[5]

**Synonym**

Life plant, Sensitive plant.

**Taxonomy:**

**Kingdom:** Plantae

**Division:** Magnoliophyta

**Class:** Magnoliopsida

**Order:** Fabales

**Family:** Fabaceae (Leguminosae)

**Genus:** Mimosa

**Species:** Pudica

**Botanical name:** Mimosa Pudica. [7]

**Distribution**

The tropical americas are the natural habitat of *Mimosa Pudica*. Additionally, it can be found in Asian nations. It also droops leaves. The plant, which is native to South and Central America, has spread throughout tropical regions as a weed and has naturalized in other warm climates. In greenhouses, it's usually grown as a curiosity. [8]

**Morphology**

**Root:** Roots of *Mimosa Pudica* having branches of length up to 1 to 3 cm thick. It is grayish brown in colour.

**Stem:** The steam is cylindrical. The length is upto 3 cm in diameter. The external surface of this plant is light brown in colour.

**Leaf:** *Mimosa Pudica* has bipinnale leaves. It contains 10 to 20 pair of leaflets. The size of leaf is about 0.6 to 1.2 cm long . The leaves are arranged symmetrically.

**Flower:** Flower are pink, spherical in globase. It shows radical symmetry and four lobed.

**Fruit:** Fruit of mimosa plant is leguminous simple dry. It is 1 to 1.6 cm broad. It contains 2 to 5 seeds. The food contain cluster of 2 to 8 pods.

**Seed:** Seeds are oval in shape. The seeds are brown in colour. The seed are upto 0.6 cm long and upto 4.8 mm broad. The seeds contain coat which does not undergoes germination.

**Taste:** Bitter.

**Part of plant used:** Roots.

## CHEMICAL COMPOSITION

*Mimosa Pudica* plant shows a bioactive constituent like saponin and quinine.[9] It contains alkaloid mimosine. It also contains 10% tannin. It is made up of D-xylase. It contains gallic acid.[10]

## MECHANISM OF PLANT MOVEMENT

They are immobile in nature. The plant has the tropism and nastic movement.

- **Tropisms:** It contains 2 tropisms.
  - Positive (+) tropism.
  - Negative (-) tropism.
- **Nastic movement:** Plant response to temperature, humidity, light irradiance.
- **Nyctinastic movement:** It is movement in which the circadian rhythm occurs.
- **Thigmonastic movement:** Tigma means to touch. It is the mechanism in which signals can be response to epidermal cell of plant and animal and give response to touch or sensation.[11]

## USES

### Modern claims:

Different parts of *Mimosa Pudica* are widely used in treating various diseases. It is used to treat dysentery, leprosy, urinary problem, skin disease, leukoderma and jaundice. It is also used to treat fever, cough, cholera, tuberculosis, biliousness, burning, sensation, uterine problem and syphilis. Due to apoptic effect this plant is also used to treat cancer. It is also used to treat myalgia. Various part of plant are also used to treat urinary tract infection. They are also used to treat ulcer, conjunctivitis, wound and haemorrhoid and haemorrhages. [12]

### Traditional Uses:

The leaves are used as antiseptic. The dried powder of the plant is used to stop excessive salivation. The plant is a diuretic, tonic, and supportive. It is also used as expectorant drug. It is useful in gonorrhoea, hyperdipsia, asthma. It is also used in snake bite. It is mainly used in convulsion cramps, inflammatory tumors and lithiasis. The plant powder is also used in asthma treatment. [13]

## AYURVEDIC FORMULATION

### Preparation of formulation:

***Mimosa Pudica*:** (For healing wounds)

In these preparation a handful of the fresh leaves are taken → small quantity of water is added → to make the paste.

***Mimosa Pudica*:** (For diarrhea).

A cup of water is boiled → small quantity of *Mimosa Pudica* leaves are added → when there is change in colour of water → it will result into reducing the blood sugar level in the body, anxiety as well as depression.

***Mimosa Pudica* Oil:** A cup of sesame oil is heated → small quantity of *M. pudica* leaves is added in equal quantity to make oil → heat the oil till the sound stops → which indicates that the moisture is removed from the oil.

**Ayurvedic Formulation:**

- Kutaja Avaleha
- Oral BPH capsule
- Selip tablet
- Samagadi churna
- Lakshadi churna
- Pilocure tablet
- Kutajavaleha

**Propagation:**

It is propagated by vegetative method. [6]

**GALLERY:**

**Fig. No.1: *Mimosa Pudica* Plant**

**PHARMACOLOGICAL PROPERTIES AND THERAPEUTIC POTENTIAL****Antipyretic activity:**

A dose of 50 and 100 mg/kg are induce to rat.



It causes results in decrease in body temperature.



