



A Review on *Mimosa Pudica* (Lajvanti): A Beneficial Medicinal Herb.

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Abstract

Nature presents a vast repository of remedies to address all human ailments, preserved through time-honored traditions. Among the legume family, *Mimosa* stands out as one of the largest genera, boasting over 500 species. *Mimosa pudica*, commonly known as the "touch-me-not" plant, Chui Mui, or Shame plant, is a short-lived evergreen shrub renowned for its therapeutic properties. Its various parts possess medicinal value. *Mimosa pudica*, belonging to the *Mimosaceae* family, is often cultivated for its thigmonastic and nyctinastic movements, adding to its ornamental appeal. Rich in flavonoids, plant hormones, glycosides, amino acids, and tannins, *Mimosa pudica* is utilized in preventing or treating various disorders, including cancer, diabetes, hepatitis, obesity, and urinary infections. Its pharmacological profile includes antibacterial, antivenom, antifertility, anticonvulsant, antidepressant, and aphrodisiac properties, among others. Traditionally, this herb has been employed for treating urogenital disorders, piles, dysentery, sinus issues, and wound healing. This article provides a comprehensive review of *Mimosa pudica*, exploring its synonyms, plant movements, morphological traits, chemical constituents, pharmacognostic features, pharmacological activities, and diverse applications. Additionally, this indigenous remedy holds significant references in ancient and modern texts, underscoring its potential for further research and exploration.

Key Words: *Mimosa pudica*, Nastic movements, Aphrodisiac Properties, Antimicrobial, Diabetes.

INTRODUCTION

For millennia, nature has served as a wellspring of medicinal remedies. Across the globe, various cultures have integrated medicinal plants into daily life for the treatment of ailments. Presently, it is estimated that approximately 80% of the global populace relies primarily on medicinal plants or herbal medicines for managing, preventing, and treating a myriad of illnesses.[1-3] The burgeoning interest of researchers in recent years has been drawn to the bioactive substances found within medicinal plants, owing to their potential in combating life-threatening and chronic conditions [1, 4-6]such as cerebrovascular accidents, diabetes, stroke,[7] and arthritis, as well as offering alternative therapies for psychiatric disorders [8] and addressing the healthcare needs of the elderly[6]. Key among these biologically active constituents are alkaloids, flavonoids, tannins, and phenolic compounds.[9]

Mimosa pudica has garnered worldwide attention from researchers due to its diverse pharmacological activities, including anti-diabetic, antitoxin, antihepatotoxic, antioxidant, and wound healing properties. It has been identified to contain alkaloids, glycosides, flavonoids, and tannins. In Ayurveda, it is utilized to alleviate kapha and pitta doshas owing to its bitter, astringent taste, and cooling properties. Every part of the plant is recognized for its medicinal value, serving various purposes such as diuretic,

antispasmodic, emetic, and treatment for conditions like ulcers, dysentery, inflammation, and hemorrhoids. The leaves are particularly beneficial in conditions such as hydrocele, fistula, and conjunctivitis, promoting wound healing and blood clotting. Internally, the whole plant is employed for vesical calculi, while externally, it is applied for edema, rheumatism, myalgia, and uterine tumors.[10]

COMMON NAMES [11, 12]

English: Touch-me-not, Sensitive plant, Humble Plant

Hindi: Lajjavanti, Lajvanti, Chhuimui,

Kannad: Nacikegida, Muttidasenui, Machikegida, Lajjavati, Kashmiri

Malayalam: Tottavati, Tottalvati, Tintarmani

Sanskrit: Lajjalu, Samanga Var;kr;nt; , Namaskari

Tamil: Tittalvati, Tottalcurunki

Assamese: Lajubilata, Adamalati

Bengali: Lajaka, Lajjavanti

Marathi: Lajalu

Oriya: Lajakuri

Punjabi: Lajan

Telugu: Mudugudamara

Urdu: Chhuimui

Assamese: Lajubilata, Adamalati

Gujrati: Risamani, Lajavanti, Lajamani

Chinese: shyness grass

Indonesia: Putri Malu (Shy Princess)

Myanmar: Hti Ka Yoan (crumbles when touched)

Scientific Classification [13]

Kingdom: Plantae

Division: Magnoliophyta

Class: Magnoliopsida

Order: Fabales

Family: Fabaceae

Subfamily: Mimosoideae

Genus: *Mimosa*

Species: *M.pudica*

GEOGRAPHICAL DISTRIBUTION

Originally native to tropical Central and South America, this species has now proliferated throughout tropical regions worldwide, exhibiting a pan-tropical distribution. It has become extensively naturalized in northern and eastern Australia, particularly in the northern regions of the Northern Territory, along the coastal districts of Queensland, and in some inland areas of New South Wales. Additionally, it has established itself on Christmas Island. Thriving in wetter coastal areas, especially within tropical and subtropical regions, it commonly inhabits plantation crops, disturbed sites, pastures, waste areas, parks, lawns, gardens, and roadsides.[14] While it has been introduced to Nigeria, Seychelles, Mauritius, and East Asia, it is not considered invasive in these locations.[15]

MORPHOLOGY [16]**Figure 1- *Mimosa Pudica*****Color, size & Shape**

Root: The roots of *Mimosa pudica* are cylindrical, tapering with secondary and tertiary branches, reaching up to 2 cm in thickness. They feature a longitudinally wrinkled surface with a hard and woody fracture, appearing predominantly grayish-brown to brown in color.

