



A Review on Genus *Ixora*: Ethnobotany, Phytochemistry and Pharmacological Activities

Swathi Nalla^{1*}, P Nikhilanandini¹, A Surya¹, A Akshaya¹, G.Tulja Rani

¹Department of Pharmacology, Malla Reddy Pharmacy College, Maisammaguda, Dhulapally, Secunderabad, Telangana, India.

²Department of Pharmaceutical Analysis, Malla Reddy Pharmacy College, Maisammaguda, Dhulapally, Secunderabad, Telangana, India.

Received: 22 March 2026

Revised: 15 April 2026

Accepted: 23 April 2026

ABSTRACT:

Over a long period of time, many different plants are considered to be rich in various bioactive constituents and are being used for various therapeutic purposes. The thorough investigation of medicinal plants for their potential properties have paved the way for their use in folk and conventional system of medicine. This article focusses on the review of the genus “*Ixora*” which consists of numerous species such as *Ixora chinensis*, *Ixora javanica*, *Ixora singaporensis*, *Ixora pavetta*, *Ixora parvifolia*, *Ixora undulata*, *Ixora philippinensis*, *Ixora brachiata*, *Ixora alba*, *Ixora amplexicaulis* from the family Rubiaceae. The plant “*Ixora coccinea*” commonly known as Jungle geranium is a perineal flowering shrub indigenous to Southern Asian nation, Sri Lanka, Bangladesh & Southern parts of India. Different parts of this plant are traditionally believed to cure vivid conditions like Hypertension, Ulcers, Dysentery, Skin diseases, Inflammation, Diarrhoea, Headache, Menorrhagia, Bronchial disorders and several other conditions. Phytochemical studies of the plant reveal the presence of constituents such as Kaempferol, Quercetin, Rutin, β -sitosterol, Ursolic acid, Oleanolic acid & Lupeol. Pharmacological study indicates its capability to exhibit various activities that include Alpha-amylase inhibition, Anti-microbial, Anti-oxidant, Anti-hyperlipidemic, Anti-tyrosinase, Anti-inflammatory, Wound healing, Anti-diabetic, Analgesic & Anti-convulsant activities. Similarly, the numerous other species also possess distinct range of chemical constituents and are employed for treatment of diverse disease conditions. Thus, the assorted physicochemical characteristics of the genus “*Ixora*” stands as evidence for the contrasting use of different plant formulations, synergistically in the traditional and modern system of medicines to create a safer treatment of diseases.

Keywords: *Ixora coccinea*, Quercetin, Kaempferol, Proanthocyanidins, Menorrhagia, Leucorrhoea

INTRODUCTION:

India has the vast range of climatic conditions, topology and rich habitat in the country. It is also the home for numerous flora species and this makes it to be considered as the richest biodiversity hotspot in the world. Even in the modern era of medicines, many countries in the Africa, Europe and Asia are still following the traditional practices and relying on the traditional medicines, where in which different medicinal plants along with their isolated chemical compounds are being used towards various diseases. Apart from the traditional medicines, the modern medicines that have a huge place in the current market world are also using the plant constituents and are being originated from numerous varieties of flora species. Medicinal plants have less side effects or harmful characteristics when compared with the modern medicines. The traditional medicines have the potential to subside the negative effects of the modern medicines.^{1,2,3}

The medicinal plants that are considered for formulation in the traditional system of medicine contain a collection of secondary compounds such as phenols, alkaloids, flavonoids, tannins, glycosides, proanthocyanins, sterols, carotenoids etc. with extreme biological activities. These chemical constituents which when employed for the treatment of various diseases, act individually or together along with other compounds to produce the desired pharmacological effects. A notable percentage of people across the developed nations in the world are showing their attentiveness towards the herbal medicines & much of the pharmaceutical attention is being paid off towards the medical preparations for use to cure various diseases. Natural products derived from the plant constituents have the furthestmost importance in developing therapeutically active formulations for most of the acute, chronic diseases and other pharmacological applications. Natural products are optimized and progressed to perform regulating intrinsic protective actions and interactions in the effective management of acute, chronic and infectious diseases.^{3,4,5}



Ixora coccinea is one such flora species that is native and common flowering shrub indigenous to southern part of India, Sri Lanka, Bangladesh & southern Asian nation. This plant is an ever-green multi-branched shrub with the height of about 4-6 ft and having the capability to reach up to the height of 12ft or 3-4 m. There are various varieties of the plant differing in colours like pink, red, orange, yellow and cultivars based on size of the plant that include dwarfs, which are about 3 ft in height. *Nora Grant* is one such popular variety of dwarf. *Super King* is a hybrid popular variety with larger flower clusters. As such there are many new hybrids and various cultivars of the “*Ixora coccinea*” that have been in the market and use from the previous decades gaining popularity amongst the flora for the alluring flame of the woods.^{6,7,8}

LITERATURE REVIEW:

Scientific Classification:

Ixora coccinea consists of two set of words, the genus name “*Ixora*” was derived from the Indo-Aryan word or probably from the Sanskrit word “*Ikvana*” or “*Iswara*” which is the other name of lord shiva and the species name “*Coccinea*” was originated from Latin word which means Scarlet and Refers to bloom. The scientific classification is given in the table 1.^{9,10,55}

