

**A REVIEW ON PHARMACOLOGICAL AND PHARMACOGNOSTICAL PROPERTIES
OF CLERODENDRUM SERRATUM****Priya Pandey¹, Mrs. Yasmin Bano², Dr. Sushant Tiwari^{*3}**¹Research Scholar, SCPM College of Pharmacy, Gonda, Uttar Pradesh.^{2,3}Associate Professor, SCPM College of Pharmacy, Gonda, Uttar Pradesh.***Corresponding Author: Dr. Sushant Tiwari**

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ABSTRACT

Clerodendrum Serratum is an important medicinal plant widely used in traditional systems of medicine such as Ayurveda and Unani for the treatment of respiratory, inflammatory, and infectious disorders. Medicinal plants continue to play a vital role in healthcare, and according to the World Health Organization (WHO), nearly 80% of the global population relies on traditional medicines derived from plant sources. *Clerodendrum Serratum*, commonly known as Bharangi, has been extensively utilized in India and other Asian countries for the management of asthma, cough, fever, liver disorders, wounds, headache, and inflammation. The plant contains a variety of bioactive phytochemicals, including triterpenes, flavonoids, phenolics, steroids, and glycosides, which contribute to its diverse pharmacological properties. Scientific investigations have demonstrated significant antioxidant, anti-inflammatory, antiasthmatic, antiangiogenic, vasorelaxant, antimicrobial, and hepatoprotective activities of the plant extracts. Compounds such as oleanolic acid and ursolic acid are considered major contributors to its therapeutic effects. The plant possesses a wide range of pharmacological activities including anti-inflammatory, antioxidant, antiasthmatic, antimicrobial, hepatoprotective, antiangiogenic, and anti-arthritic effects due to the presence of bioactive phytochemicals such as flavonoids, terpenoids, phenolics, steroids, and glycosides. Several scientific studies support its traditional therapeutic applications; however, further clinical and mechanistic investigations are required to validate its efficacy and safety. This review highlights the traditional uses, phytochemical constituents, pharmacological activities, and future therapeutic potential of *Clerodendrum Serratum*.

KEYWORDS: *Clerodendrum serratum*, Bharangi, Phytochemistry, Pharmacological Activity, Anti-inflammatory, Antioxidant.**1. INTRODUCTION**

According to World Health Organization (WHO), medicinal plants would be the best source to obtain a variety of drugs. About 80% of individuals from developed countries use traditional medicine, which has compound derived from medicinal plants. Therefore, such plants should be investigated to better understand their properties, safety and efficiency. Plants produce a diverse range of bioactive molecules, making them a rich source of different types of medicinal compound; have continued to play a dominant role in the maintenance of human health, since ancient times. Over 50% of all modern clinical drugs are of natural product origin and it also plays an important role in drug development

programs in the pharmaceutical industry. Plants are the basic source of knowledge of modern medicine. The basic molecular and active structures for synthetic fields are provided by rich natural sources. This made worldwide interest in medicinal plants reflects recognition of the validity of many traditional claims regarding the value of natural product in health care. Most of the drugs derived from plants were developed because of their use in traditional medicine. India's use of plants for health care dates back close to 5000 years. About 8000 herbal remedies have been codified in the Ayurveda, which is still in use in many dispensaries today.^[1]

The *Clerodendrum Serratum* (Spreng.) known as, Timba Tasek is widely used in Asian countries especially Malaysia as the traditional medicine to treat various diseases. This study aimed to evaluate the antioxidant, antiangiogenic and vasorelaxant activities as well as the chemical profiles of *Clerodendrum serratum* leaves extract.^[2]

This genus was first described by Linnacus in 1753 based on the species *Clerodendrum infortunatum* from India and later Adanson changed the Latinized form "*Clerodendrum*" to its Greek form "*Clerodendron*" in 1763.^[3]