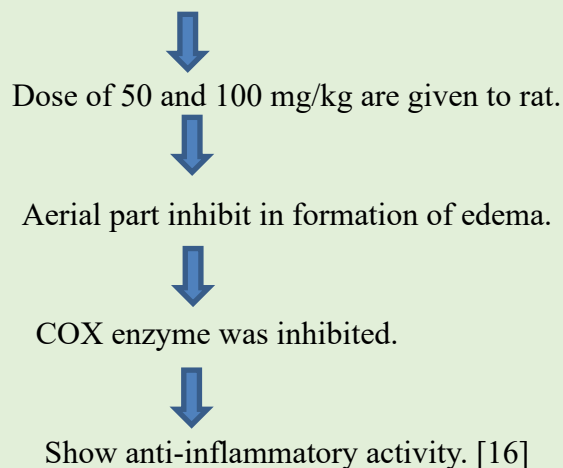
If temperature is reduced then it shows antipyretic activity in rat. [15]

**Anti-inflammatory activity:**

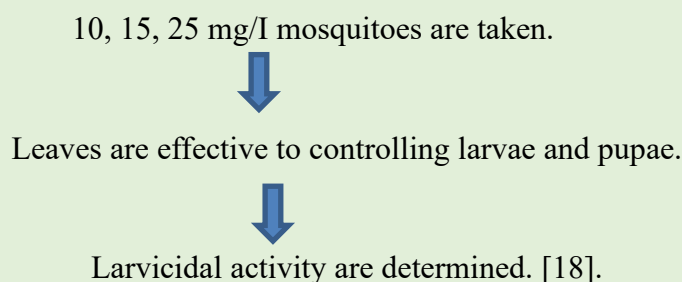
It is determined by 3 models.



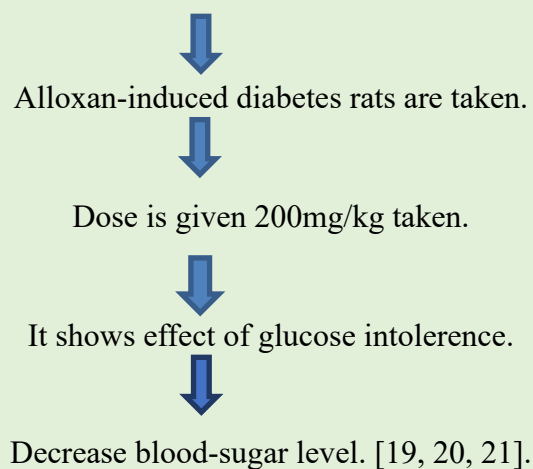
Histamine ( 5-HT ) induced, paw edema model in rats.

**Hypocholesterolaemia effect:**

When hypercholesterolemic rabbits were given a 200 mg/kg oral dose of b. Sensibilium water extract, their lipid profiles were almost back to normal. The conclusion is that b. Sensitum significantly lowers cholesterol. [17]

**Larvicidal activity:****Hypoglycemic activity:**

To determine hypoglycemic activity M. Pudica leaves are used.



## FUTURE PERSPECTIVE

In the future, research on *Mimosa Pudica* must delve into mechanistic insights to understand its pharmacological effects. Rigorous clinical trials are essential for validating its efficacy and safety in humans. Innovation in formulation development, synergistic combinations, and biotechnological approaches can enhance therapeutic outcomes. Standardization and quality control protocols are crucial for consistency and safety. Collaboration with indigenous communities preserves ethno-botanical knowledge. Increasing global awareness among healthcare professionals and policymakers promotes its integration into mainstream healthcare. Embracing a multidisciplinary approach will unlock *Mimosa Pudica* full therapeutic potential, contributing to holistic healthcare solutions and cultural preservation while addressing global health challenges.

## CONCLUSION

In conclusion, *Mimosa Pudica*, commonly known as the "sensitive plant" or "touch-me-not," represents a valuable botanical species with significant ethno-botanical uses and pharmacological potential. Traditional medicine systems across various cultures have long utilized *Mimosa Pudica* for treating a wide range of ailments, reflecting its rich history and cultural significance. Modern scientific research has corroborated many of these traditional uses, unveiling the diverse pharmacological properties of *Mimosa Pudica* extracts and bioactive compounds. Studies have demonstrated its anti-inflammatory, antioxidant, antimicrobial, analgesic, wound healing, and neuroprotective effects, among others, highlighting its therapeutic potential for managing various diseases and health conditions. The presence of bioactive compounds such as alkaloids, flavonoids, and tannins contributes to these observed pharmacological activities. However, further research is needed to fully elucidate the mechanisms of action, optimize dosages, and explore clinical applications of *Mimosa Pudica*-derived therapeutics. Integration of traditional knowledge with modern scientific approaches holds promise for the development of novel therapeutic agents derived from this remarkable plant species.

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