Common Names:

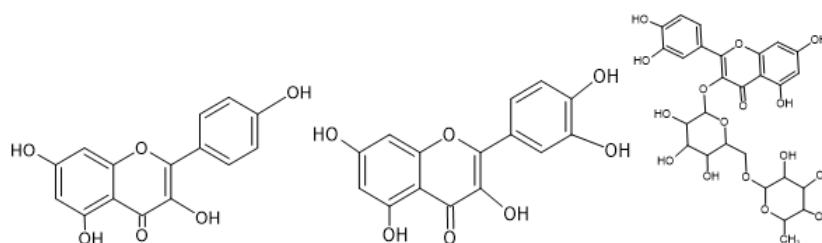
Ixora coccinea is commonly known as Flame of woods, Jungle geranium, Jungle herb, Pendkuli or Jungle flame. Table 2 contains the different names of *Ixora coccinea* in various Indian languages.^{9,10,55}

Traditional Uses:

Different parts of plant *Ixora coccinea* are used across the globe for treatment of wide range of diseases. The parts of the plant such as leaves, flowers, stems, fruits have been used for the preparation of folk medicine in Asian countries, Africa and some parts of Europe. Different parts of the plant in Ayurveda are used for the preparation of various formulations as a medicine for numerous diseases. Table 3 shows the uses of different parts of the plant *Ixora coccinea*.^{9,10,55}

Chemical constituents:

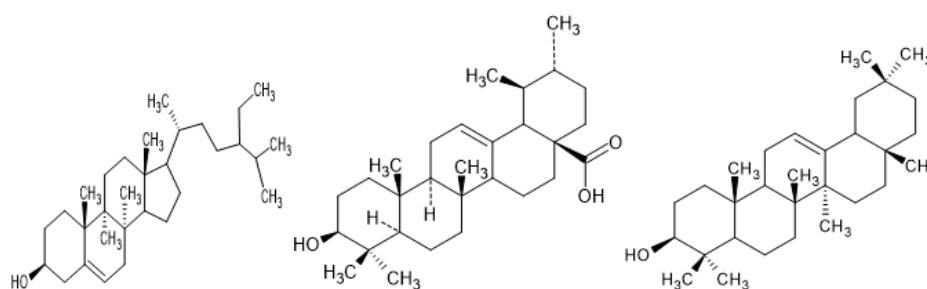
The plant *Ixora* consists of various chemical constituents, it consists of triterpenoids, flavonoids, glycosides as the major constituents, that includes lupeol, ursolic acid, oleanolic acid, sitosterol, rutin, anthocyanins, proanthocyanidins, glycosides, kaempferol & quercetin.^{11,54,56}



2a) Kaempferol

2b) Quercetin

2c) Rutin



2d) Beta-sitosterol

2e) Ursolic acid

2f) Oleanolic acid

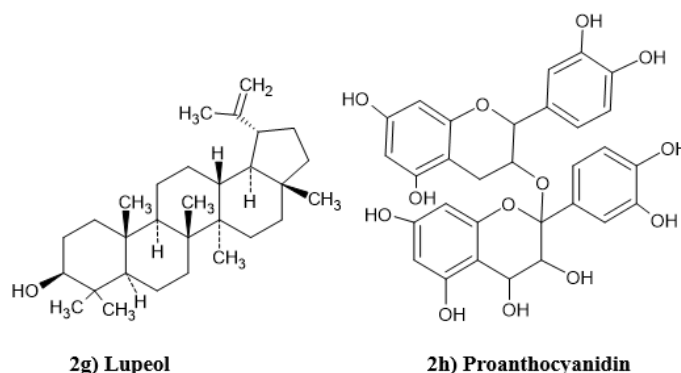


Fig: 2[a-h] Chemical constituents of *Ixora coccinea*

Various Species *Ixora*:

There are various species of the genus "*Ixora*" that are native to different parts of the world including Asia, Europe and Africa. Each of the different species contain numerous chemical constituents which show their potential activities upon different biological and pharmacological activities. The parts of the plants like leaves, stems, roots, flowers, twigs are taken for the preparation of extracts and are further utilized for the testing of their potential activities. Some of the species of "*Ixora*" are described in the table 4.

ACUTE TOXICITY STUDIES:

Acute toxicity of methanolic extract of *Ixora coccinea* Linn was carried out using albino rats by up and down / staircase method as per the guidelines of OECD. The extract in the doses of 50, 300, 1000, 2000 & 3000 mg/kg body weight was administered to the group of albino rats & were observed for about 48 hrs to study the signs of toxicity. It was observed that there were no signs of mortality or acute toxicity up to the doses of 3000 mg/kg.¹²

PHARMACOLOGICAL ACTIVITIES:

As, it is known that the plant "*Ixora coccinea*" has enormous number of chemical and phytoconstituents it is significant to possess various pharmacological activities based on the major constituents and their properties. The potency of such constituents was determined by using suitable methods and studies were carried out to accomplish the details of the pharmacological activities exhibited by the plant "*Ixora coccinea*", some of such pharmacological activities exhibited by the plant and its natural compounds are discussed below.