Initial search on this plant from Ayurvedic Pharmacopoeia of India and traditional literature indicated around 18 formulations containing *Clerodendrum serratum* roots as one of the ingredients (ranging from 0.14%w/w to 7.69%w/w) for the treatment of various ailments. Ethnomedicinal reports have also advocated *Clerodendrum serratum* as one of the potential traditional medicines in India claimed for the treatment of asthma, inflammation, wounds, snake bite, liver diseases, fever and headache. It has been established that triterpenes like oleanolic acid, ursolic acid and phenolics are responsible for most of the biological activities reported for the plant but detail investigation into precise mechanism with biomarker analysis is required for roots of this plant. Systematic search on *Clerodendrum serratum* in scientific databases indicated its vast traditional significance with less numbers of comprehensive reviews till date, hence present review has been performed with a view to provide a systematic analysis of reports on chemical constituents, pharmacological effects and safety. Therapeutic utilities of roots of *C. serratum* have been indicated in traditional systems of medicine like Ayurveda and Unani. It is commonly known as Blue glory or Beetle killer in English; Bharangi (means glorious) in Hindi; Angaravalli, Kharashaka (with rough

leaves), Padma (flowers look like lotus), Vatari (an enemy of vatadosa), Kasaghni (which alleviates cough) in Sanskrit and Cheruthekku in Tamil (Kirtikar and Basu, 1999, Ayurvedic Pharmacopoeia of India, 2001). In ancient and later ayurvedic literature, Bharangi has been widely mentioned in the treatment of Swasa and Kapha (Respiratory ailments) as a constituent of various groups of medicines. *Clerodendrum serratum* has a long history to be used as a traditional medicine to treat asthma, inflammatory and infectious disorders. There has been a great interest in *Clerodendrum serratum*, as evidenced by many studies carried out in recent years on roots and its formulations for anti-asthmatic potential. An increasing number of phytopharmacological studies have been carried out on this plant to validate various traditional uses with scientific support and majority of the reports indicated usefulness of the roots and leaves of the plant for the treatment of respiratory disorders, fever, inflammation and liver disorders.

***Clerodendrum Serratum* Linn: Common Features of Plant**

Clerodendrum serratum, known as Bharangi, is a woody shrub native to India and other parts of Asia, growing 2-8 feet tall with bluntly quadrangular stems and opposite, large, serrated, oblong or elliptic leaves. It produces bluish to dark purple flowers in panicles and is valued in Ayurveda for its anti-allergic, mucolytic, and antielmintic properties, with roots being the commonly used part. *Clerodendrum serratum* is a perennial woody shrub native to East India and Malaysia, up to 3–8 ft in height with blunt quadrangular stems. Mature roots are hard, woody and cylindrical in shape with 1–1.5 cm in diameter, 2–3 cm in length and are pale brown externally and yellowish brown internally. Young roots are smooth or finely longitudinally striated while the older ones are somewhat rough, longitudinally ridged or furrowed and exfoliated at places exposing the inner wood. It breaks with hard fracture.^[4]

Scientific Classification of Plant.

Category	Detail
Division	Magnoliophytes [Angiosperms]
Class	Magnoliopsida [Dicotyledons]
Order	Lamiales
Family	Lamiaceae [formerly Verbenaceae]
Genus	<i>Clerodendrum</i>
Species	<i>Clerodendrum Serratum</i> [L].Moon

Synonyms of Plant

- *Serrata colebrookea* Roxb.
- *Clerodendrum Serratum* Spreng.
- *Clerodendron serratum* Linn.

Vernacular Names of Plant

Language / Region	Common Name
English	Blue glory, Bharangi
Hindi	Bharangi
Sanskrit	Bharangi, Bhargi
Tamil	Cheruteku
Telugu	Gantabheralu
Marathi	Bharangi
Kannada	Bhargi
Bengali	Bhadrogo



Fig. 1: *Clerodendrum Serratum* Plant.



Fig. 2: *Clerodendrum Serratum* Leaves & Flowers.