Stem: The stem is cylindrical and branched, measuring about 1.5 m in length and up to 2.5 cm in diameter. Longitudinally grooved, its external surface is light brown, while the internal surface is grey. Initially erect in young plants, the stem tends to become creeping as the plant matures.

Leaf: Characterized by bipinnate compound structures, the leaves are sessile with five primary leaflets that are petiolate, stipulate, and linear lanceolate. They typically feature 10–20 pairs of secondary leaflets, measuring between 0.6 to 1.2 cm in length and 0.3 to 0.4 cm in width. Arranged symmetrically, the leaves exhibit a unique trait of closing upon touch, hence earning the plant the moniker “sensitive tree”.

Flower: *Mimosa pudica* produces pink flowers, arranged in globose heads that emerge from the leaf axils during mid-summer. These flowers measure between 8 to 10 mm in diameter and approximately 0.5 mm in height. Exhibiting radial symmetry, the flowers are four-lobed, featuring four stamens, a sessile ovary, and numerous ovules. Blossoming typically occurs during rainy seasons, with pollination facilitated by insects and wind.

Fruit: The fruits are leguminous and simple, appearing dry and measuring between 1 to 1.6 cm in length and 0.4 to 0.5 cm in width. Each fruit typically contains two to five seeds and forms clusters of two to eight pods, which exhibit prickly margins. Upon maturity, the pods split into two to five segments, revealing pale brown seeds measuring approximately 2.5 mm in length.

Seed: Seeds of *Mimosa pudica* are compressed, oval-elliptic, and range in color from brown to gray. They measure between 0 to 0.3 cm in length and 2.5 mm in width, featuring hard seed coats that hinder germination.

PLANT MOVEMENTS

Plants are rooted in one place hence they are immobile. Time laps photography makes known that parts of plants habitually move. Most plants move too slowly for the passerby to notice. Ecological stimuli such as: light, gravity and mechanical disturbances make a plant to move such as tropisms and nastic movements.

Tropisms:

It is firm by the direction of an ecological stimulus. Movement towards the stimulus is positive tropism, and away from a stimulus

is negative tropism.

Nastic movements:

Plants responses to stimuli (e.g. temperature, humidity, light irradiance) in a non directional way and the movement can be due to changes in turgor or changes in growth.

Table : Types of stimulus triggering the movements

Types of stimulus triggering the movement	Designation
Shaking	Seismonastic
Touching	Thigmonastic
Wounding	Traumatonastic
Light	Photonastic
Heat	Thermonastic
Downward-bending	Epinastic
Movements at night or in the dark	Nyctinastic
Response to chemicals and nutrients	Chemonastic
Response to water	Hydronastic
Response to gravity	Geonastic
Response to contact	Haptonastic

Nyctinastic Movements:

Most leguminous plants have power over nyctinastic movements. In *Mimosa pudica* the pinnules close and open at the usual time was observed by the astronomer de Mairan in 1729 and Hallberg coined the term 'Circadian Rhythm' (circa =approximately, diem = day; hence circadian). According to a circadian rhythm leaves close at night and open in the daytime which is represented as nyctinasty. [17]

Thigmonastic Movements:

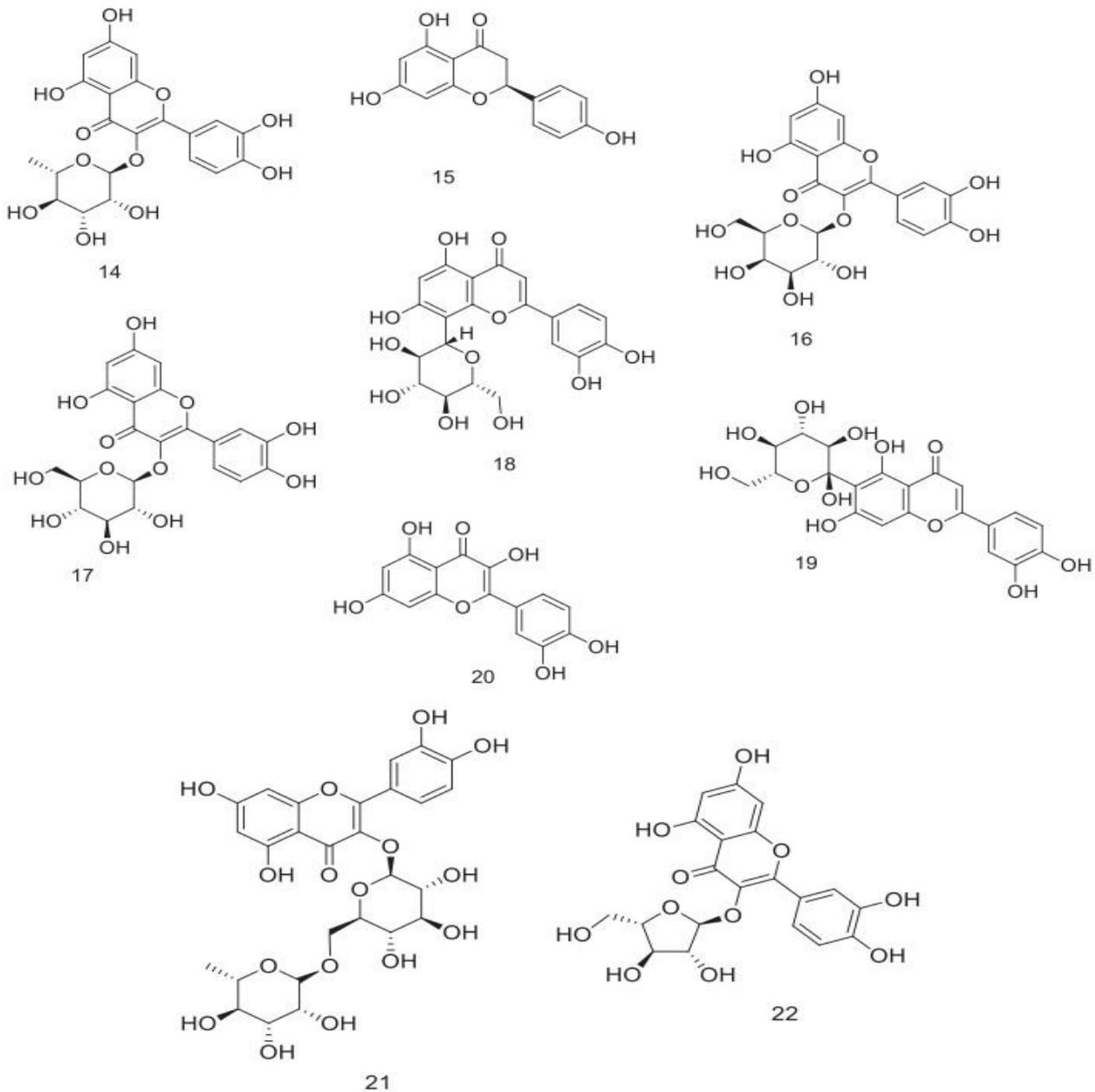
(thigma is the Greek word for touch) A touch stimulation results in a very rapid folding up of the small leaflets composing the doubly compound leaves. Remarkably, the touch response is not restricted to the stimulated leaflet, but can propagate to all the neighboring leaflets of the leaf. A complex electrical signal can be responded by the epidermal cell of plants and animals and capable of sensing mechanical touch which is essential for an organ to function. Sensory hairs found in the surface extrusions enhance the sensitivity e.g. the lower part of leaf joints of *Mimosa pudica* or sensory papillae.