Alpha-amylase inhibitory activity:

Anti-diabetic activity by alpha-amylase inhibitory method was performed with various concentrations of aqueous extracts (100-600g/ml) of *Ixora coccinea*. The inhibitory activity on the alpha-amylase enzyme of the *Ixora coccinea* aqueous extract was determined to be 655.02 μ g/ml, it was compared to the standard, acarbose at a concentration of 19.85 μ g/ml.

By this experiment it was evident that the aqueous extract of the plant shows a positive impact on diabetes, it is also observed that the increasing concentrations resulted in the increased percent of inhibition. This result stands to provide an insight that the plant has the potency to exhibit the anti-diabetic properties.^{9,10}

Anti-microbial activity:

The antimicrobial activity of the root samples of *Ixora Coccinea* was observed variably against *Basilus cereus*, *B. Subtilis* and *Shigella dysenteriae* but it was also found that no single sample was active against *E.coli*. The consistent and better activities were observed with the higher concentrations of the root samples. The highest activity of root samples of *Ixora coccinea* was found in ICCFF and were also active against *s. dysenteriae* which is a known pathogen of dysentery and diarrhoea. It causes severe toxicity to intestinal epithelial cells as it invades through the mucosa of the colon.



In the study it was also observed that the root samples of *Ixora coccinea* were effective against *B. cereus* and *B. subtilis* which are food borne pathogens. From this study it is evident that the root of *Ixora coccinea* possess a great anti-microbial activity against both gram-positive and gram-negative bacteria. This provides the potential insight application of *Ixora coccinea* as a potent anti-microbial agent with natural sources of bioactive molecules.^{1,26,27,28,29}

Anti-oxidant and Anti-hyperlipidemic activity:

The hyperlipidemic activity of *Ixora coccinea* was observed with the Triton X-100 induced rats. The DPPH, FRAP and hydrogen peroxide methods were employed in the in-vitro anti-oxidant study of *Ixora coccinea*. The extracts of the plant are tested for in-vivo anti-hyperlipidemic and anti-obesity activities for the measurement of biochemical parameters in the hyperlipidemic rats. It was observed that when compared with the radicals of DPPH, FRAP and hydrogen peroxide, the high ability to scavenge free radicals was seen to be estimated by flavonoid and phenolic content with dose dependent behavior.

The activity with the reserve of 71.5% was observed with the DPPH, 56.8% with FRAP out of which the aqueous extract has shown the maximum effect. The biochemical parameters and the lipid profile were monitored by increasing HDL-C levels and reducing LDL-C, TG levels. Also, the high levels of creatinine, uric acid, urea due to hyperlipidemia were controlled. This provides the economic detail that *Ixora coccinea* can be the natural drug of choice for the control of hyperlipidemia and related complications.^{30,34,35}

Anti-tyrosinase assay or Skin whitening assay:

In this experiment, L-DOPA has been used as the substrate where the mushroom tyrosinase was employed for the bioassay and was so done since the mode of inhibition rely on the structure of both the inhibitor and the substrate. The methanolic and aqueous extracts of roots of *Ixora coccinea* were determined by inhibitory potency of mushroom tyrosinase. The percentage inhibition for aqueous extract and methanolic extract were $50.48 \pm 0.28\%$ and $96.99 \pm 0.35\%$ respectively. In the above experiment, dose dependent response was observed while comparing with the standard kojic acid and it was also observed that the methanolic extract was more effective than the aqueous extract.

Hence the present study indicates that the anti-tyrosinase activity is significantly exhibited by the methanolic extracts of *Ixora coccinea* roots.^{31,32,33,34,35}

Anti-inflammatory activity:

The denaturation assay for the anti-inflammatory activity was performed using the fruit extract of the plant where in which different concentrations are employed of the experiment. Then the denaturation of the proteins was observed for evaluating the anti-inflammatory activity.

In the attained results, it was noted that the IC₅₀ value was found to be $54.518 \mu\text{g}$. It is also significant to be effective in preventing denaturation of albumin at 0-100 μg . Thus, the observed results substantiated that the fruit extract of *Ixora coccinea* has the potency to exhibit the denaturation of proteins and shows the anti-inflammatory activity.^{36,37,57}

Wound healing activity:

The wound healing activity on the rats was done by performing sterile biopsy on the animals where the two skin layers were removed completely so as to create an ablational wound which is symmetrical. Blotting was performed to the wounded area to achieve homeostasis. After certain treatment the animals were observed after 2, 4, 8, 12 & 16 days. The wound contraction rates (WCR) of different groups of animals after certain drug treatment which are determined and evaluated are discussed in the given table 5.

In this experiment it was stated the healing properties are exhibited due to the presence of active and potent chemical constituents that are present in the plant extract.

From this experiment, it is evident that the preformulated hydrogel of the extract of *Ixora coccinea* which is 25% methanolic leaf extract was found to exhibit enhanced contraction rate which was also non-irritating and effective against *S. aureus*. Thus, it is a potent economic and a good alternative for povidone – iodine in wound healing.^{27,38,39,40}



Anti-diabetic activity:

Inhibition of alpha-glucosidase enzyme, by starch-iodine colour assay method was employed for performing the anti-diabetic activity of the natural compound. The methanolic plant extract in the concentrations of 20 µg/ml - 100µg/ml was employed for the experiment and a dose dependent response was observed with the gradual increase of the concentration. The percent of inhibition was found to be from 17% to 70%.