2. Pharmacological Activities of Plant

Antioxidant activity

In DPPH radical scavenging assay, *Clerodendrum Serratum* root at various concentrations (50, 100, 150, 200, 250 $\mu\text{g/ml}$) and ascorbic acid (50, 100, 150, 200, 250 $\mu\text{g/ml}$) showed the significant inhibitory activity with IC_{50} value 175 and 137 respectively. In reducing power assay, a linear increase in reducing power was observed over the concentration range 20-120 $\mu\text{g/ml}$ sample, equivalent to 20 -120 $\mu\text{g/ml}$ ascorbic acid. The inhibition of $73.32 \pm 0.002\%$, and $64.49 \pm 0.242\%$ was observed for ascorbic acid (standard) and ethanolic extract of root (test) respectively at maximum concentrations.

Anticancer Activity

Aqueous extract and methanolic extract of roots of *Clerodendrum Serratum* were screened for in vivo anticancer activity using Dalton's Lymphoma Ascites (DLA) cell model at the dose 100 mg and 200 mg/kg body weight. The parameters were analyzed mean survival time, percentage increase in life span, body weight analysis, hematological parameters and biochemical parameters. The study revealed that methanolic extract exhibit significant anticancer activity as compared to aqueous extract. It is used in treatment of fevers, rheumatism and dyspepsia.

Antibacterial Activity

The ethanol extract of roots of the plant have been screened for their antibacterial activity. The extract (7.5 mg/disc) showed broad-spectrum antibacterial activity against gram positive and gram negative bacteria. The results were compared with the standard drug streptomycin (10 $\mu\text{g/disc}$). The zone inhibition was found to be increased with the increase in concentration of the extract and thus exhibiting concentration dependent activity.

Anti-Inflammatory Activity

The ethanolic root extract of *Clerodendrum serratum* showed significant anti-inflammatory activity in carrageenan-induced oedema in rats, and also in the cotton pellet model in experimental mice, rats and rabbits

at concentrations of 50, 100 and 200 mg/kg (Narayanan et al., 1999). Wound healing activity Ethanolic extracts of roots and leaves of *Clerodendrum Serratum* were obtained and their wound healing potency was evaluated on Albino rats. The results shows higher wound healing potency of root extract as compared to leaf extract.

Wound healing activity

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Anticarcinogenic Activity

The evaluation of the anticarcinogenic activity of the *Clerodendrum Serratum* leaf extract (CSLE) on liver and kidney of 7, 12-dimethylbenz[a] anthracene (DMBA) induced skin carcinogenesis in mice were studied. The study showed that there was a recovery in biochemical and oxidative stress parameters in the liver and kidney of the CSLE administered mice. Together, these findings suggest that *Clerodendrum Serratum* leaf extract has anticarcinogenic efficacy against skin carcinogenesis. Aqueous extract and methanolic extract of roots of *Clerodendrum Serratum* were screened for in vivo.

Hepatoprotective Activity

The ethanolic extract of *Clerodendrum Serratum* roots and isolated ursolic acid from it were evaluated for hepatoprotective activity against carbon tetrachloride induced toxicity in male Wistar strain rats. The 20 mg/kg per day orally of ethanolic extract and 10 mg/kg per day perorally of ursolic acid concomitantly for 14 days gave to rat. It shows that the hepatoprotective activity of constituent ursolic acid extracted from roots of *Clerodendrum Serratum* is significant as similar to the standard drug and showed more significant hepatoprotective activity than crude extract.

Antioxidant Activity

The aqueous extract of *Clerodendrum Serratum* has significant antioxidant activity against DPPH scavenging

assay, superoxide scavenging assay and FRAP assay. Different conc. (20- 100 µg/ml) of extract were used. Plant exhibits the antioxidant activity through the scavenging of free radicals, and FRAP showed significant reducing power activity with increased concentration of the sample therefore, the aqueous extract of *Clerodendrum Serratum* showed significant antioxidant activity.

