IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 2, October 2025
Impact Factor: 7.67

Lantana Camara Linn Use as Wound Healing Agent

Khushi R. Chordiya[1], Gaurav B. Ghorpade[2], Mansi A. Takle[3], Vishal B. Gholap[4]
Prof. Shubham V. Gholap[5]
Students, Department of Pharmacy[1,2,3,4]
Guide, Department of Pharmacy[5]
Mrs. Saraswati Wani College of Pharmacy, Ganegaon, Maharashtra
Affiliated to Dr Babasaheb Aambedkar Technological University, Lonore, Raigad

Abstract: *Lantana camara L. (Family: Verbenaceae); native to America, is an invasive weed in many parts of the world. İt is famous for its highly scented, various color flowers and is planted as an ornamental plant species. Due to wide seed dispersal, high tolerance capacity, and allelopathic effect on native plant species, it has rapidly spread in non-native regions around the globe. Several reports of its negative ecological impact are well-known, and an effective management strategy is desired to combat this invasive plant. In this regard, utilization of its beneficial potential could be a better alternative to fulfill many of the sustainable development goals. The present article is, therefore, an attempt to assess its ethnomedicinal prospects, chemical constituents, and pharmacological potential in view of the scientific investigations undertaken so far. For this purpose, online scientific databases were thoroughly searched using notable keywords, and relevant information was compiled. Lantana camara is traditionally used in many cultures for the treatment of various diseases, for example, fever, arthritis, rheumatism, headache, respiratory infections, neurological disorders, gastrointestinal disturbances, etc. Phytochemical investigations have identified a variety of bioactive compounds such as lantadenes, humulene, caryophyllene, apigenin, quercetin, epicatechin, lancamarinic acid, lancamarin, etc. from its various parts. Besides, several important biological activities, for example, antioxidant, anti-inflammatory, anticancer, hepatoprotective, antimicrobial, spermicidal, anti-nociceptive, analgesic, etc., have been demonstrated in scientific studies carried out in different regions of the world. However, the plant has shown liver toxicity in animals and hence, for thorough assessment of its safety profile is warranted. This review aims to provide a comprehensive compilation of the currently available knowledge on the traditional uses, phytochemical, and pharmacological profile of L. camara, highlighting its therapeutic potential, toxicological risks, and the need for further research to validate its efficacy and ensure its safe medicinal use. It will be advantageous for policymakers to create a roadmap for the sustainable management of its menace in the non-native areas.[2].*

Keywords: Lantana Camara, Wound Healin Agent, Pharmacology, Phytochemical, Traditional Use

I. INTRODUCTION

Throughout human history, plants have played a vital role as medicine. Traditional medicinal systems, namely, Ayurveda, Siddha, Unani, Sowa-Rigpa, Traditional Chinese Medicine etc., have relied primarily on plant-based remedies for the treatment of a variety of illnesses and health conditions. Plants are a rich source of natural compounds having therapeutic potential and serve as the foundation for modern pharmaceuticals1. Lantana camara L.; hereafter referred to as Lantana; is a member of the Dicot family Verbenaceae and called as Red Sage, Wild Sage, Pigeon berry, Large leaf Lantana, Ghaneri, Tontani, Landana chedi, Phul-lakri, Njandukali, etc. in various languages2. It is a perennial, aromatic, spiny shrub; native to Central and South America and now widely distributed throughout tropical and subtropical regions of the world. Usually, it grows luxuriantly in disturbed habitats, roadsides, and forest margins. Due to its aggressive growth and allelopathic behaviour, it is known as a Global Invasive Species (GIS), responsible for ecological disruption and the

IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 2, October 2025
Impact Factor: 7.67

