Content available at: https://www.ipinnovative.com/open-access-journals

IP International Journal of Comprehensive and Advanced Pharmacology

Journal homepage: https://www.ijcap.in/

Review Article

Ethnobotanical, phytochemical and pharmacological profile of Trichosanthes tricuspidata: An updated review

P Rekha[1], Ajay Kumar Meena[2,*], T Satheesh Kumar[1]

[1] *Tamil Nadu Veterinary and Animal Sciences University (TANUVAS), Chennai, Tamil Nadu, India*
[2] *The Regional Ayurveda Research Institute (RARI), CCRAS, Gwalior, Madhya Pradesh, India*

ARTICLE INFO

Article history:
Received 31-08-2021
Accepted 11-09-2021
Available online 28-10-2021

Keywords:
Trichosanthes tricuspidata
Pharmacological activity
Ethnobotanical
Chemical constituents
Herbal products

ABSTRACT

Background: Herbal medicines, the backbone of traditional medicine in many countries have played an important role in curing the various diseases of humans and animals since ancient time. Medicinal plants are great source of bioactive compounds that have potential beneficial effects in human life.
Materials and Methods: Electronic databases including PubMed, Google Scholar, books and other sources were searched using subject specific key words that were matched by Trichosanthes tricuspidata medicinal plant related useful information on botanical description, plant distribution, ethanobotanical & therapeutic uses, chemical constituents and pharmacological activity etc.
Results: Trichosanthes tricuspidata have many medicinal properties like antioxidant, anticancer, antibacterial, antifungal, Larvicidal activity, Anticonvulsant activity, Gastro protective activity and other activities. The Bioactive compounds of Trichosanthes tricuspidata responsible for its various medicinal properties and their effects at the molecular level need to be investigated in more detail. **Conclusion:** The present review summarizes the Ethnobotanical & therapeutic uses, chemical constituents and pharmacological activity information of Trichosanthes tricuspidata. The pharmacological properties of bioactive compounds in Trichosanthes tricuspidata are required to confirm the ethno medicinal or traditional claims of Trichosanthes tricuspidata for pharmaceutical therapeutic applications.

1. Introduction

Plants considered being very rich sources of secondary metabolites which are having therapeutic importance. Majority of world's population in developing countries still relies on herbal medicines to meet its health needs. In recent times, focus on herbal research has increased globally and evidence collected from different research survey shows the immense potential of medicinal plants used in Indian system of traditional medicines.[1]

The important advantages of medicinal plants in various treatments are due to their fewer side effects, less expensive, more efficacy and availability throughout the world.[2] The World Health Organization has estimated more than 80 % of the world's population in developing countries depends primarily on herbal medicines for their basic healthcare needs.[3] The practitioners of traditional system of medicine treat about 80% of patients in India, 85% in Burma and 90% in Bangladesh.[4,5] Medicinal plants are the richest bio resource of drugs for traditional systems of medicine, modern medicines, Nutraceuticals, food supplements, folk medicines, pharmaceutical intermediates and chemical entities for synthetic drugs. Medicinal plant plays a main role in the growth of new herbal drugs. The majority of the medicinal plants are collected from the wild and recently some medicinal plants are cultivated by farmers.[1,6]

* *Corresponding author*.
E-mail address: ajaysheera@gmail.com (A. K. Meena).

https://doi.org/10.18231/j.ijcaap.2021.019

Ayurveda, Siddha and Unani (ASU) system of medicines are the science of life or longevity is more than 5000 years old and is believed to be the oldest healing science in existence. Medicinal plants are renowned in the prehistoric Ayurvedic classics.[7] ASU system of medicine is important surprising medicinal systems of Indian's. Now a day whole world is interest in India's Ayurveda and other traditional systems medicine. In this current paper we study a review focus on the update of Trichosanthes tricuspidata because of it is a very important medicinal plant.

Trichosanthes tricuspidata, a traditional medicinal plant is commonly used in Ayurvedic medicines. The various plant parts are used for the treatment of various human diseases. The plant possess diverse functions as antibacterial, antifungal, anthelmintic, larvicidal, antioxidant, anti-hyperglycaemic, anti- inflammatory activity and gastro protective activity etc.

This review details the morphology, distribution and systemic classification, Ethnobotanical uses, therapeutic uses, phytoconstituents of Trichosanthes tricuspidata plant and various research findings related to its pharmacological activities.