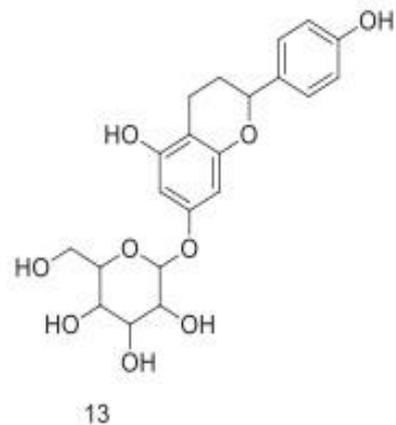
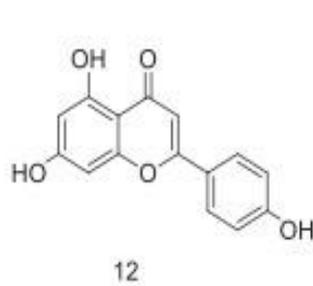
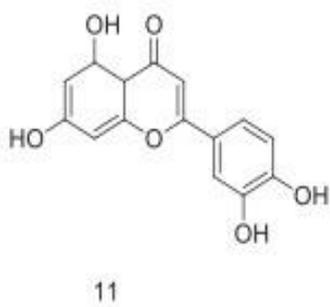
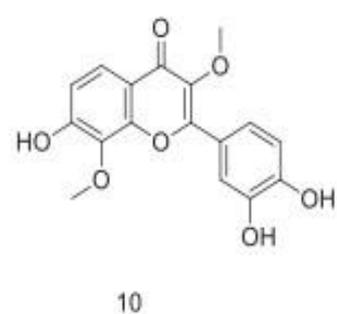
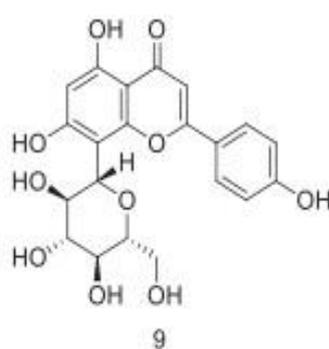
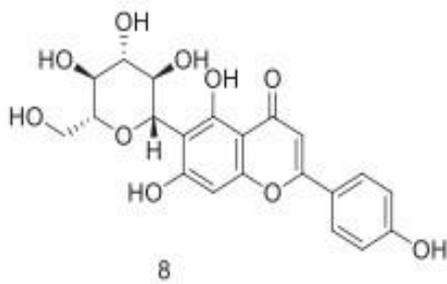
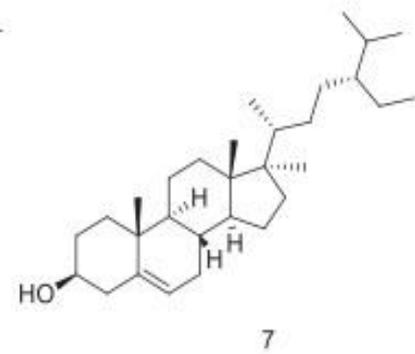
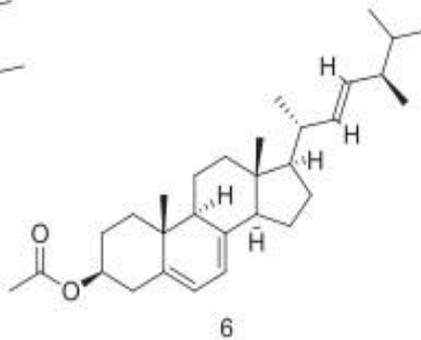
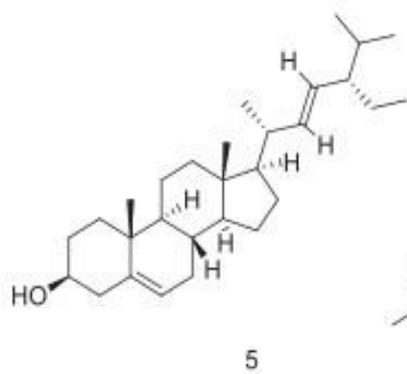
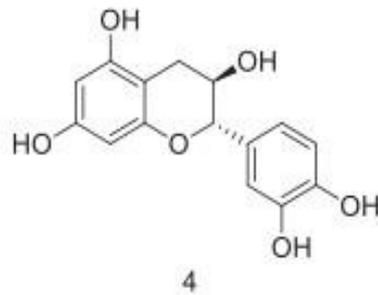
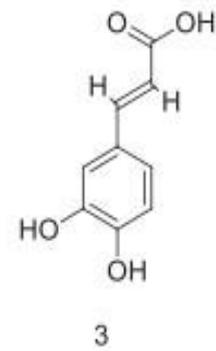
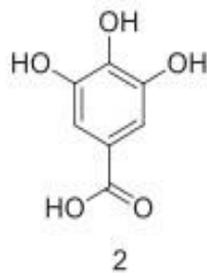
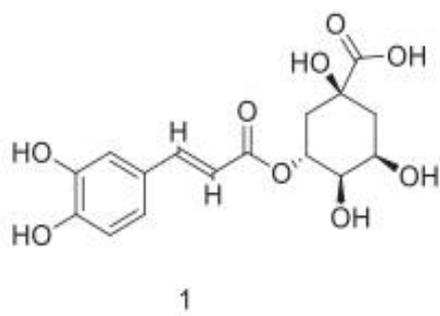
PHYTOCHEMISTRY

Preliminary phytochemical screening of *Mimosa pudica* extracts has revealed a diverse array of bioactive compounds, including alkaloids, saponins, flavonoids, phenols, amino acids, proteins, inulin, steroids, carbohydrates, terpenoids, and tannins.[18-19] Various studies have identified specific constituents such as phenolic acids, flavonoids, fatty acids, and steroids through techniques like LC-MS analysis, high-performance liquid chromatography (HPLC), microwave-assisted extraction (MAE), supercritical fluid extraction (SPE), and column chromatography. These compounds, including gallic acid, chlorogenic acid, ferulic acid, hyperoside, luteolin, rutin, quercetin, avicularin, stigmaterol, and myricetin, exhibit a wide range of pharmacological activities, highlighting the therapeutic potential of *Mimosa pudica*. [20]