Thus, from the experiment it is evident that the crude methanolic extract of *Ixora coccinea* flowers showed significant activity in the invitro inhibition of alpha-glucosidase activity.^{41,42,43,44}

Analgesic activity:

Eddy's hot plate and tail flick are the two methods employed for the determination of analysis activity in animals.

In the Eddy's hot plate method, the animals were placed on the hot plate apparatus and the responses like paw licking & jumping are observed. Whereas, in the tail flick method, the mice are subjected to the radiation or electric current for determining the changes after drug administration. The two induction methods are employed for inducing pain to the animal.

Here the test drug methanolic extract of *Ixora coccinea* was compared with the standard drug aspirin. After certain trials performed it was evident that the intraperitoneal administration of methanolic extract of *Ixora coccinea* stems confirms the analgesic activity on the animals.^{45,46,47,48,49,57}

Anti-convulsant activity:

In the present study, the anti-convulsant activity was assayed by convulsant induction model – Maximally Electro Shock seizures (MES) examination method. Here, the seizure pattern is induced using a convulsion meter at an irregular existence of 150.00 mA for 0.200 sec. The ethanolic extract of *Ixora coccinea* was taken for the determination of anti-convulsant activity using this method in rats and was found to be effective as an anti-convulsant. Where as in the PCT – induced seizures the extract was found to show no effect significantly against the seizures. These results suggests that the ethanolic extract of *Ixora coccinea* has the potent anti-convulsant activity.^{50,51,52,53,54}

CONCLUSION:

The genus *Ixora* has diversified range of potential activities that paves the way for the new age development of medicines from the natural sources for the treatment of various kinds of diseases. The enormous number of chemical constituents present in different species of the genus *Ixora* can be utilized synergistically in different ways and can be employed in preparation of many new formulations. The natural source of medicines can compensate the alter effects of the modern medicines which also creates a safer treatment for the diseases. This review on the genus "*Ixora*" presents the data of ethnobotany, phytochemistry and various reported pharmacological activities. Compilation of this present review provides an insight for novel therapeutic use of the genus "*Ixora*".

Conflict of interest: Authors have no conflict of interest.

Acknowledgement: Authors are thankful to Prof. Dr. G. Tulja Rani, Principal of Malla Reddy Pharmacy College and HOD's of respective departments and staff for supporting the work and providing necessary facilities.

REFERENCES:

1. Muhammad H, Qasim M, Ikram A, Versiani MA, Tahiri IA, Yasmeen K, et al. Antioxidant and antimicrobial activities of *Ixora coccinea* root and quantification of phenolic compounds using HPLC. South Afr J Bot. 2020;135:71–79. doi:10.1016/j.sajb.2020.08.012
2. Gupta PD, Birdi TJ. Development of botanicals to combat antibiotic resistance. J Ayurveda Integr Med. 2017;8:266–275.
3. Shah MA, Muhammad H, Mehmood Y, Khalil R, Ul-Haq Z, Panichayupakaranant P. Superoxide scavenging and anti-glycation activity of rhinacanthins-rich extract from *Rhinacanthus nasutus* leaves. Pharmacogn Mag. 2017;13:652–658.
4. Aware CB, Patil DN, Suryawanshi SS, Mali PR, Rane MR, Gurav RG, et al. Natural bioactive products as promising therapeutics: A review of natural product-based drug development. South Afr J Bot. 2022;151(Pt B):512–528.
5. Roja P, Nandini M, Deepthi B. A review on *Ixora coccinea* plant. Int J Pharm Appl Res. 2021;6(3):729–734.
6. Devendran A, Gnanavel G. A review on *Ixora coccinea*: Traditional use, phytochemical and pharmacological studies [Internet]. 2024 [cited 2024 Feb 9]. Available from: <https://www.jchps.com/issues/v13/i01/JCHPS20191301004.pdf>