2. Materials and Methods

Published scientific literature about Trichosanthes tricuspidata medicinal plant was downloaded and retrieved from different databases such as Google scholar, Scopus, PubMed, Web of Science and other sources using the key words, botanical description, plant distribution, Ethnobotanical & therapeutic uses, uses in Indian system of medicine (Ayurveda, Siddha and Unani) bioactive compounds and pharmacological activity. The information obtained on Trichosanthes tricuspidata regarding ethno botany, Phytochemistry and pharmacology was summarized in the article. To assure the validity of data, two co-authors reviewed all the information based on citation.

3. Results and Discussion

3.1. Scientific Classification

Kingdom: Plantae
Family: Cucurbitceae (Pumpkin family)
Genus: Trichosanthes
Species: tricuspidata
Authority: Lour.

Synonyms: Trichosanthes palmata Roxb., Trichosanthes bracteata Lamb., Trichosanthes pubera Blume or Modeccca bracteata.

Earlier researchers identified and reported as Trichosanthes tricuspidata belong to Trichosanthes bracteata, but recently researchers revised the reported classification and identified the Trichosanthes tricuspidata and Trichosanthes bracteata both are two different species in India.[8,9]

3.2. Vernacular name

Common name of Trichosanthes tricuspidata is Indrayan; English - Red ball Snake gourd; Hindi - Mahakal, Indrayan; Marathi - Kaundal; Tamil - Ankorattai, Korattai; Malayalam -Kakkattonti; Telugu - Avaduta; Kannada – Avaguda - Hannu; Gujarati – Ratan indrayan; Sanskrit -Kakanasa, Shvetpushpi, Dhvamksanasa.[8]

3.3. Plant Distribution

Trichosanthes tricuspidata is a climber which is found at an elevation of 1200 to 2300 m. Trichosanthes tricuspidata is found west Bengal and Southern India.[10] It ranges from the Eastern Himalayas in India and southern China through southern Japan, Malaysia and tropical Australia.[11] Widely spread in Myanmar, Thailand, Vietnam, West Malaysia and East of the Moluccas.[12]

3.4. Botanical description

Trichosanthes tricuspidata plant is a large woody tendril climber attaining a 5 - 20 meters long height; occasionally monoecious; minutely hairy, early glabrescentrichosanthes. The fresh plant is green in colour after drying brown colour. The petals white colour, cystoliths obvious. Stem old part light grey colour younger part smooth green it is2–4 mm diam. Probract (broadly) elliptic or obovate. Tendrils are 2or 3-branched. Leaves are variable, palmately 3-5lobed dark green in above, glabrous beneath dark coloured circular gland the lower side; broadly ovate or orbicular in outline, the base cordate, the mid-lobe triangular or ellipsoid, the apex acute, the apex of side-lobes regularly down-curved, the margin entire coarsely dentate, petiole 3-7.5 cm long. Male flowers are raceme 7-16 cm long, hairy, peduncle 5-11 cm long, rachis with 3-20 flowers. Flowers are unisexual. Male flowers axillary racemes, bracts broadly ovate, many nerved, fringed and gland dotted. Female flowers are solitary and axillary. Fruits glabrous red when ripe with 10 orange streaks, exocarp leathery, smooth, coarsely wrinkled on drying; pulp green-black; fruiting pedicel 1-2 by 0.3-0.4 cm. Seeds dark brown, numerous, smooth, obovate-elliptic or oblong, 9- 10 by 5-6 by 1.5- 2 mm, the margin absent, edge square or rounded, entire.[11–13]

3.5. Ethanobotanical uses

The paste of Trichosanthes tricuspidata fruits is applied to cure headache (natural head balm), reducing macular swelling and pain, various types of skin infections, itching, lesions of fungal infections on feet during rainy seasons, it is used for kill the head lice and clear dandruff problems on head and helps to cure domestic cattle mouth inflammation also[14].The root paste of Trichosanthes tricuspidata is externally applied on infected part to cure gonorrhoea[15]. Root juice is used to reduce the blood sugar.[16] The seeds

powder is given to treat jaundice and it is also used to cure jaundice with tantani and gulwel.[17,18] The Trichosanthes tricuspidata warm seed oil is applying for changing white hair colour to black hair.[19]

3.6. Therapeutic uses

Trichosanthes tricuspidata is considered as a medicinally important plant in Indian system of traditional systems (Ayurveda, Siddha and Unani) and other traditional medicinal systems.