Polyphenols, ubiquitous bioactive compounds found throughout nature, possess an array of remarkable properties including biocompatibility, bioadhesion, antioxidant, and antibacterial capabilities.[21] Plants synthesize these substances as a defense mechanism against environmental stressors such as ultraviolet light and pathogens. Commonly occurring in fruits, vegetables, cereals, tea, coffee, and wine, polyphenols are broadly categorized into flavonoids and non-flavonoids. Flavonoids encompass anthocyanidins, flavones, flavanones, and chalcones, while non-flavonoids include stilbenes, phenolic acids, and saponins.[22] These compounds, found in plants either as free aglycones or esterified with glucose and other carbohydrates, exhibit strong noncovalent and covalent interactions due to their distinct chemical structures.[23] *Mimosa* plants contain various

phenolic compounds such as catechin, gallic acid, caffeic acid, and chlorogenic acid, each exhibiting unique therapeutic properties including antioxidant, antimicrobial, and anti-inflammatory effects.[24] Flavonoids like luteolin, ferulic acid, quercetin, and rutin found in mimosa are renowned for their pharmacological effects against cancer cardiovascular issues, inflammation, and hypoglycemia.[25] Plant sterols, another group of bioactive compounds, are present in trace amounts in plant-based foods and are essential components of biological membranes. They regulate various plant functions and exist in forms such as free hydroxyl molecules, esters, sterol glycosides, and acylsterol glycosides.[26,27] *M. pudica* contains sterols like beta-sitosterol, stigmasterol, and ergosterol acetate, each with distinct properties. Stigmasterol, for instance, has been associated with immune modulation and inhibition of pro-inflammatory factors, while beta-sitosterol exhibits analgesic, immunomodulatory, antimicrobial, and anticancer effects.[28]