7. Kharat AR, Nambiar VV, Tarkasband YS, Pujari RR. A review on phytochemical and pharmacological activity of genus *Ixora*. Int J Res Pharm Chem. 2013;3(3):628–635.
8. Latha LY, Ibrahim D. Pharmacological screening of methanolic extract of *Ixora* species. Asian Pac J Trop Biomed. 2012;2(2):149–151.
9. Sivaraj C, Jenifer A, Saraswathi K, Arumugam P. Pharmacological activities of aqueous flower extract of *Ixora coccinea*. J Drug Deliv Ther. 2019;9(2-S):28–34. doi:10.22270/jddt.v9i2-s.2440
10. Naidu SP, Kalusalingam A, Khan A, Pavitra DR, Hema MM, Menon BVV, et al. A review on ethnobotany, phytochemistry and pharmacology of *Ixora coccinea*. NeuroQuantology. 2022;20(14):135–143. doi:10.4704/nq.2022.20.14.NQ88019
11. Baliga MS, Kurian PJ. *Ixora coccinea* Linn.: Traditional uses, phytochemistry and pharmacology. Chin J Integr Med. 2012;18(1):72–79. doi:10.1007/s11655-011-0881-3
12. Momin F, Shikalgar T, Naikwade N, Kalai B. Cardioprotective effect of methanolic extract of *Ixora coccinea* leaves on doxorubicin-induced cardiac toxicity in rats. Indian J Pharmacol. 2012;44(2):178–183. doi:10.4103/0253-7613.93844
13. Li TG, Cai H, Wang TX, Fu YG, Yang WH, Zhao AJ, et al. Plant regeneration in *Ixora chinensis* from young leaves. Plant Cell Tissue Organ Cult. 2019;139(3):605–608. doi:10.1007/s11240-019-01691-7
14. Dey S, Chatterjee A, Chatterjee D, Ghosh M, Dagur P, Kaur J, et al. Phytochemical screening and anti-inflammatory, antioxidant and antimicrobial investigations on extracts of *Ixora javanica*. Matrix Sci Pharma. 2023;7(2):43. doi:10.4103/mtsp.mtsp_2_23
15. Ganga Raju M, Anusha K, Suvarchala Reddy NVL, Gayathri S, Nikitha K. GC-MS analysis, gastroprotective and in silico docking studies of phytoconstituents from *Ixora javanica* flowers. Int J Life Sci Pharma Res. 2021;11(2):P98–P106. doi:10.22376/ijpbs/lpr.2021.11.2.P98-106
16. Kharat A, Nambiar V, Kharat KR. Antitumor and antioxidant potential of ethyl acetate extract of *Ixora singaporensis* against Ehrlich ascites carcinoma tumor. Int J Pharm Biol Sci. 2019;9(2). doi:10.21276/ijpbs.2019.9.2.134
17. Suneeta D, Tirupathi Rao Y. Phytopharmacological screening of whole plant of *Ixora pavetta*. J Med Plants Stud [Internet]. 2020;8(6):142–145. Available from: <https://www.plantsjournal.com/archives/2020/vol8issue6/PartB/8-6-21-424>
18. Mondal S, Raja S, Prasad P, Suresh P. Phytochemical, analgesic, anti-inflammatory and antipyretic effects of *Ixora pavetta* leaf. J Nepal Pharm Assoc. 2015;27(1):20–27. doi:10.3126/jnpa.v27i1.12146
19. Reddy GJ, Prasanth Reddy V, Sreepavani M, Rajaram C, Nelson Kumar S, Kanhere RS. Evaluation of hepatoprotective potential of ethanolic extract of *Ixora pavetta* against isoniazid- and rifampicin-induced hepatotoxicity in rats. Drug Invent Today. 2013;5(3):201–206. doi:10.1016/j.dit.2013.06.007
20. Wen KC, Chiu HH, Fan PC, Chen CW, Wu SM, Chang JH, et al. Antioxidant activity of *Ixora parviflora* in a cell/cell-free system and in UV-exposed human fibroblasts. Molecules. 2011;16(7):5735–5752. doi:10.3390/molecules16075735
21. Kan NW, Huang WC, Lin WT, Huang CY, Wen KC, Chiang HM, et al. Hepatoprotective effects of *Ixora parviflora* extract against exhaustive exercise-induced oxidative stress in mice. Molecules. 2013;18(9):10721–10732. doi:10.3390/molecules180910721
22. Mohammed MMD, Mohamed KM. Anti-HIV-1 and cytotoxicity of a new dimeric thiazepine alkaloid isolated from *Ixora undulata* Roxb. leaves. Med Chem Res. 2017;26(9):2119–2126. doi:10.1007/s00044-017-1921-y
23. Sugimoto S, Wanas AS, Mizuta T, Matsunami K, Kamel MS, Otsuka H. Structure elucidation of secondary metabolites isolated from the leaves of *Ixora undulata* and their inhibitory activity toward advanced glycation end-products formation. Phytochemistry. 2014;108:189–195. doi:10.1016/j.phytochem.2014.10.008
24. Sajini RJ, Chamundeeswari D, Kindo AJ, Jayakumari S, Karthik R. *Ixora* species: A review on chemical constituents and pharmacological activities. Lat Am J Pharm. 2023;42(3):1000–1024. Available from: <http://actafarmonaerense.com.ar/index.php/latamjpharm/article/view/427>
25. Veeramuthu K, Annadurai P, Gideon DA, Sivaramakrishnan R, Sundarrajan B, Dhandayuthapani K, et al. In silico molecular docking and in vitro cytotoxic, antioxidant, antimicrobial and anti-inflammatory activity of *Ixora brachiata* Roxb. Process Biochem. 2023;124:150–159. doi:10.1016/j.procbio.2022.11.014
26. Abbasi MW, Zaki MJ, Anis M. Application of *Bacillus* species cultured on different low-cost organic substrates for control of root-knot nematode infection on okra (*Abelmoschus esculentus*). Pak J Bot. 2013;45:1079–1084.
27. Selvaraj N, Lakshmanan B, Mazumder PM, Karuppasamy M, Jena SS, Pattnaik AK. Evaluation of wound healing and antimicrobial potentials of *Ixora coccinea* root extract. Asian Pac J Trop Med. 2011;4:959–963.
28. Rajakumar G, Rahuman AA, Jayaseelan C, Santhoshkumar T, Marimuthu S, Kamaraj C, et al. *Solanum trilobatum* extract-mediated synthesis of titanium dioxide nanoparticles and their control of parasites. Parasitol Res. 2014;113:469–479.
29. Poornima P, Weng CF, Padma VV. Neferine, an alkaloid from lotus seed embryo, inhibits human lung cancer cell growth by MAPK activation and cell cycle arrest. Biofactors. 2014;40:121–131.
30. Ahmed SZ, Khader SZA, Radhakrishnan K, Marimuthu V, Chinnusamy M, Thangavel V, et al. Antiobesity and antihyperlipidemic effect of *Ixora coccinea* on Triton X-100-induced hyperlipidemia in rats. Chin Herb Med. 2019;11(3):326–331. doi:10.1016/j.chmed.2019.05.006
31. Sindhu Rani JA. Evaluation of in vitro antioxidant and anti-tyrosinase activities of *Ixora coccinea* Linn. roots. J Pharmacogn Phytochem. 2022;11(2):144–150. doi:10.22271/phyto.2022.v11.i2b.14380