Anthelmintic Activity

The water extract of *Clerodendrum Serratum* used for Anthelmintic activity against earth worm. The earth worm kept in different conc. (100, 200, 300, 400 mg/ml) of water extract. At higher conc. (400mg/ml) extract produced paralysis effect much earlier and the time taken for death was shorter for earth worm as compare to standard. So, use of Leaves of *Clerodendrum Serratum* as an anthelmintic have been confirmed as the root extracts displayed activity against the earth worm.^[5]

Anti-Allergic Activity

Activity is performed by using milk induced leucocytosis in mice. Aqueous extract of stem and roots of *Clerodendrum Serratum* was gives in LD (130mg/kg, p.o.) and HD (260mg/kg, p.o.) respectively for 14 days. Blood sample were collected and tested leucocytes and eosinophil count. Result showed that at higher dose significant reduction in leucocytes and eosinophil count which indicates this plant were having anti-allergic activity.

Anti-Pyretic Activity

The ethanolic extract of *Clerodendrum Serratum* evaluated for anti-pyretic activity against Rabbits. The dose (50, 100, 200 mg/kg per orally) of extract were given to rabbits. Paracetamol 100 mg/kg per orally used for comparison. Rectal temperature recorded very 30 min. for 3 hrs. The reduction in pyrexia after administration of *Clerodendrum Serratum* indicates anti-pyretic activity of these plant. It showed activity at higher dose (100 and 200 mg/kg) of extract.

A growing number of investigations revealed that active compounds or extracts derived from *Clerodendrum* species demonstrated a broad spectrum of pharmacological actions (Harley et al., 2004). Numerous clinical applications of the genus *Clerodendrum* in traditional Chinese medicine have motivated scientists to look into its pharmacological characteristics and confirm the usage of several species as medicinal remedies.^[6]

Antimicrobial Activity

i) Antibacterial effect- *Bacillus subtilis*, *Salmonella typhi*, *Staphylococcus aureus*, *Escherichia coli*, *Proteus mirabilis* and *Klebsiella pneumoniae* are all inhibited by the methanolic extract of *C. siphonanthus*. Both the water extract and n-butyl extracts from *C. bungei* demonstrated strong antibacterial activity against *Fusarium graminearum*, *Micrococcus pyogenes*, and *Staphylococcus aureus* respectively.

ii) Anti-fungal effect- The majority of fungi were inhibited in their growth by *C. inerm* ethyl acetate extract. Extracts of *C. infortunatum* in ethyl acetate and chloroform inhibited the growth of *K. pneumonia*, *S. aureus*, *E. coli*, and *B. subtilis*.

Activity Against Diarrhoea

Methanolic extract and chloroform fraction from the *Clerodendrum indicum* and Methanolic extract from the leaves of *C. phlomis* inhibited defecation in castor oil-induced diarrhoea (Xu et al., 2014). It has been suggested that the antidiarrheal effect of *C. wallichii*'s hydroalcohol extract and its chloroform fraction among other things, is caused by the flavonoid concentration (Kundan & Mahamedha, 2020). The preliminary phytochemical screening of methanolic root extracts of *Clerodendrum viscosum* showed the presence of flavonoids, phenolic compounds, alkaloids, tannin, steroids, glycosides and coumarins. It can be said that the root of *Clerodendrum viscosum* is a potential source of drugs for antidiarrheal activity.^[7]

2. Morphological Characters

- i **Leaves:** Leaves are usually three at a node. The leaves are opposite oblong or elliptic, and acute at base.
- ii **Root:** Root are 5 cm thick, cylindrical, hard, woody and light brown in colour.
- iii **Stem:** Usually quadrangular.
- iv **Flower:** Flowers are arranged in dichotomous cymes, purple in colour.
- v **Fruit:** Four lobed.
- vi **Seed:** With or without endosperm.