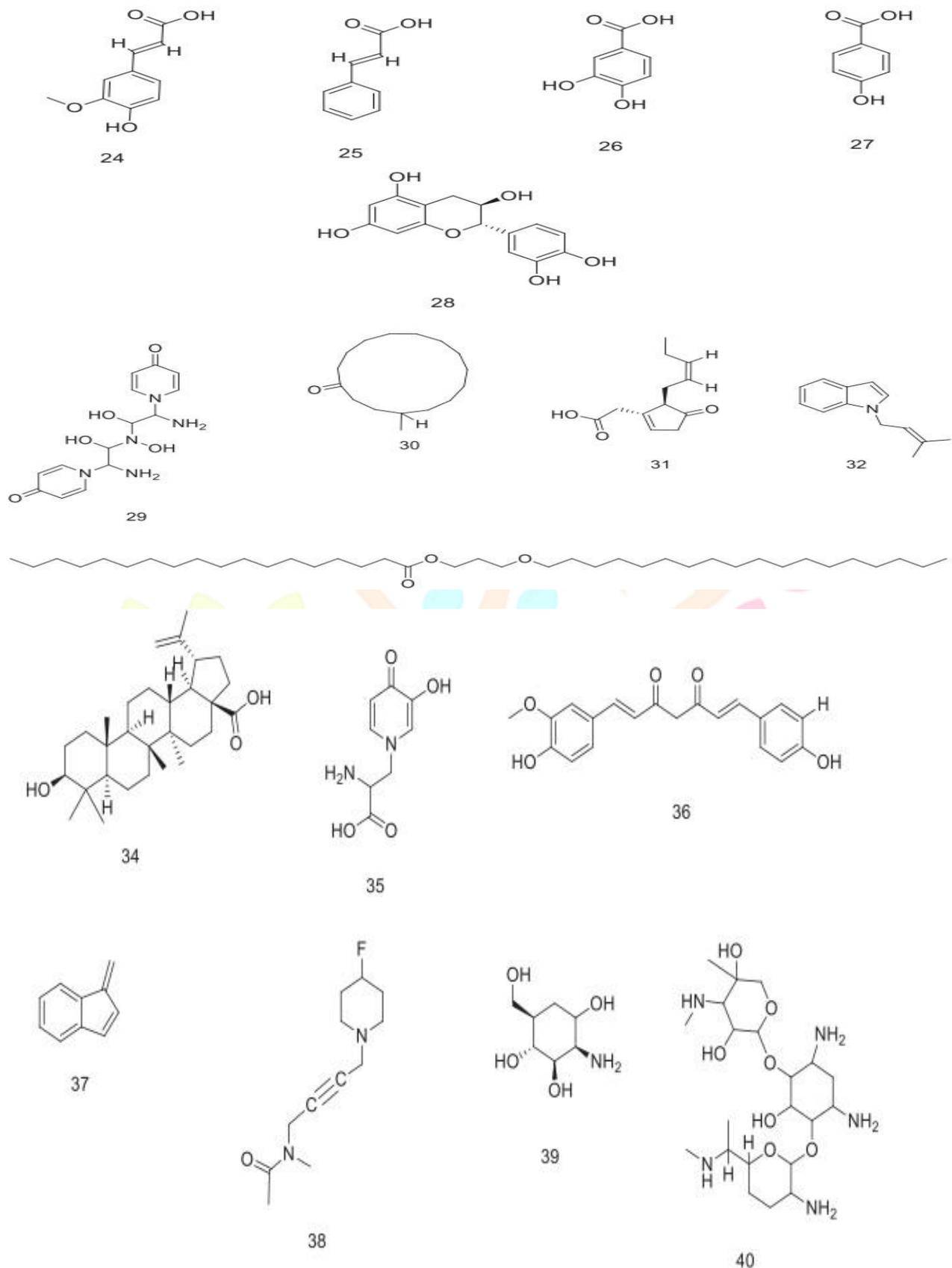


Figure 2- Bioactive compounds identified from the leaves, roots, stems and flowers of *M. pudica* 1. Chlorogenic acid, 2. Gallic acid, 3. Caffeic acid, 4. Catechin, 5. Stigmasterol, 6. Ergosteryl acetate, 7. β -Sitosterol, 8. Isovitexin, 9. Vitexin, 10. 7,3'-4'-trihydroxy3,8-dimethoxyflavone, 11. Luteolin, 12. Apigenin, 13. Apigenin-7-d-glucoside, 14. Quercitrin, 15. Naringenin, 16. Hyperoside, 17. Isoquercitrin, 18. Orientin, 19. Isorientin, 20. Quercetin, 21. Orientin, 22. Rutin, 23. Avicularin, 24. Ferulic acid, 25. Cinnamic acid, 26. Protocatechuic acid, 27. 4-Hydroxybenzoic acid, 28. Catechin, 29. Mimopudine, 30. 4-methyl cyclopentadecanone, 31. Jasmonic acid, 32. 1H-Indole, 1-(3-methyl-2-butenyl)-, 33. Stearic acid, 3-(octadecyloxy) propyl ester, 34. Betulinic acid, 35. L-mimosine, 36. Curcumin, 37. 1-methylene-1H-indene, 38. Acetamide, N-methyl-N-[4-[4-fluoro-1-hexahydropyridyl]-2-butenyl], 39. Mannosamine, 40. Gentamicin

TRADITIONAL USES OF MIMOSA PUDICA

Mimosa pudica, known for its bitter and cooling properties, has been extensively utilized in traditional medicine systems such as Ayurveda and Unani for treating a wide array of ailments. According to Ayurveda, the root of *M. pudica* is employed in the treatment of conditions like leprosy, dysentery, inflammation, among others [29]. In the Unani system, the root is utilized to address diseases stemming from blood impurities and bile, including bilious fevers, piles, and jaundice. Additionally, a decoction of the root is used to alleviate toothaches and has been observed to aid in wound healing and blood clotting.[30] Furthermore, it finds its place in herbal preparations for gynecological disorders and has shown efficacy in managing diarrhea, amoebic dysentery, and various skin conditions. Studies have also explored its potential in treating neurological issues.[31]

In traditional healthcare practices, various parts of the plant, including the flower, root, stem, leaves, and fruits, are utilized as medicines. In India, these components have been used for generations to treat diverse ailments. Researchers have noted its effectiveness in calming the mind, alleviating depression, mental distress, irritability, and amnesia. Additionally, it is employed to uplift mood, enhance blood circulation, promote healthy cell growth, and prevent bladder.[32]

Even in Western medicine, the root of *M. pudica* has found applications in treating insomnia, irritability, premenstrual syndrome, hemorrhoids, and whooping cough [33].

PHARMACOLOGICAL ACTION:

Anti-ulcer Activity: The anti-ulcer activity of *Mimosa pudica* extracts was evaluated using 90% ethanol, methanol, chloroform, and diethyl ether extracts in albino rats. Various models, including aspirin-induced, alcohol-induced, and pylorus ligation-induced ulcers, were employed. Parameters such as ulcer protection, gastric ulcer protection, reduction in total volume of gastric juice, free and total acidity of gastric secretion were assessed. Extract doses of 100 and 200 mg/kg were administered orally, with a standard drug, Ranitidine, at 20 mg/kg. The extracts were deemed safe up to 2000 mg/kg body weight, with the 100 mg/kg dose exhibiting significant activity.[34]

Anti-inflammatory Activity: Petroleum ether, ethanol, and aqueous extracts were utilized to investigate anti-inflammatory activity in male albino rats. Models employed included Carrageenan-induced paw edema and cotton pellet granuloma. Evaluation criteria involved assessing reduction in edema induced by Carrageenan. Extract doses of 50, 100, and 200 mg/kg were administered orally, with Indomethacin used as the standard at 10 mg/kg.[35]

Anti-microbial Activity: The methanolic extract of *Mimosa pudica* leaves was tested against microorganisms such as *Aspergillus fumigatus*, *Citrobacter divergens*, and *Klebsiella pneumonia* at concentrations of 50, 100, and 200 µg/ml. Active substances identified in the extract included terpenoids, flavonoids, glycosides, alkaloids, quinines, phenols, tannins, saponins, and coumarin, which may contribute to its antimicrobial properties.[40]

Anti-malaria Activity: The methanolic extract of *Mimosa pudica* was evaluated for its anti-malarial activity against *Plasmodium berghei*. Active constituents such as terpenoids, flavonoids, and alkaloids were identified, potentially contributing to its anti-malarial properties.[37]

Antifungal Activity: Methanolic and aqueous extracts of *Mimosa pudica* leaves were evaluated against *Aspergillus fumigatus* using a well diffusion assay at concentrations 100, 200, and 500 µg.[37]

Carcinogenic Potential: Aqueous and alcoholic extracts of *Mimosa pudica* seeds were tested against *S. typhimurium*.