32. Ye Y, Chou GX, Mu DD, Wang H, Chu JH, Leung AK, et al. Screening of Chinese herbal medicines for anti-tyrosinase activity in a cell-free system and B16 cells. *J Ethnopharmacol.* 2010;129(3):387–390.
33. Rauniyar R, Talkad MS, Sahoo S, Singh A, Harlalka P. Anti-tyrosinase activity of *Stachytarpheta cayennensis* in vitro. *Int J Innov Res Sci Eng Technol.* 2014;3(7):14259–14266.
34. Nithya N, Arun D, Balakrishnan KP. Screening of some medicinal plants for anti-tyrosinase and antioxidant activities. *Int J Pharm Tech Res.* 2011;3(2):1107–1111.
35. Boudjelal F, Henchiri C, Siracusa L, Sari M, Ruberto G. Phenolic composition, antioxidant and tyrosinase inhibitory activity of *Mentha* species. *Ind Crops Prod.* 2015;74:722–730.
36. Narayanappa M, Urs D, Meti RS, Sathisha AD, Dharmappa KK. *Ixora coccinea* fruit inhibits secretory phospholipase A2-IIA activity and exhibits antioxidant efficacy. *Int J Green Pharm.* 2023;17(2):177. doi:10.22377/ijgp.v17i02.3436
37. Ratnasooriya WD, Deraniyagala SA, Galhena G, Liyanage SSP, Bathige SDNK, Jayakody JRAC. Anti-inflammatory activity of the aqueous leaf extract of *Ixora coccinea*. *Pharm Biol.* 2005;43(2):147–152.
38. Rescober AA, Blanco IFM, Janio JAT, Custodio SEA, Daguman FLD, Viray JMD, et al. Healing activity of *Ixora coccinea* leaf extract in hydrogel formulation. *Acta Med Philipp.* 2022;56(7).
39. Moreira CF, Cassini-Vieira P, da Silva MF, Barcelos LS. Skin wound healing model: Excisional wounding and assessment of lesion area. *Bio Protoc.* 2015;5(22).
40. Nilugal KC, Fattepur S, Asmani MF, Abdullah I, Vijendren S, Ramesh UE. Evaluation of wound healing activity of *Swietenia macrophylla* seed extract in albino rats. *J Pharm Tech Res.* 2017;7(5).
41. Kan NW, Huang WC, Lin WT, Huang CY, Wen KC, Chiang HM, et al. Hepatoprotective effects of *Ixora parviflora* extract against exhaustive exercise-induced oxidative stress in mice. *Molecules.* 2013;18(9):10721–10732. doi:10.3390/molecules180910721
42. Mohammed MMD, Mohamed KM. Anti-HIV-1 and cytotoxicity of a dimeric thiazepine alkaloid isolated from *Ixora undulata* Roxb. leaves. *Med Chem Res.* 2017;26(9):2119–2126. doi:10.1007/s00044-017-1921-y
43. Sugimoto S, Wanas AS, Mizuta T, Matsunami K, Kamel MS, Otsuka H. Structure elucidation of secondary metabolites from *Ixora undulata* leaves and their inhibitory activity toward advanced glycation end-products formation. *Phytochemistry.* 2014;108:189–195. doi:10.1016/j.phytochem.2014.10.008
44. Sajini RJ, Chamundeeswari D, Kindo AJ, Jayakumari S, Karthik R. *Ixora* species: A review on chemical constituents and pharmacological activities. *Lat Am J Pharm.* 2023;42(3):1000–1024. Available from: <http://actafarmonaerense.com.ar/index.php/latamjpharm/article/view/427>
45. Veeramuthu K, Annadurai P, Gideon DA, Sivaramakrishnan R, Sundarrajan B, Dhandayuthapani K, et al. In silico molecular docking and in vitro cytotoxic, antioxidant, antimicrobial and anti-inflammatory activity of *Ixora brachiata* Roxb. *Process Biochem.* 2023;124:150–159. doi:10.1016/j.procbio.2022.11.014
46. Abbasi MW, Zaki MJ, Anis M. Application of *Bacillus* species cultured on different low-cost organic substrates for control of root-knot nematode infection on okra (*Abelmoschus esculentus*). *Pak J Bot.* 2013;45:1079–1084.
47. Selvaraj N, Lakshmanan B, Mazumder PM, Karuppasamy M, Jena SS, Pattnaik AK. Evaluation of wound healing and antimicrobial potentials of *Ixora coccinea* root extract. *Asian Pac J Trop Med.* 2011;4:959–963.
48. Rajakumar G, Rahuman AA, Jayaseelan C, Santhoshkumar T, Marimuthu S, Kamaraj C, et al. *Solanum trilobatum*-mediated synthesis of titanium dioxide nanoparticles and control of parasitic vectors. *Parasitol Res.* 2014;113:469–479.
49. Poornima P, Weng CF, Padma VV. Neferine, an alkaloid from lotus seed embryo, inhibits human lung cancer cell growth by MAPK activation and cell cycle arrest. *Biofactors.* 2014;40:121–131.
50. Ahmed SZ, Khader SZA, Radhakrishnan K, Marimuthu V, Chinnusamy M, Thangavel V, et al. Antiobesity and antihyperlipidemic effect of *Ixora coccinea* on Triton X-100-induced hyperlipidemia in rats. *Chin Herb Med.* 2019;11(3):326–331. doi:10.1016/j.chmed.2019.05.006
51. Sindhu Rani JA. Evaluation of in vitro antioxidant and anti-tyrosinase activities of *Ixora coccinea* Linn. roots. *J Pharmacogn Phytochem.* 2022;11(2):144–150. doi:10.22271/phyto.2022.v11.i2b.14380
52. Ye Y, Chou GX, Mu DD, Wang H, Chu JH, Leung AK, et al. Screening of Chinese herbal medicines for anti-tyrosinase activity in a cell-free system and B16 cells. *J Ethnopharmacol.* 2010;129(3):387–390.
53. Rauniyar R, Talkad MS, Sahoo S, Singh A, Harlalka P. Anti-tyrosinase activity of *Stachytarpheta cayennensis* in vitro. *Int J Innov Res Sci Eng Technol.* 2014;3(7):14259–14266.
54. Nithya N, Arun D, Balakrishnan KP. Screening of some medicinal plants for anti-tyrosinase and antioxidant activities. *Int J Pharm Tech Res.* 2011;3(2):1107–1111.
55. Boudjelal F, Henchiri C, Siracusa L, Sari M, Ruberto G. Phenolic composition, antioxidant and tyrosinase inhibitory activity of *Mentha* species. *Ind Crops Prod.* 2015;74:722–730.
56. Narayanappa M, Urs D, Meti RS, Sathisha AD, Dharmappa KK. *Ixora coccinea* fruit inhibits secretory phospholipase A2-IIA activity and exhibits antioxidant efficacy. *Int J Green Pharm.* 2023;17(2):177. doi:10.22377/ijgp.v17i02.3436
57. Ratnasooriya WD, Deraniyagala SA, Galhena G, Liyanage SSP, Bathige SDNK, Jayakody JRAC. Anti-inflammatory activity of aqueous leaf extract of *Ixora coccinea*. *Pharm Biol.* 2005;43(2):147–152.



