

## A REVIEW ON MEDICINAL PLANT OF MIMOSACAE: MIMOSA HAMATA WILLD IN LIVER DISORDER

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<p><b>*For Correspondence:</b> Department of Pharmacology, Lachoo Memorial College of Science and Technology, Faculty of Pharmacy Autonomous, Jodhpur (Raj)</p>	<p><b>ABSTRACT</b> Mimosa hamata willd. is a flowering shrub of Mimosaceae family which is used in various traditional medicines to cure various diseases. Mimosa hamata willd. and Mimosa pudica are also known as Touch-me-not plant. This weed has been known to possess anti-asthmatic, jaundis, wound-healing, analgesic, anti-inflammatory, contraceptive, anti-microbial, anti-viral, anti-fungal, antioxidant, anti-diarrheal, blood-purifier and contraceptive properties in ancient literatures. A wide range of chemical compounds including 4-ethyl-gallic acid, triterpenic saponin A, B, ethylgallate, mimonoside A, B, C, etc. have been isolated from this plant. Present review summarizes the information concerning botany, ethnopharmacology, phytochemistry, biological activity of Mimosa hamata willd. There is a need to review this plant in order to provide scientific information for its application in traditional and biological medicinal systems.</p> <p><b>KEY WORDS:</b> M. Hamata Willd</p>
<p><b>Received: 25.10.2017</b> <b>Accepted: 22.03.2018</b></p>	
<p><b>Access this article online</b></p>	
<p><b>Website:</b> <a href="http://www.drugresearch.in">www.drugresearch.in</a> <b>Quick Response Code:</b></p>	
	

### INTRODUCTION

#### PLANT PROFILE

***Mimosa Hamata Willd***

**Taxonomy:** *Mimosa hamata willd* falls under the scientific classification as follows:

**Scientific classification:**

- Kingdom-Plantae
- Phylum-Spermatophyta
- Subphylum-Angiospermae
- Order-Fabales
- Family-Mimosaceae
- Genus-*Mimosa*

#### PLANT DESCRIPTION

The plant is branched and is thicket forming, height is around 1.5 meter.

- **Roots** are brown in colour.

- Species-*Hamata*

**Habit:** Shrub

**Habitat:** Moist deciduous forest

**Ecological status:** Rare

**Distribution:** It is found in open sandy places throughout the area, often gregarious and abundant. *Mimosa hamata willd* mainly distributed in the arid zones of Rajasthan, Punjab, Delhi, Central and South India.

- **Stem** is cylindrical in shape with brown branches, the branches possess pinkish stiff spines which are generally straight or curved near apex, young branches with longitudinal ribs and downy with dense growth of small hairs are present.
- **Leaves** are alternate, stipulate, compound, bipinnate, 1.5 to 2.5 cm with rachis densely covered with hairs with 2-4 small curved spines on its abaxial surface.
- **Leaflets** are present 5 to 9 pairs, ovate, oblong, tip acute or mucronate, glabrous on the adaxial surface but densely pubescent beneath, rounded but oblique at base.
- **Inflorescence:** globose head born in the axil of leaves, mostly crowded near the distal ends of young branches.
- **Flowers** are sessile pinkish, tetramerous, actinomorphic.
- **Calyx** are 2 mm long, divided nearly half way down.
- **Corolla** are lobed, ovate-oblong and acute.
- **Stamens** are pink, anther-lobed, creamy yellow, bithecous, basifixed.
- **Gynoecium:** monocarpellary, unilocular, marginal placentation, superior, present on a stalk, elongated, curved and pubescent.
- **Stigmas** are inconspicuous.
- **Fruits** are legume, falcate or spirally coiled, one seeded.
- **Seeds** are oval, green when young turning to chestnut brown on maturation.
- **Flowering:** July-October;
- **Fruiting:** August-November.

#### PHYTOCONSTITUENTS

All the plant parts (stem, leaves, flowers and roots) of *Mimosa hamata* were investigated for the chemical constituents. Therapeutically important compounds isolated from *M. hamata* include 4-ethylgallic acid from fresh flowers. [1], triterpenesaponin B (3-O-Larabiosyl-D-glucosylmorolic acid), mimonoside A, B, C and saponin A (3-O-D-glucosyl-L-rhamnosylmorolic acid) from the roots [2], [3], [4], ethylgallate and gallic acid from leaves [2]

#### LIVER DISORDERS

Liver is multifunctional organ, serves vital function in human body. Hepatocytes are cells of the parenchymal tissue of the liver, involved in synthesis of carbohydrate, protein, cholesterol, bile salt, phospholipid, detoxification and excretion of xenobiotics.

Liver disease can be inherited and caused by variety of factors that damage the liver, such as viruses, certain drugs and alcohol. Obesity is also associated with liver damage. Over time, damage to the liver results in scarring (liver cirrhosis), can lead to liver failure which is a life-threatening condition. [5]

#### PHARMACOLOGICAL ACTIVITY ANTIMICROBIAL ACTIVITY

*M. Hamata willd.* possess antimicrobial activity, crude ethanolic extract of aerial part of *Mimosa hamata* and deproteinized leaf extract showed their inhibitory effect against microorganisms such as bacteria and fungi. [6]

#### ANTIVIRAL ACTIVITY

Ethanolic extract of aerial part of *Mimosa hamata willd* possess antiviral activities against *Herpes simplex*, *Poliomyelites* and *Stomatitis*. Petroleum ether and chloroform extracts also exhibited potential effect against *V. Stomatitis* and *Herpes simplex*. Studies revealed that the bio efficacy of the extracts of whole plant were more effective than the fractions obtained from callus tissues. Methanolic extract of roots were also reported for their antiviral activities against *Measles*, *Semliki forest*, *Herpes simplex* and *Vesicular stomatitis*. [2,6,7]

#### ANTIOXIDANT ACTIVITY

Methanolic extracts of this plant was studied for higher antioxidant activity and result was positive with 6.5  $\mu\text{g ml}^{-1}$  RC value and Comparison to the dichloromethane extracts also revealed that extract of leaves, stem, root and seeds of *M. hamata* have antioxidant potential. [4,8,9]

## APHRODISIAC ACTIVITY

*Mimosa hamata willd* is also used as herbal aphrodisiac for providing ameliorating effect on sexual dysfunction but it has not been clinically evaluated for its aphrodisiac activities. Many herbal aphrodisiac plants have large gap between traditional knowledge and pharmacological evidence.

## TRADITION CLAIMS

The plant is widely used as an anti-asthmatic; wound healing, analgesic, anti-inflammatory, contraceptive, anti-microbial, anti-viral, anti-fungal, antioxidant, blood-purifier, anti-diarrheal and contraceptive agent. Kanjar tribe in Rajasthan use this plant for treatment of bronchitis and diarrhea in children. In Maharashtra its leaves are used for offering prayers to god for the good health of new born. The plant is also used as ornament among various tribes in Maharashtra.

## CONCLUSION

The whole plant of *Mimosa hamata willd* is very useful for various biological activities. Mostly leaves and seeds of *M. hamata willd* are used in the treatment of various human health problems in the form of traditional medicine system. This study insight the better understanding of this plant and provide beneficial health effects for consumption which may use as preliminary information and could be further studies for use in medicine. Further work is required to find out the bioactive compounds from this plant to exploit its maximum potential in the field of medicinal and pharmaceutical sciences for novel and fruitful application.

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