Wound Healing Activity: The methanolic extract of *Mimosa pudica* shoots, known to contain phenolic constituents, exhibited notable wound healing properties. The evaluation methods included excision, incision, and estimation of biochemical parameters.

Analgesic Activity: Ethanolic extract of *Mimosa pudica* leaves demonstrated activity at concentrations of 200 and 400 mg/kg. The active compound responsible for this effect is flavonoids. Various models such as the hot plate method, tail flick model, and acetic acid-induced writhing model were employed.[36]

Anti-convulsant Activity: Decoction of *Mimosa pudica* leaves, when administered intraperitoneally at concentrations of 1000-4000 mg/kg, exhibited anti-convulsant activity.[37]

Anti-diarrheal Activity: Ethanolic extract of *Mimosa pudica* leaves, at doses of 200 and 400 mg/kg, showed significant anti-diarrheal activity. Tannins and flavonoids were identified as bioactive constituents contributing to this effect. [37]

Anti-fertility: Methanolic root extracts of *Mimosa pudica*, administered orally at a dose of 300 mg/kg body weight/day, prolonged the estrous cycle and altered estradiol secretion and gonadotropin release. [37]

Antioxidant Activity: Methanolic crude extract of aerial parts of *Mimosa pudica* exhibited moderate antioxidant activity. Various assays including scavenging of hydrogen peroxide, DPPH assay, ABTS radical cation decolorization assay, and scavenging of nitric oxide radical were employed to assess its antioxidant potential.[39]

Anti-hepatotoxic Activity: Ethanolic extract of *Mimosa pudica* showed dose-dependent hepatoprotective effects in CCl₄-induced hepatic damage in Wistar albino rats. [38]

Anthelmintic Activity: Various extracts of *Mimosa pudica* seeds showed anthelmintic activity against *Pheretima posthuma*, with alcoholic and aqueous extracts exhibiting paralysis and causing death in a dose-dependent manner compared to the standard drug Albendazole.[36]

Aphrodisiac Property: Ethanolic extract of *Mimosa pudica* roots demonstrated significant and sustained increase in aphrodisiac activity in male mice without adverse effects.[34]

Anti-hyperglycemic Activity: Chloroform extract of *Mimosa pudica* leaves showed anti-hyperglycemic activity in Wistar albino rats, possibly attributed to flavonoids, glycosides, and alkaloids.[37]

Antivenom Activity: Aqueous extracts of dried roots of *Mimosa pudica* demonstrated antivenom activity against *Naja naja* and *Bangarus caeruleus* venoms. [37]

Spasmogenetic Potential: Ethanolic extracts of *Mimosa pudica* whole plants were used to determine spasmogenetic activity in guinea pigs. [37]

Regeneration of Sciatic Nerve: Extract of *Mimosa pudica* showed higher rates of regeneration of the sciatic nerve in rats with experimental injury. [37]

Effect on urine Bleeding: Aqueous extract of *Mimosa pudica* root powder was tested for its effects on patients with dysfunctional uterine bleeding. [37]

Diuretic Effect: Decoction of *Mimosa pudica* leaves exhibited diuretic activity in dogs and rats without affecting potassium excretion. [37]

Antidepressant Activity: Aqueous extracts from dried leaves of *Mimosa pudica* demonstrated behavioral actions in rats, indicating potential antidepressant activity. [37]

Depilatory Effect: Toxic alkaloid L-mimosine present in higher proportion in leaves exhibited a depilatory effect on mice.[41]

Neuroprotective Activity: Aqueous extract of *Mimosa pudica* leaves showed restorative and therapeutic effects on cadmium-induced neurotoxicity in rats.[42]

TOXICITY EFFECTS:

In an acute toxicity study, the administration of the chloroform extract of *M. pudica* leaf at 2000 mg/kg did not induce any toxic symptoms or mortality in rats. Similarly, Parasuraman et al. reported that doses up to 2000 mg/kg of the methanolic extract of *M. pudica* leaf did not result in mortality in their study.[43]

Sunday [44] conducted sub-chronic toxicity studies using hydroethanolic seed extract of *M. pudica* on Wistar rats. Administration of doses ranging from 100 to 400 mg/kg did not cause changes in creatinine, ALT, AST, or Thiobarbituric acid reactive substances (TBARS) levels. However, there was a significant reduction observed in GSH and CAT levels compared to the control group. No fatalities were recorded even at a dose of 5000 mg/kg.