Ayurvedic Properties and Action on Kapitha

- i Rasa (taste), Tikta (bitter), Katu (pungent)
- ii Veerya (Energy), Ushna (hot)
- iii Vipaka (transformed state after digestion), Katu (pungent)
- iv Guna (qualities), Ruksha (dry), Laghu (light)
- v Prabhava (effect), Balances kapha and vata dosha

Traditional uses

1. Roots of Bharangi are pungent, bitter, acrid and useful as carminative, depurative, expectorant, anti-spasmodic, stimulant, appetizer and anthelmintic.
2. Roots are reported to be used clinically for the treatment of bronchitis, asthma, fever, blood diseases, tumours, inflammations, burning sensation, epilepsy, malaria, ulcer and wounds.
3. The decoction of root is extremely effective in edema over body, especially due to kapha and used in worm infestations.
4. The root paste has been applied on the forehead to alleviate headache.
5. Leaves are used as a vegetable and in fever, malarial fever and hiccup in Konkan region.
6. Externally the leaves are used for cephalgia and ophthalmia while the pulp is used to mitigate the glandular swellings and hasten the wound healing.

7. The juice of leaves is applied on the lesions in erysipelas.
8. Roots of Bharangi are pungent, bitter, acrid and useful as carminative, depurative, expectorant, anti-spasmodic, stimulant, appetizer and anthelmintic.
9. Roots are reported to be used clinically for the treatment of bronchitis, asthma, fever, blood diseases, tumours, inflammations, burning sensation, epilepsy, malaria, ulcer and wounds.^[8]

3. Microscopical Features

Growth rings distinct, marked by a broad zone of boundary parenchyma and isolated groups of vascular tracheids. Tracheids diffusely-porous, the pores circular or elliptic, solitary or less frequently in multiples of 2 or 3; tangential diameter 120 (50–170) mm; pore frequency 17/ mm² wall thickness 10mm; length of the vessel elements 328 (250–430) mm; cylindrical, more frequently short and barrel shaped; perforation plate

simple, horizontal short elements or slightly oblique in longer elements and tailed at one or both ends, or tailless; lateral wall pits tangentially elongated and linear tyloses abundant and due to mutual compression, form pseudoparenchymatous structure within the vessel lumen.

Pore lines wavy, as seen in longitudinal section (LS) views. Axial parenchyma paratracheal and scanty, and apotracheal and boundary; cells vertically oblong, thin walled, simple pitted, occurring in strands. Fibres libriform type, thick walled, non-septate length 486 (320–840) mm; walls 5mm thick; pits not evident. Tracheids-vascular tracheids occurring at the growth ring boundary and vasicentric tracheids abutting the vessels; cells shorter, walls thinner and lumen wider when compared to the length, wall thickness and cell lumen of the fibres; lateral wall pits circular, bordered and abundant.^[9]

Table 1: Pharmacological activities, mechanistic insights, and major bioactive compounds.^[6]

Pharmacological Activity	Mechanistic Insight	Major Bioactive Compounds
Antioxidant	Scavenges reactive oxygen species (ROS), inhibits lipid peroxidation, chelates metal ions, and enhances endogenous antioxidant enzyme activity.	Ferulic acid, caffeic acid, acteoside, apigenin, luteolin
Anti-inflammatory	Inhibits protein denaturation, stabilizes mast cells, and suppresses cyclooxygenase (COX) and lipoxygenase (LOX) pathways	Ursolic acid, oleanolic acid, β -sitosterol, stigmasterol
Anti-arthritis	Prevents protein denaturation and structural deformation associated with arthritic conditions	Phytosterols, triterpenoids, flavonoids
Neuroprotective	Inhibits monoamine oxidase-A (MAO-A), restores norepinephrine (NE) and serotonin (5-HT) levels, and provides antioxidant-mediated neuroprotection	Apigenin, hispidulin, luteolin
Immunomodulatory	Regulates cytokine production and stabilizes mast cells	Flavonoids, terpenoids
Antimicrobial	Silver nanoparticles induce bacterial cell lysis and disrupt biofilm formation	AgNPs, polyphenolic capping agents

5. Phytochemical Properties of *Clerodendrum Serratum*

Table 2: Natural products isolated from *Clerodendrum Serratum*.