displacement of native flora in several countries. Its high adaptability to survive in drought conditions and showing resistance to browsing due to high tannin content, autocompatibility, pollination by different insects, high seed output, etc. are some of the important reasons for its global invasion. Being allelopathic, Lantana has affected native biodiversity of invaded regions, declined soil fertility, and altered ecosystem processes3. Plant invasions are predominantly a consequence of anthropogenic global climate change. Invasive species are not only causing a threat to native biodiversity but also disturbing agricultural productivity, depleting water and air quality, and affecting both below and above-ground microbial diversity4. Management of invasive species, therefore, requires a holistic approach. Shackleton et al.5 suggest role of interdisciplinary and transdisciplinary collaborations to understand the perception of individuals and communities and provide a conceptual framework for the management of invasive species. Use of plants for therapeutic purposes could be an effective strategy to combat any negative impact associated with them. Given this, beyond the allelopathic behavior, Lantana also holds significant ethnobotanical and pharmacological interest due to its long-standing use in traditional medicine systems across various cultures. In recent decades, several scientific studies have been carried out to explore the phytochemical constituents and pharmacological properties of Lantana6. Many bioactive compounds belonging to the category of triterpenoids, flavonoids, sesquiterpenoids, alkaloids, and phenolic acids have been isolated from the plant. Some of these phyto-pharmaceuticals have also exhibited valuable biological activities, for example, antioxidant, anticancer, antidiabetic, anti-inflammatory, anti-ulcer, analgesic, anti-ageing etc. These findings emphasize the potential of Lantana as a source of novel therapeutic agents. The present paper aims to provide a comprehensive updated overview of the traditional knowledge, phytochemical constituents, and pharmacological properties of Lantana, highlighting recent advances, current challenges, and prospects. Despite its negative ecological impact in non-native regions, this review seeks to find out its pharmacognostic and pharmacological potential while assessing the toxicological profile. This will be helpful for its potential applications in drug development, agriculture, and the healthcare industry.[1,3,4]

SCIENTIFIC CLASSIFICATION:

The botanical name of Raimuniya is Lantana camara. It belongs to plant family Verbanaceae.
The taxonomical classification is mentioned below.
Kingdom: Plantae
Subkingdom: Tracheobionta
Superdivision: Spermatophyta
Division: Magnoliopsida
Subclass: Asteridae
Order: Lamiales
Family: Verbenaceae
Genus: Lantana
Species: Lantana camara
Parts Used: Apart from the whole plant, seeds, stem, root, leaves and flowers are also used.
Synonyms: Lantana aculeate, Camara vulgaris, Lantana indica Roxb., Lantana salvifolia Jacq., Lantana trifolia, Lantana orangemene, Lantana tiliaefolia Cham, Lantana achyrantifolia Desf., Lantana montevidensis Briq., Lantana viburnoides Vahl [13,19, 20].

AYURVEDIC DESCRIPTION:

Sanskrit Name: Chaturangi, Vanacchedi
Properties: Rasa: Kashaya, Tikta; Guna; Guru; Virya: Sita
Therapeutic Uses: Plant pacifies vitiated condition of vata and kapha [20].

PHYTOCHEMICAL COMPOSITION:

Phytochemical composition of the Lantana camara has been extensively studied in last few decades. Different parts of Lantana camara are reported to possess essential oils, phenolic compounds, flavonoids, carbohydrates, proteins, alkaloids, glycosides, iridoid glycosides, phenyl ethanoid, oligosaccharides, quinine, saponins, steroids, triterpens,

IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 2, October 2025
Impact Factor: 7.67

sesquiterpenoides and tannin as majorphytochemical groups. Chemical constituents present in the different parts of Lantana camara are mentioned below.

Chemical Constituents:

1. β-sitosterol, Betulonic acid, Betulinic acid, Campesterol, Hispidulin, Pectolinarigenin, Pectolinarin
2. β-pinene, 1,8-Cineole, Cinnamic acid, Dipentene, Ferulic acid, Myristic acid, Palmitic acid
3. Camaraside, Camarinic acid, Camaric acid, Lantanilic acid, Linaroside, Lantanoside, Linaroside, Oleanolic acid, Ursonic acid
4. 8-epiloganin, Geniposide, Icterogenic acid, Isonuomioside A, Isoverbascoside, Lamiridoside, Lantadene A, B,C, Lantanolic acid, Lantic acid, Theveside, Ursolic acid, Verbascoside
5. ρ-Coumaric acid, ρhydroxybenzoic acid, Vanillic acid. [15]

Plant description:

The morphology of L. camara is shown in Figure 1. a robust, slow-growing shrub Tetrangular in shape, L. camara has a strong, recurved pickle and an offensive odour. having murky currents. The plant has a three meter height limit. stretched out to a 2.5 metre width. leaves with an ovate or oval form oval-shaped, acute or subacute, crenate, serrated, and rugose above, Scabby on both sides. The size of the leaves is 3-6 cm by 3-8 cm. wide and colourless. The leaves and stem are draped in rough hair. swarms of a little flower (called umbels). The predominant colour is orange, however it can also infrequently be white or crimson. a range of colours, and the bloom often shifts colour as their maturation Flowers' axillary regions feature a yellow neck. The corolla tube is thin, the calyx is tiny, and the limb spreads 6 to 7 mm wide and is divided into unequal lobes. Four stems in two pairs, combined with ovary two ovules and two celled. Inflorescences in the axils of opposing leaves, where they are formed in pairs. Compact, dome-shaped inflorescences that are 2-3 cm in diameter and 20–40 sessile blooms are present. Strong roots are a root system. and it gives out new fresh shoots even after repeated cuttings.