Konsue et al.[46] evaluated the toxicological impact of aqueous and hydroalcoholic *M. pudica* extracts on rats over an 8-week period. Parameters such as white blood cells, red blood cells, hemoglobin, hematocrit (Hct), platelet count, mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH), mean corpuscular hemoglobin concentration (MCHC), lymphocytes,

monocytes, neutrophils, eosinophils, and fasting blood sugar were assessed. Results indicated no adverse effects on hematological parameters or fasting blood glucose levels, with no fatalities recorded during the study.

In another study by Aziz et al. [45], mice were administered subcutaneous doses of chloroform, methanol, and ethanol extracts of *M. pudica* ranging from 500 to 2000 mg/kg. Observation over a 14-day period revealed no signs of toxicity or mortality, suggesting that *M. pudica* extracts may be considered safe up to 2000 mg/kg.

USES:

Mimosa pudica offers a diverse range of applications in various health conditions:

Hypolipidemic: The chloroform extract of *Mimosa pudica* exhibits hypolipidemic activity attributed to the presence of glycosides, flavonoids, and alkaloids [50].

Migraine: Lajvanti paste, derived from *Mimosa pudica*, is applied to the forehead to alleviate migraine symptoms by balancing the pitta dosha [47,48].

High Blood Pressure: Crushing the leaves and preparing juice for consumption, 15 ml twice daily, is known to help manage high blood pressure [49].

Piles: *Mimosa pudica* aids in managing piles by balancing pitta and kapha doshas. Decoctions made from its roots, taken orally, or its powder mixed with milk, prove beneficial [50].

Antipyretic: Leaf extracts of *Mimosa pudica* demonstrate antipyretic properties, reducing body temperature significantly. Terpenoids, flavonoids, and alkaloids present in the leaves contribute to this effect [51].

Toothache: Gargling with a decoction made from the plant's roots maintains oral hygiene and alleviates toothache. Additionally, applying a paste of root fried in ghee directly to affected teeth provides relief [52].

Contraceptive: *Mimosa pudica* exhibits spermicidal properties and reduces testosterone levels, making it useful as a contraceptive. Fresh juice or aqueous root powder extracts can be used for this purpose.

Premature Ejaculation: Mixing *Mimosa pudica* seeds with sugar and consuming two tablespoons with milk at night is recommended for managing premature ejaculation.

Depression: Aqueous extracts from dried leaves of *Mimosa pudica* act as antidepressants, increasing serotonin levels and reducing stress, tiredness and fatigue.

Alopecia: *Mimosa pudica* aids in preventing hair fall by balancing pitta dosha and promoting new hair cell growth. Herbal shampoos containing *Mimosa pudica* extracts are effective in managing alopecia.[53]

Snake Bite: The plant's root extract inhibits the activity of snake venom, neutralizing its effects and acting as an antivenom.

Breast Uplift: A paste of *Mimosa pudica*, combined with ashwagandha roots, is applied to uplift breasts, avoiding the need for surgery.

Cough and Asthma: *Mimosa pudica* is used to alleviate symptoms of whooping cough, asthma, and chronic respiratory disorders by consuming its juice twice daily [54].

Insect Bites: Applying a paste of ground leaves and stems to affected areas twice daily provides relief from insect bites.

Kidney Stones: Decoctions made from *Mimosa pudica* roots are consumed to alleviate renal stones and urinary complaints [55].

Antidiabetic: Ethanolic extracts of *Mimosa pudica* leaves possess antidiabetic properties by altering carbohydrate-metabolizing enzymes' activity and insulin secretion [56]

Minor Cuts and Wounds: *Mimosa pudica* aids in wound healing by applying root paste to wounds, reducing bleeding and inflammation. Additionally, crushed leaves or plant paste, combined with sesame oil, serve as an antiseptic for fresh wounds. In Western medicine, *Mimosa* root can be used to treat hemorrhage and urinary infections [57].

CONCLUSION AND FUTURE PERSPECTIVES

This comprehensive review aims to consolidate and present the latest insights into the ethnopharmacological applications, geographical distribution, phytochemical constituents, toxicity profile, and pharmacological properties of *M. pudica*. Traditionally, *M. pudica* has been revered for its diverse therapeutic uses, encompassing ailments such as cancer, diarrhea, diabetes, alopecia, and snake bites. Phytochemical analyses have revealed a spectrum of bioactive compounds in *M. pudica*, including polyphenols, flavonoids, and essential oils, underscoring its medicinal potential. Across various studies, *M. pudica* has exhibited a range of beneficial effects, including hepatoprotective, anti-inflammatory, antimicrobial, and neuroprotective activities. However, while traditional knowledge supports its efficacy in treating certain conditions, scientific validation remains sparse for diseases like diarrhea, rheumatism, and tuberculosis. Consequently, there's a pressing need for rigorous research, employing innovative methods, to elucidate the pharmacological mechanisms and validate traditional claims. Additionally, emphasis should be placed on conducting clinical trials and quality control assessments to ascertain optimal dosages and pharmacokinetics for *M. pudica*'s therapeutic application and pharmaceutical development.

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