Chemical Class	Chemical Constituents	Plant Part
Terpenoids	Bauer-9-en-3-one	Twigs and stems
Terpenoids	Se-saponin A	Aerial parts
Terpenoids	Serratin, Lupeol	Leaves
Sterols	β -sitosterol	Stem
Sterols	γ -sitosterol	Root
Sterols	Spinasterol, Spinasteryl- β -D-glucopyranoside	Twigs and stems
Sterols	α -spinasterol	Leaves
Sterols	Stigmasterol, Bis(2-ethylhexyl) phthalate, Serratumin A	Aerial parts
Iridoids	7- β -coumaroyl-oxyugandoside, 7- β -cinnamoyloxyugandoside	Leaves
Iridoids	Serratoside A, Serratoside B	Aerial parts
Phenylpropanoids	(+)-catechin, Caffeic acid, Ferulic acid	Leaves
Phenylpropanoids	Serratumoside-A, Myricoside	Aerial parts
Phenylpropanoids	Acteoside, Martynoside	Aerial parts and leaves

6. DISCUSSION

Clerodendrum Serratum has gained considerable attention due to its rich phytochemical profile and diverse pharmacological activities. Various studies have reported the presence of bioactive constituents such as terpenoids, flavonoids, sterols, iridoid glycosides, and phenolic compounds, which are primarily responsible for its therapeutic potential.^[10]

The anti-inflammatory and anti-asthmatic properties of the plant are among the most extensively studied, supporting its traditional use in respiratory disorders. Compounds like flavonoids and iridoid glycosides exhibit significant antioxidant activity, helping in reducing oxidative stress and associated cellular damage. In addition, the presence of sterols and saponins contributes to its immunomodulatory and antimicrobial effects.

Despite promising preclinical findings, most of the studies on *Clerodendrum Serratum* are limited to in vitro and animal models. There is a lack of sufficient clinical data to validate its efficacy and safety in humans. Moreover, variations in extraction methods, plant parts used, and geographical sources may influence the phytochemical composition and biological activity, highlighting the need for standardization.^[11]

Overall, *Clerodendrum Serratum* shows significant potential as a natural therapeutic agent, but further systematic research, including clinical trials and standardization studies, is essential to fully establish its role in modern medicine.

Cardiotoxicity is a major concern associated with several therapeutic agents, particularly anticancer drugs such as Doxorubicin, which can induce oxidative stress, mitochondrial dysfunction, and apoptotic cell death in cardiac tissues. These pathological changes often lead to impaired cardiac function and long-term cardiovascular complications.^[12]

In this context, *Clerodendrum Serratum* has emerged as a promising natural candidate due to its rich phytochemical composition. The presence of flavonoids, phenolic compounds, and iridoid glycosides contributes significantly to its antioxidant and anti-inflammatory properties, which may play a protective role against cardiotoxicity. These bioactive compounds help in scavenging free radicals, reducing lipid peroxidation, and stabilizing cellular membranes, thereby minimizing cardiac damage.^[13]

7. CONCLUSION

Clerodendrum Serratum is an important medicinal plant with a long-standing role in traditional systems of medicine, particularly Ayurveda. Over the years, extensive scientific research has validated many of its traditional claims and highlighted its diverse pharmacological properties. The plant exhibits

significant anti-inflammatory, anti-asthmatic, antimicrobial, antioxidant, hepatoprotective, and anti-arthritis activities, making it a promising natural source for therapeutic applications. These beneficial effects are primarily attributed to its rich phytochemical composition, including flavonoids, phenolic compounds, terpenoids, steroids, and other bioactive constituents.^[14]