The fruits of Trichosanthes tricuspidata are bitter used to cure carminative, purgative, migraines, asthma, earache and ozoena. Fruit is used in asthma, lung disorder, as a violent hydrogogue cathartic, abortifacient, to reduce inflammation, reduce heat of the brain, opthalmia, leprosy, weakness of limbs, epilepsy, stomatitis and rheumatism. Thai traditional system of medicine the plant is used to cure ant fever, anthelmintic, laxative and migraine. The seeds are emetic and purgative.[13,20] The roots part helpful to treat lung diseases in cattle, diabetic carbuncles and headaches.[21] Plant used to treat bronchitis and seed paste help to cure hoof and cattle mouth disease.[22] The plant is used for curing snakebite poisoning and the juice of the plant is applied externally for skin eruptions In Nepal the roots are used to cure bleeding in chickens.[11]

3.7. Chemical Constituents

Fruit contains cucurbitane glycosides cucurbitacin 2-O-b-glucopyranoside and 25-O-acetyl-cucurbitacin 2-O-b-glucopyranoside, khekadaengosides A–J, M–N, cucurbitacin K 2-O-b-glucopyranoside and cucurbitacin J 2-O-bglucopyranoside, a hexanorcucurbitaneglucoside (khekadaengoside K and octanor cucurbitane khekada engo side L.[20]

Seed contain fatty acid like n-Hexadecanoic acid, Octadecanoic acid, 9,12-Octadecadienoic acid, 9-Octadecenoic acid, methyl ester, (E) cis-vaccenic acid cis-10-Nonadecenoic acid, Oleic acid, methyl ester ethanone, n-hexylamine, N-acetyl-1-cyno-[1.,2.,3]triazole-4-carboxylic acid, Butyl 9,12-octadecadienoate, Methyl 9,12-heptadecadienoate, 9,12-octadecadienoic acid, 2-Methyl-z,z3,13-octadecadienol 9-Octadecenal and (z)-cyclopropaneoctanal etc.[23]

The root contains trichotetrol, tetrahydroxypentacyclic triterpenoid.[24] methyl palmitate, palmitic acid, suberic acid, α-spinasterol 3-o-beta-D-glucopyranoside, α-spinasterol, stigmast-7- en-3-beta-ol, stigmast-7-en-3-beta-ol-3-O-beta-D-glucopyranoside, glyceryl 1-palmitate, glyceryl 1-stearate, 23,24-dihydrocucurbitacin D, bryonolic acid, cucurbitacin B, isocucurbitacin B, isocucurbitacin D, 3-epi-isocucurbitacin B and D-glucose.[11,25]

The leaf of Trichosanthes tricuspidata contains cyclotrichosantol and cycloeucalenol, cycloartane glycosides named cyclotricuspidosides A, B and C.[24,26]

Stem part of Trichosanthes tricuspidata contain three cycloartane glycosides, named cyclotricuspidosides A, B and C.[26]

3.8. Pharmacological activity of Trichosanthes tricuspidata

In this review, the pharmacological effects of Trichosanthes tricuspidata have been collected from various sources of literature.

3.8.1. Antibacterial activity

Bhardwaj et al. reported the different plant root extracts (ethanolic, aqueous ethanol and aqueous extracts) of Trichosanthes tricuspidata plant shows antibacterial activity against Klebisilla pneumonia and Pseudomonas aeruginosa. Saboo et al.[27,28] reported the chloroform extract of Trichosanthes tricuspidata root shows a significant antibacterial activity. The different extracts (n-butanol, acetone, methanol and aqueous extracts) of Trichosanthes tricuspidata fruits were shows antibacterial activity against Streptococcus pyogenes, compare to all extracts methanolic extract shows more active.[14]

Trichosanthes tricuspidata leaves petroleum ether, chloroform, ethanol, methanol and acetone extract was tested against Gram positive and Gram negative pathogens.[29] Ethanol extract showed greater inhibitions against Bacillus cereus Klebsiella pneumonia, Klebsiellaoxytoca and Brevebacterium paucivorans. Ethanol extract shows a significant antibacterial activity when compare the other extracts.

3.8.2. Anthelmintic Activities

Ethano- botanically this plant was used by tribals to treat an intestinal worm infection which shows significant anthelmintic activity reported in experimental laboratory model. Anthelmintic activity of Trichosanthes tricuspidata was carried out by Dubey.[30] In this investigated the aerial parts of Trichosanthes tricuspidata extracted with ethanol and water. Both extracts showed a more active when compared with standard drug albendazole. Anthelmintic activity of both extracts was dose-dependent manner. Ethanolic extract of Trichosanthes tricuspidata showed more active then aqueous extract.