Fig.1. Lantana Camara Linn

A) Plant, B) Dorsal and ventral surface of leaves, C) Flowers. D) Stem , E) Root .

Geographical distribution: L. camara is a plant with a tropical origin that is indigenous to the Caribbean and Central and Northern South America. Nearly 60 countries now have L. camara, including New Zealand, Brazil, Jamaica, Trinidad, Mexico, and Florida. It is stated numerous African nations, such as Kenya and Uganda, South Africa and Tanzania. L. camara was most likely introduced to India before the 19th century. Currently, L. camara is found all over India. Different

IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 2, October 2025
Impact Factor: 7.67

names for L. camara are used in various many languages in India, including Ramonita (Hindi), In Sanskrit, Vanished and Chaturangas, Agrippa and Tamil names Unni chedi, Alipova, Pooched, Kongamato, and Thiery, Sambal lei, Nonballetic, and Natta chedi (all in Malayalam) Tantani and Ghaneri (Marathi), Puli Kampa, and Manipuri Natahu, Kake, and Telegu (Kanada).

Ethnopharmacology:

L. camara is a significant medicinal plant with numerous applications in the conventional medical system. In various parts of the world, it has been used to treat a variety of health issues World. Injuries such as wounds, rheumatisms, ulcers, and cancer, tetanus, rheumatoid arthritis, malaria, and catarrhal infection asthma, eczema, a tumour, edoema, chickenpox, and high ataxy of the abdominal viscera, blood pressure, and bilious fever, fevers, colds, sores, measles, and excessive blood pressure. In Ghana uses the whole plant's infusion to treat bronchitis, and children were fed the powdered root in milk to treat stomachaches and as a vermifuge. The usage of lantana oil in the treatment for skin rashes and wounds as an antiseptic. In External applications of scabies and leprosy decoctions were made.

MEDICINAL AND THERAPEUTIC USES OF LANTANA CAMARA

Lantana camara is an important medicinal plant and in recent history this plant is reported for various medicinal properties

Anti-Inflammatory: Activity Gidwani BK et al. reported the anti inflammatory activity of aqueous extract of Lantana camara in albino rats. Extract treatment (500mg/kg body weight) significantly decreased paw volume in carrageenan induced paw oedema test in rats

Wound healing activity: Rats were used to test the aqueous extract of L. camara leaf's wound-healing abilities. Topical administration of the extract (100 mg/kg/day) greatly improved healing after wound improved wound contraction rate (98%), synthesis of collagen and quicker healing of wounds. 27 It was reported that L. camara leaf ethanol extract could treat wounds. healing processes in a male adult Rats that are more clever. the extract was applied to the wound effectively enhanced activity in wound healing. Histologic evaluations demonstrates the effectiveness of extract in healing wounds.

Antiulcer potential: Antiulcer property of Lantana has also been demonstrated in experimental studies. Its methanolic extract has shown gastric ulcer protective effect in aspirin, ethanol and cold restraint stress induced ulcer models. In experimental models of ethanol-induced gastric ulcers and aspirin-induced gastric ulcerogenesis in pyloric ligated rats, the methanolic extract of Lantana leaves has been demonstrated to cure gastric ulcers. Along with a considerable ($p<0.01$) decrease in lipid peroxidation and an increase in reduced glutathione levels, it has also significantly ($p<0.01$) decreased ulcer index, overall acidity, and improved gastric pH. Additionally, it has been demonstrated to prevent duodenal ulcers in rats by lowering the ulcer index of duodenal ulcers caused by cysteamine significantly ($p<0.01$)60.