Various experimental and preclinical studies have demonstrated that *Clerodendrum Serratum* extracts can modulate inflammatory mediators, reduce oxidative stress, and provide protective effects against tissue damage. Its potential role in managing respiratory disorders, inflammatory conditions, and liver-related diseases further strengthens its importance in both traditional and modern medicine. Additionally, advancements in analytical techniques such as HPTLC and HPLC have contributed to better standardization and quality control of plant extracts.^[15]

Despite these promising findings, there remains a need for more well-structured clinical trials to confirm its safety, efficacy, and therapeutic dosage in humans. Future research should focus on the isolation and characterization of active compounds, understanding their mechanisms of action, and developing standardized formulations. With proper scientific validation and quality assurance, *Clerodendrum Serratum* holds great potential for the development of safe, effective, and affordable herbal medicines in the future.^[16]

REFERENCES

1. Ali Jimale Mohamed1*, Elsnoussi Ali Hussin Mohamed1, Abdalrahim F. A. Aisha1, Omar Ziad Ameer1, Zhari Ismail2, Norhayati Ismail2, Amin Malik Shah Abdulmajid1,3, Mohd Zaini Asmawi1 and Mun Fei Yam1,4
2. Patel, Jagruti J., Sanjeev R. Acharya, and Niyati S. Acharya. "Clerodendrum Serratum (L.) Moon.—A review on traditional uses, phytochemistry and pharmacological activities." *Journal of ethnopharmacology*, 2014; 154(2): 268-285.
3. ScienceDirect<https://www.sciencedirect.com/science/article/pii/S0923753419397029>
4. Kumar, Praveen, and K. Nishteswar. "Phytochemical and pharmacological profiles of Clerodendrum Serratum linn. (bharngi): a review." *Int. J. Res. Ayurveda Pharm* 4,
5. Sakshi Khanka, Harsh Agarwal, Sharukh and Akshay Kumar DOI: <https://www.doi.org/10.33545/27072827.2025.v6.i2.b.172>. A review on Clerodendrum Serratum and its phytoconstituents.
6. Dora Das1, Sirshendu Chatterjee2, Shamba Chatterjee1, Sucheta Das1* Clerodendrum: A Useful Beneficial Phytomedicinal Plant
7. Gauri Dongare*1, Akshada Kale2, Pranali Band3, Ashwini Chavan4, Dr. A. N. Aher5 and Sonali Gawali PHYTOCHEMICAL AND PHARMACOLOGICAL ACTION OF