3.8.3. Antioxidant Activity

Antioxidant activity of different plant parts (leaf and fruit) of Trichosanthes tricuspidata were reported by Rodge et al.[31] In this study fruit part of the Trichosanthes tricuspidata was showed more antioxidant activity compared to leaf was reported in the chloroform extract of Trichosanthes tricuspidata.[28] root showed more antioxidant activity compared to standard. It was reported the methanolic extract of Trichosanthes tricuspidata leaves exhibited good

antioxidant activity.[32]

3.8.4. Antifungal Activity

Anti-Fungal Activity of Trichosanthes tricuspidata roots was carried out in chloroform extract of Trichosanthes tricuspidata roots showed a significant antifungal activity screened by agar- well diffusion method.[28]

3.8.5. Larvicidal activity

Trichosanthes tricuspidata used as natural mosquito repellent, it may be helpful in the house to kill the mosquitoes, mice, etc. Sonwalkar et al.,[33] was reported the Trichosanthes tricuspidata fruit used as larvicidal activity. In this investigated two different extracts (methanol and petroleum ether) showed significantly high active mortality comparing with control. Methanolic fruit extract of Trichosanthes tricuspidata showed more larvicidal active then petroleum ether fruit extract.

3.8.6. Anti-hyperglycaemic activity

Trichosanthes tricuspidata root extract was reported to cure the antidiabetic and hypollipidamic activity,[34] studied carried out the ethanolic extract of Trichosanthes tricuspidata root was used to estimate the anti-diabetic activity of alloxan induced diabetic rats and biochemical parameters like cholesterol, triglyceride, serum protein, SGPT, SGOT, and ALP. Alloxan treated rats contain high blood glucose level when compared with normal control. Oral administration of ethanolic extract of Trichosanthes tricuspidata root was showed significantly decreased blood glucose level.

3.8.7. Gastro protective activity

Kannan et al reported the different extracts (Hexane, Chloroform, Ethanol and Water) of Trichosanthes tricuspidata leaves were compared with standard Ranitidine drug[35]. The Hexane extract showed significant high gastro protective activity when compared with all other extract.

3.8.8. The anti-haemolytic activity

Anti-haemolytic activity of methanolic extract of Trichosanthes tricuspidata leaves was reported by[36] anti-haemolytic activity screened by haemolysis of cow erythrocyte the plant extract was compared with the standard butylated hydroxy toluene (BHT).The methanolic extract of Trichosanthes tricuspidata showed 26.7% inhibition at 500 μg/ml concentration whereas standard BHT shows 89.63% at 500μg/ml.

3.8.9. Anti-pyretic activity

Kannan et al[37] reported the different extract (ethanol and aqueous extract) of Trichosanthes tricuspidata Linn. Leaves contain anti-pyretic activity. Experimental analysis of the extracts was significantly reducing the body temperature of rats when compared to the standard paracetamol drug. Trichosanthes tricuspidata ethanol extract showed more antipyretic activity when compare to the aqueous extract.

3.8.10. Anti-inflammatory activity

The Trichosanthes tricuspidata ethanol extract showed the anti-inflammatory activity in lipopolysaccharide (LPS-) stimulated macrophages and mouse models of acute inflammatory disease.[38]

3.8.11. Anticonvulsant activity

The Epilepsy prevails to be a neurological disorder in anticipation of safer drugs with enhanced anticonvulsant efficacy as presently available drugs fails to offer adequate control of epileptic seizures in about one-third of patients.[32] Evaluate the effect of Trichosanthes tricuspidata ethanolic extract (TTME) against epilepsy mediated oxidative stress in pilocarpine induced mice. The seizure was accompanied by significant increase in lipid peroxidation and the hippocampal nitrite content in pilocarpine group when compared with control. Moreover, the antioxidant enzymes superoxide dismutase, catalase and glutathione levels were decreased in pilocarpine administered groups. Methanolic extract administration attenuated oxidative damage as evident by decreased lipid oxidative damage and nitrite–nitrate content and restored the level of enzymatic antioxidant defences in hippocampus. Involvement of free radicals during epilepsy is further confirmed by histopathological analysis which showed the loss of neuronal cells in hippocampus CA1 and CA3 pyramidal region. The findings strongly support the hypothesis that TTME has anticonvulsant activity accompanied with the strong antioxidant potential plays a crucial role in reducing the oxidative stress produced by seizure.[32]

3.8.12. Anticancer activity

Chloroform extract of Trichosanthes tricuspidata root was showed most promising anticancer activity.[28] They investigated the chloroform extract of roots contain 32 mg/gm of gallic acid and 28.5mg/gm of tannic acid. The chloroform extract exhibited potent cytotoxicity with an IC50 of 42.88, from the data obtained, it was observed that chloroform extract effective against L1210 and MCF-7 whereas extract have moderate effect on PC3 comparable to the standards Adriamycin.