Analgesic activity: Bairagi et al.56 investigated in vivo analgesic activity in the methanolic extract of leaf and bark of Lantana using the acetic acid-induced writhing test in Swiss albino mice and Eddy's hot-plate method. After oral administration of leaf and bark extracts (200 mg/kg), significant($p<0.01$) inhibition in writhing responses of 39.5+0.42 and 40.16+0.40 were observed, respectively. However, Eddy's hot-plateassay demonstrated higher analgesic efficacy of leaf and bark extracts as 15.11+0.04 and 15.1+0.05, respectively, at the dose of 200 mg/kg after 60 min. In vivo analgesic activity was investigated in the methanolic extract of Lantana leaves by Pandeya et al.52 using the tail immersion method in mice. Results have shown that the maximum analgesic activity was found to be 35.5, 28.07 and 19.13% at doses of 800, 600 and 400 mg/kg of extract after 60 min

Anticancer and antiproliferative activity: A murine tumour (Ehrlich ascites carcinoma) and three human cancer cell lines were used to test the anticancer effects of oleanonic acid isolated from L. camara. Malignant melanoma of the skin A375, epidermoid Hep2 cancer of the larynx) and U937 (lymphoma). Oleanonic Against A375 cells, acid displayed promising cytotoxicity. 36 There have been reports of cytotoxicity in L. camara leaves. impact on the Vero cell line There was an in vitro cytotoxicity test. MTT test was used. The 500-gram methanol extract Cell growth was 2.5 times more inhibited at (g/ml) concentration. less than Triton 100 did by 1%. 37 The antiproliferative effects of L. camara leaves HEp-2 (laryngeal cancer) and NCI-H292 activity cell types from (lung cancer). There was an in vitro antiproliferative test. MTT test was used. L. camara methanol extract antiproliferative activity was seen in the leaves.

Antioxidant activity: In the kidneys of rats, the extract administration reduced the degree of lipid peroxidation. Rats with uroliths. DPPH conducted in vitro research. Nitric oxide free radical test and radical scavenging assay test for

IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 2, October 2025
Impact Factor: 7.67

scavenging. Extract showed a high antioxidant level. characteristics in both assays. 35 The leaves of L. camara had antioxidant activity. reduced power activity and 1, 1-diphenyl-2- Radical scavenging experiment using picrylhydrazyl (DPPH). Leaves extracts showed a strong anti-oxidant activity, but younger more antioxidant activity in leaves than in older or grown-up leaves.

Toxicology: L. camara is one of the top ten or one of the most toxic plants currently known. There have been reports of L. camara toxicity in South Africa, Australia, India, and New Zealand. both America and Africa. But the toxin only manifests itself on the extensive usage of plant materials. It is reported that goats, cattle, and sheep can get toxicity of iatrogenic acid, lantadenes A, B, and D, whereas Rats, newborn calves, lambs, horses, and mice are resistant to the poison lantadenes A. The most noticeable clinical symptom involves jaundice and IJCSP23B1049 International Journal of Current Science (IJCSPUB) www.ijcspub.org 395 www.ijcspub.org © 2023 IJCSPUB | Volume 13, Issue 2 April 2023 | ISSN: 2250-1770 photosensitization. appetite loss in animals are poisoned within 24 hours and their numbers decline appetite was also noted. Animals with the worst poisoning die within two days of being poisoned, but death frequently happens after 1 -3 weeks after poisoning. The kidneys are swollen and pale in colour, the gall bladder is grossly distended and the liver is enlarged. The oral toxic dose of lantadene A for sheep is 60 mg/kg is toxic and 1–3 mg/kg by intravenous route.

Anti-Bacterial: Activity Barreto FS et al. reported the Ethanolic extracts of Lantana camara leaves and roots for antibacterial activity. The in vitro antibacterial activity was performed by microdilution method. The extracts exhibited antimicrobial activity against Staphylococcus aureus, Proteus vulgaris, Pseudomonas aeruginosa, Vibrio cholerae, Escherichia coli and two Mult resistant strains E. coli and S. aureus .Gangwal D et al. studied, Three different solvent extract of leaves and flowers of four different varieties of Lantana camara exhibited significant antibacterial activity E. coli, Bacillus subtilis and P. aeruginosa whereas poor antibacterial Staphylococcus aureus activity against Badakhshan MP et al. screened the Methanolic extracts of different parts of Lantana camara for antimicrobial activity against 10 bacteria and 5 fungi by disk diffusion method and broth microdilution method. The leaves extract of Lantana camara showed highest activity against Gram positive Bacillus cereus and Gram negative Salmonella typhi

Anti-Heminitic: Activity Kumar SM et al. investigated ethanolic extract (10, 50, 100mg/ml concentration) of Lantana camara for its anthelmintic activity against pheretima posthuma due to presence of tannins which bind to proteins in the GIT of host animal or glycoprotein on the cuticle of parasite and cause death