58. Rescober AA, Blanco IFM, Janio JAT, Custodio SEA, Daguman FLD, Viray JMD, et al. Healing activity of *Ixora coccinea* leaf extract in hydrogel formulation. *Acta Med Philipp.* 2022;56(7).
59. Moreira CF, Cassini-Vieira P, da Silva MF, Barcelos LS. Skin wound healing model: Excisional wounding and assessment of lesion area. *Bio Protoc.* 2015;5(22).
60. Nilugal KC, Fattepur S, Asmani MF, Abdullah I, Vijendren S, Ramesh UE. Evaluation of wound healing activity of *Swietenia macrophylla* seed extract in albino rats. *J Pharm Tech Res.* 2017;7(5).

ABBREVIATIONS:

DPPH:2,2-diphenyl-1-picrylhydrazyl

FRAP:Fluorescence Recovery after Photobleaching

HDL-C:High density lipoprotein cholesterol

IC 50: Half maximal inhibitory concentration

ICCF: *Ixora coccinea* chloroform fraction

LDL-C: Low density lipoprotein cholesterol

L-DOPA: Levodopa

MES: Maximally electro Shock Seizures

OECD: Organisation for Economic Co-operation and Development

PCT: Procalcitonin

TG: Triglyceride

WCR: Wound Contraction Rates

Table:1 Scientific classification

Kingdom	Plantae
Clade	Tracheophyte
Clade	Angiosperms
Clade	Eudicots
Clade	Asterides
Order	Gentianales
Family	Rubiaceae
Genus	<i>Ixora</i>
Species	<i>coccinea</i>

Table:2 Names of *Ixora coccinea* in various Indian languages

Language	Names
Telugu	Nooruvarahalu, Bandhukamu, Manmadhabanam
Tamil	Vetchi, Koran kullai, Sedaram
Malayalam	Thechi, Thetti poo, Chetti
Sanskrit	Ishwara, Parali, Bandhujivaka
Kannada	Kepala, Kempuladida, Kisukare



