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A Review on Medicinal Properties and Chemical Constituents on *Lantana camara* Linn.

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ABSTRACT

The understanding of conventional medicine and medicinal plants, as well as their research into scientific chemical principles, may result in the development of newer, less expensive medications. India has a long history of using plant-based knowledge to treat illness. This research confirmed *Lantana camara*'s therapeutic potential in contemporary medicine and identified it as a prospective target for drug discovery. The pharmacological activities are reviewed in this article. It is commonly known that *Lantana camara* may treat a number of illnesses and is a common ingredient in many traditional medicines. Scientists and researchers from all over the world have meticulously investigated the chemical makeup of the entire plant of L. camara as well as its biological and pharmacological activity in recent decades.

INTRODUCTION:

Lantana camara Linn. is a member of the Verbenaceae family and is a flowering ornamental plant. L. camara is also known as West Indian lantana, wild sage, Surinam tea plant, and Spanish flag. L. camara was most likely imported to India before the 19th century.

Currently, L. camara is found all throughout India on sloping settings with well-drained soil and moderate to high summer rainfall. The majority of varieties favour fertile organic soils, but some or all can thrive on siliceous sands and soils formed from sandstone as long as other circumstances, particularly year-round precipitation, are sufficient and these soils are of reasonable depth.

Taxonomy:

- Kingdom: Planate;
- Division: Magnoliophyta
- ;Class: Magnoliopsida;
- Order: Lamiales;
- Family: Verbenaceae;
- Genus: Lantana;
- Species: *Lantana camara* Linn.

Plant description:

Figure 1 reports L. camara's morphology. Having a tetrangular stem, thick, recurved leaves, and a potent aroma of black currents, L. camara is a short, upright or subscandent, vigorous shrub. The plant can stretch out to a width of 2.5 metres and reach heights of 1 to 3 metres. The leaves are scabrid on both sides, elliptical or ovate-oblong, acute or subacute, crenate serrate, rugose above, and acute or subacute. Umbels, or little flower clusters, are bound together. The colour of the flower typically changes as it ages, sometimes ranging from white to crimson in various shades. Ovary with two cells and two ovules, as well as four stems arranged in two pairs. 20–40 sessile flowers are present in the compact, 2-3 cm wide, dome-

shaped inflorescences. [3]

Ethnopharmacology:

L. camara is a significant medicinal plant with numerous applications in the conventional medical system. In many regions of the world, it has been utilised to treat various health issues. Cuts, rheumatisms, ulcers, catarrhal infections, tetanus, cancer, chicken pox, asthma, ulcer, swelling, eczema, tumour, high blood pressure, bilious fever, ataxy of abdominal viscera, sores, fevers, colds, and high blood pressure are all treated with leaves. In Ghana, the whole plant is infused to treat bronchitis, and children were given the powdered root in milk to treat stomachaches and as a vermifuge. Lantana oil is used as an antiseptic for wounds and to cure skin rashes and itches. External application of decoctions was used for leprosy and scabies. [4-6]

Antibacterial activity:

L. camara leaves and roots were discovered to have antibacterial properties in ethanol extracts. The microdilution method was used to test the in vitro antibacterial activity. The extracts shown antibacterial efficacy against two multiresistant strains of *E. coli* and *S. aureus, Proteus vulgaris, Pseudomonas aeruginosa, Vbrio cholareae,* and *Staphylococcus aureus* [7]. Significant antibacterial activity against E. coli, Bacillus subtilis, and P. aeruginosa was shown by three distinct solvent extracts of the leaves and flowers of four different varieties of L. camara, but not against Staphylococcus aureus. [8]

Antiurolithiatic activity:

In male albino rats, calcium oxalate urolithiasis caused by ethylene glycol and ammonium chloride was treated with an ethanol extract from L. camara leaves. The use of extracts dramatically decreased calcium and oxalate deposits as well as calcium, oxalate, and creatinine excretion from the urine. [9]

Antiulcerogenic activity:

The methanol extract of L. camara leaves has been shown to have antiulcerogenic efficacy against aspirin, ethanol, and cold-resistant stress-induced stomach ulcers in rats. Aspirin-induced, ethanol-induced, and cold restraint stress-induced ulcers in rats were significantly protected when the extract was pre-treated with the affected animals (200 and 400 mg/kg

body weight). In all models, the extract had dose-dependent antiulcerogenic efficacy. [10]

Hemolytic activity:

By using a modified spectroscopic technique, the hemolytic activity of L. camara aqueous extract and its solvent fractions was assessed at four different concentrations (125, 250, 500, and 1000 g/ml). The aqueous extract's and its solvent fractions' hemolytic activity towards human erythrocytes was incredibly low. The following order was observed for the different extracts' hemolytic activity: Aqueous extract > ethanol extract > methanol fraction > chloroform fraction > hexane and ethyl acetate fraction (50:50). [11]

Wound healing activity:

In adult male Wister rats, the ethanol extract of L. camara leaf was found to have wound-healing properties. The extract's topical administration to the wound dramatically accelerated wound healing. The role of extract in healing was confirmed by histological examinations of cured lesions. Aqueous L. camara leaf extract was reported to have wound healing properties in another investigation when applied to rats. Topical administration of the extract (100 mg/kg/day) significantly increased wound contraction (98%), collagen synthesis, and speed of wound healing. [12, 13]

Anti-inflammatory activity:

The anti-inflammatory effects of L. camara's aqueous extract in albino rats have been documented. In a rat carrageenan-induced paw oedema test, extract treatment (500mg/kg body weight) significantly lowered the paw volume. [14]

Toxicology:

L. camara is one of the top ten or one of the most dangerous plants currently known. There have been reports of L. camara toxicity in Australia, India, New Zealand, South Africa, and America. However, toxicity only manifests itself when a significant amount of plant material is consumed. According to reports, lantadenes A, B, and D as well as icterogenic acid poisoning can be harmful to sheep, cattle, and goats, but not to horses, rats, newborn calves, or lambs. Jaundice and photosensitization are two prominent clinical symptoms of poisoning. Animals poisoned have loss of appetite and a decrease in appetite within 24 hours. The animals who are poisoned the most quickly pass away within two days, while most animals

die one to three days later. [15,16]

Eject on red blood cells:

Researchers looked at how an aqueous *Lantana camara* extract affected RBC shape and osmotic fragility. The data showed that hemolysis increased and RBC shape changed significantly (p 0.05) when the extract was present. These *Lantana camara* effects may be related to some of the chemical components in the aqueous extract's pharmacological activities. [17]

CONCLUSION:

In many cultures around the world, *lantana camara*, which is regarded as a weed, is utilised as a traditional remedy. Studies on the plant's phytochemistry revealed that it is abundant in essential oils and free of diterpenoids. *Lantana camara* has been reported to contain monoterpenes, triterpenes, flavones, coumarin, steroids, and iridoid glycosides. The more prevalent secondary metabolites in the Lantana camera are triterpenes and flavones. Lantana leaf extracts have nematicidal, insecticidal, fungicidal, and antibacterial activities. which have antibacterial, immunosuppressive, and anti-tumor properties. Lantana oil is occasionally used to relieve skin itchiness, as an antiseptic for wounds, and topically for scabies and leprosy. The majority of pharmacological research was preliminary, conducted on animals, and is insufficient for the creation of pharmaceutical products. Nevertheless, comprehensive preclinical and clinical research.

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