II. CONCLUSION

Lantana camera is an important medicinal plant with several medicinal uses in folk and traditional therapeutic system. From this review, it is quite evident that Lantana camara contains some phytoconstituents which reveal its applications for different therapeutic purposes. The Plant or its specific parts can be used for the treatment of various disorders in the human being such as antiulcer, analgesic, anti-inflammatory, antimicrobial, anthelmintic, anti-cancer antifungal, antibacterial and wound healing. Lantana oil is sometimes applied for the treatment of skin itches, as an antiseptic for wound and externally for leprosy and scabies. Yet, so much work is required with the Lanata camara to investigate the mechanism of actions with other therapeuticactivities. In future, there is enormous scope in research for this plant. Ethnomedical and scientific reports about the medicinal properties of Lantana camara represent it as a valuable plant and establishing it as a candidate for the future drug development.

REFERENCES

[1]. Saxena M, Saxena J, and Khare S; A brief review on Therapeutic values of Lantana camara Plant. International Journal of Pharmacy and Life Sciences, 2012.

[2]. Kumarasamyraja D, Jeganathan NS and Manavalan R; Pharmacological review of Lantana camara L. International Journal of Pharm Res 2, 2012, 1-5.

[3].Ghisalberti EL: Lantana camara Linn, Review. Fitoterapia 71, 2000, 467-485.

[4].Neena P and Joshi P.k.: A review of Lantana camara studies in India. International Journal of Scientific and Research Publications, 2013.

IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 2, October 2025
Impact Factor: 7.67

[5]. Ganesh T, Saikatsen, Thilagam G, Loganatham T, Raja Chakraborty; Pharmacognostic and anti hyperglycaemic evaluation of Lantana camara (L) var. Aculeate leaves in alloxan-induced hyperglycemic rats, Int J Res Pharm., 1(3), 2010, 247-252.
[6]. Ghisalberti EL. 2000. Lantana camara Linn. (Review). Fitoterapia, 71, 467–485.
[7]. Mohan Ram HY, Mathur G. 1984. Flower colour changes in Lantana camara. Journal of Experimental Botany, 35, 1656–1662.
[8].Ray AK, Puri MK. 2006. Modeling H Factor-Kappa Number for Kraft Pulping of Lantana camara Plant; An Experimental Investigation. Advances in BioCatalytics and Protein Enggineering, 15, 1–62.
[9]. Barreto F, Sousa E, Campos A, Costa J and Rodrigues F; Antibacterial Activity of Lantana camara Linn and Lantana montevidensis Brig Extracts from Cariri-Ceara, Brazil. Journal of Young Pharmacology 2, 2010, 42-44.
[10]. Taoubi K, Fauvel MT, Gley J and Moulis C; Phenylepropanoid glycosides from Lantana camara and Lippia multoflora. Plant Medicine 63, 1997, 192-193.
[11]. Kirtikar KR, Basu BD. Indian medicinal plants: 3, 1935,1914
[12]. Chopra RN, Nayar SL, Chopra IC. Glossaty of Indian medicinal plants. New Deli: CSIR, 1956, 149
[13]. CSIR. Wealth of India, vol. VI. Council of Scientific and Industrial Directorate, New Delhi, 1962, 31.
[14]. CSIR. The useful plants of India. Publication and Information Directorate, CSIR, New Delhi, 1992, 316
[15]. Chharba SC, Mahunnah RLA and Mshiu EN; Plants used in traditional medicine in eastern Tanzania: Journal of Ethnopharmacoogy 39, 1993, 83-103. [16]. Kasali AA, Ekundaya O, Paul C, Koenig WA, Eshilokun AO and Vadua P; Essential oil of Lantana camara L. var. aculeate from Nigeria. Journal of Essential oil Research 16, 2004, 588-593.
[16]. Sastri BN. The wealth of India. CSIR New Delhi, India. 1962.
[17]. Kirtikar KR, Basu BD. Indian medicinal plants. New Delhi, India. 2006
[18]. Chopra RN, Nayar SL and Chopra IC. Glossary of Indian medicinal plants. CSIR New Delhi.
[19]. Venkatachalam T et al. Physicochemical and preliminary phytochemical studies on the Lantana Camara (L.) fruits. International Journal of Pharmacy .
[20]. Pitasawat B et al. Screening for larvicidal activity of ten carminative plants. Southeast Asian Journal of Tropical Medicine and Public Health. 29 (3); 1998: 660-662