- CLERODENDRUM SERRATUM LINN. (BHARANGI)
8. N. Narayanan¹, P. Thirugnanasambantham¹, S. Viswanathan¹, E. Sukumar² and P. Jeyaraman³ Pharmacognostical Studies on the Roots of Clerodendrum Serratum.
9. Bagchi D, Sen CK, Bagchi M, Atalay M. Anti-angiogenic, antioxidant, and anti-carcinogenic properties of a novel anthocyanin rich berry extract formula. Biochemistry (Moscow), 2004; 69(1): 75-80.
10. Banerjee SK, Chakravarti RN, Sachdev KS, Vasavada SA. Constituents of the root-bark of Clerodendrum Serratum. Phytochemistry, 1969; 8(2): 515.
11. Chemical constituents from Clerodendrum Serratum. Journal Asian Natural Product Research, 10: 652-655.
12. Yang, H., Hou, A.J., Jiang, B., Lin, Z.W., and Sun, H.D. Serratum A. A novel compound from Clerodendrum Serratum. Acta Botanica Yun., 2000; 22: 75-80.
13. Murade, V.D., Hase, D.P., Murade, R.D., Dichayal, S. and Deshmukh, K.K. Phytochemistry of Clerodendrum Serratum (L.) Moon: A review. International Journal of Phytopharmacology, 2015; 6: 161-174.
14. Patel, J.K.I. and Bhoya, C.D. Phytochemical and pharmacological properties of Clerodendrum Serratum Linn.: A comprehensive review. International Journal of Pharmaceutical Sciences Review and Research, 2023; 80(1): 66-72.
15. Patel, J.K.I. and Bhoya, C.D. Phytochemical and pharmacological properties of Clerodendrum Serratum Linn.: A comprehensive review. International Journal of Pharmaceutical Sciences Review and Research, 2023; 80(1): 66-72.
16. Mohamed, A.J., Mohamed, E.A.H., Abdalrahim, A.F.A., Ameer, O.Z., Ismail, Z., Ismail, N., Shah, A.M., Abdulmajid, M.Z.A. and Yam, M.F., Antioxidant, antiangiogenic and vasorelaxant activities of methanolic extract of Clerodendrum Serratum (Spreng.) leaves. Journal of Medicinal Plants Research, 2012; 6(3): 348-360.
17. Banerjee S.K., Chakravarti R.N., et al. Constituents of Root Bark of Clerodendrum serratum. J. Phytochemistry. 1969; 8: 515. 10. Gupta A.K., Neeraj Tandon, Madhu Sharma, Quality Standards of Indian Medicinal Plants, editor. 1st Ed. New Delhi: Indian Council of Medical Research, 2005; 170.
18. Bhangare NK, Pansare TA, Ghongane BB and Nesari TM. screening for anti-inflammatory and anti-allergic activity of Bharangi {Clerodendrum serratum (Linn.) Moon} in animals. International Journal of Pharma and Bio Sciences, 2012 Oct; 3(4): 245 – 254.
19. Narayanan N., Thirugnanasambantham P., Viswanathan S., Vijayasekaran V., Sukumar E. Antinociceptive, Anti-inflammatory and Antipyretic Effects of Ethanol Extract of Clerodendrum serratum Roots in Experimental Animals. J Ethnopharmacology, 1999; 65: 237-241. DOI: 10.1016/s0378-8741(98)00176-7
20. Ismail Shareef. M, Leelavathi. S, Gopinath. S. M, Evaluation of in-vivo Activity of Clerodendrum serratum L. against Rheumatism. International Journal of Innovative Research in Science, Engineering and Technology, December 2013; 2(12): 7750-7758.
21. Kajaria DK, Kajaria A, Tripathi JS and Tiwari SK, Evaluating Polyherbal Compound – Bharangyadi for Anti-Platelet aggregating effect and Steroidogenesis activity, Journal of Pharma Research, 2013; 2(3): 1-3.
22. Bhujbal SS, Kewatkar SM, More LS and Patil MJ, Antioxidant effects of roots of Clerodendrum serratum Linn., Pharmacognosy Research, 2009; 1(5): 294-298.
23. Mohamad AJ, Mohamad EAH, Aisha AFA, Ameer OA, Ismail Z, Ismail N, Asmawi MZ and Yam MF. Antioxidant, Antiangiogenic and vasorelaxant activities of methanolic extract of Clerodendrum serratum (Spreng.) leaves. Journal of Medicinal Plants Research. January 2012; 6(3): 348-360. DOI:10.5697/JMPR11.049.
24. Saha D, Talukdar A and Rahman H. Evaluation of analgesic activity of ethanolic extract of Clerodendrum serratum Linn leaves in rats. International Research Journal of Pharmaceutical and Applied Sciences. 2012; 2(6): 33-37.
25. Soni PK and Mali PC. Exploration of traditional medicinal plants for antifertility effects: a review. Adv. Pharmacology & Toxicology, 2015; 16(1): 65-71.
26. Gupta SS and Gupta NK. “Development of antihistamine and anti-allergic activity after prolonged administration of a plant saponin from Clerodendrum serratum., Indian journal of medical science, 1967; 21: 795-799. DOI: 10.1111/j.2042-7158.1968.tb09644.