Table:3 Uses of different parts of the plant *Ixora coccinea*

Parts	Uses
Flowers	Hypertension, Ulcers, Haemoptysis, Dysentery
Fruits	Urinary trouble in women
Leaves	Skin diseases, Anti-inflammation, Diarrhoea, Ulcers, Anti-viral, Anti-nociceptive, Indigestion, Headache
Roots	Fever, Headache, Colic, Sedative, Menorrhagia, Leucorrhoea, Bronchial disorders

Table 4: Chemical constituents, parts used and reported activities of various species of “*Ixora*”

S.no	Species	Chemical constituents	Parts used	Reported activities	References
1.	<i>Ixora chinensis lam</i>	D-mannitol Oleic acid Linoleic acid B-sitosterol Iridoid glycosides	Leaves	Anti-microbial Anti-oxidant Anti-diabetic Anti-bacterial Plant regeneration	Ting Ge Li et al., (2019) Saleha Akter et al., (2015)
2.	<i>Ixora javanica</i>	Ferulic acid Saponins, Tannins Alkaloids Flavonoids, Sterols Terpene Phenols.	Flowers Leaves	Anti-inflammatory Antioxidant Anti-microbial Gastroprotective Anti-tumor	Dey, S et al., (2023) M Ganga Raju*et al., (2021)
3.	<i>Ixora singaporensis</i>	Ursolic acid Oleanolic acid Lupeol α -Copaene Terpineol acetate Geranyl Acetate	Leaves	Anti-tumor Anti-oxidant	Amol Kharat et al., (2019)
4.	<i>Ixorapavetta</i>	Arachidic acid Behenic acid Saponins Steroids Triterpenoids	Leaves	Analgesic Anti-inflammatory Anti-pyretic Hepatoprotective Diuretic & Laxative	D Suneeta et al., (2020) Mondal, S et al., (2015) Jyothi Reddy et al., (2013)
5.	<i>Ixora parvifolia</i>	Leucocyanidins D-mannitol Oleanolic acid Sitosterol Anthocyanins	Leaves	Anti-oxidant Hepatoprotective Anti-aging Anti-microbial	Kuo-Ching Wen et al., (2011) Nai-Wen Kan et al., (2013) Thakur, P. C et al., (2014)
6.	<i>Ixora undulata</i>	Ursolic acid Oleanolic Lupeol Triterpenoids Alkaloids	Leaves	Anti-HIV Cytotoxicity Inhibitory activity	Mohammed, M. M. D et al., (2017) Sugimoto, S et al., (2014)
7.	<i>Ixora philippinensis</i>	Pinoresinol Syringaresinol Isoscopoletin Squalene B-sitosterol	Stems Leaves	Analgesic Anti-microbial Anti-oxidant Anti-cancer	Jasmin Sajini, R et al., (2023) C Y. Ragasa et al., (2015)
8.	<i>Ixora brachiata</i>	Saponins Reducing sugars Tannins Protocatechuric acid	Leaves	Anti-oxidant Anti-microbial Anti-inflammatory	Veeramuthu, K et al., (2023)
9.	<i>Ixora alba</i>	Anthracene Alkaloids Cardiac glycosides Coumarins	Twigs	Anti-microbial Anti-oxidant	Jasmin Sajini, R et al., (2023)

		Flavonoids			
10.	<i>Ixora amplexicaulis</i>	Maslinic acid Hydroxysitosterol Protocatechuric acid	Stems Leaves	Analgesic Anti-microbial Anti-oxidant Anti-cancer	Jasmin Sajini, R et al., (2023)

Table 5: Wound contraction rates of different groups of animals

Group	2 days	4 days	8 days	12 days	16 days
Untreated group	2.1%	19.73%	--	97.12%	--
Preformulated hydrogel	20.50%	37.11%	52.68%	--	--
Povidone-iodine	4.93%	19.27%	31.86%	83.82%	100%
Hydrogel base	10.20%	25.21%	41.89%	100%	--



Fig: 1A Fig: 1B Flower of *Ixora coccinea*



Fig: 1C

Fig: 1[A,B,C] *Ixora coccinea* plant


How to cite this article:

Swathi Nalla et al. *Ijppr.Human*, 2026; Vol. 32 (5):1-11.

Conflict of Interest Statement: All authors have nothing else to disclose.

This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.



	<p>Dr.Swathi Nalla – Corresponding Author JNTUH Affiliation Malla Reddy Pharmacy College, Maisammaguda, Hyderabad.</p>
<p>Image Author -2</p>	<p>P Nikhilanandini JNTUH Affiliation Malla Reddy Pharmacy College, Maisammaguda, Hyderabad.</p>
<p>Image Author -3</p>	<p>A Surya JNTUH Affiliation Malla Reddy Pharmacy College, Maisammaguda, Hyderabad.</p>
<p>Image Author -4</p>	<p>A Akshaya JNTUH Affiliation Malla Reddy Pharmacy College, Maisammaguda, Hyderabad.</p>
<p>Image Author -5</p>	<p>G.Tulja Rani JNTUH Affiliation Malla Reddy Pharmacy College, Maisammaguda, Hyderabad</p>