4. Conclusion

The World Health Organization has estimated more than 80% of the world's population in developing countries depends primarily on herbal medicines for their basic healthcare needs. A thorough review of the published literature on Trichosanthes tricuspidata shows that it is a popular remedy in a variety of ethnic groups, as well as Ayurvedic and traditional practitioners for the

treatment of a range of ailments. A perusal of the literature shows that Trichosanthes tricuspidata has been widely used for curing asthma, migraine, fever, diabetic carbuncles and other diseases. From, the above research survey, it was concluded that the, traditional medicine is safe and has many therapeutic applications. The present review deals with its distribution, plant description, phytochemical properties, pharmacological activity, and therapeutic uses of Trichosanthes tricuspidata. Therefore, the information will help the scientists and researchers to screen the compounds responsible for different bioactivities, and to elucidate the mechanism of action.

5. Acknowledgements

The authors are very grateful to the Director-General, CCRAS, Ministry of AYUSH, New Delhi, for providing encouragement. The authors also want to share thanks to those who are either helped directly or indirectly and gave valuable suggestions for preparing this manuscript. The authors gratefully acknowledge the researchers and scholars whose findings were cited in this review while apologizing to authors whose work might have been inadvertently missed.

6. Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

7. Source of Funding

None.

References

1. Meena AK, Bansal P, Kumar S, Rao MM. Plants herbal wealth as potential source of ayurvedic drug. *Asian J Tradit Med*. 2009;4(4):51–69.
2. Meena AK, Yadav A, Rao MM. Ayurvedic uses and pharmacological activities of Calotropis procera Linn. *Asian J Tradit Med*. 2011;6(2):45–53.
3. Meena AK, Narasimhaji CV, Rekha P, Velvizhi D, Ilavarasan R. Comparative preliminary phytochemical and HPTLC fingerprint profile studies of two cinnamon species commonly used in ASU formulations. *Asian J Res Chem*. 2018;11(2):344–50.
4. WHO survey, 1993. In medicinal plants (Eds. Haq. I.) Hamdard Foundation Press, Karachi. 13;.
5. Siva M, Shanmugam KR, Shanmugam B, Venkata, Subbaiah G, Ravi S, et al. Ocimum sanctum: A review on the pharmacological properties. *Int J Basic Clin Pharmacol*. 2016;5(3):558–65.
6. Kala CP, Dhyani PP, Sajwan BS. Developing the medicinal plants sector in northern India: challenges and opportunities. *J Ethno Botany Ethno Med*. 2006;2(32):1–15.
7. Vishnoi H, Garg AK, Meena GC, Singh, Chandan, Sharma LN, et al. Pharmacognostical and Pharmacological evaluation of Withania Coagulans - An important ethno medicinal plant. *World J Pharm Med Res*. 2017;3(10):106–11.
8. Duvey BK, Goyel R, Parashar B, Verma D, Dhameja H, Sharma D, et al. Trichosanthes tricuspidata: Exploration of its medicinal value. *Asian J Pharm Tech*. 2012;2(1):26–8.
9. Pandey S, Rana TS, Nair KN. Revision of the Trichosanthes tricuspidata bracteata complex (Cucurbitaceae) in India. *Rheedea*. 2016;26(2):83–93.
10. Nadkarni KM. 1976. Indian Material Medica, Bombay Popular Prakashan Pvt. Ltd., 1, 1238.
11. Bhandari S, Dobhal U, Sajwan M, Bisht NS. Trichosanthes tricuspidata A medicinally important plant. *Trees for Life J*. 2008;3(5):1–4.
12. Duyfjes BE, Pruesapan K. The genus Trichosanthes L. (Cucurbitaceae) in Thailand. *Thai Forest Bull (Botany)*. 2004;32:76–109.
13. Warrier PK, Nambiar VPK, Ramankutty C. Indian medicinal plants A compendium of 500 species. *J Pham Pharmacol* . 1994;46(11):935. doi:/10.1111/j.2042-7158.1994.tb05722.x.
14. Tripathy PK, Kumar S, Ofoeze MA, Gouda S, Singh NR, Jena PK, et al. Validation of Traditional Therapeutic Claims through Phytochemical Screening and Antibacterial Assessment: A Study on Mahakaal (Trichosanthes tricuspidata L.) From Similipal Biosphere Reserve Forest, Odisha, India. *Algerian J Nat Prod*. 2014;2(3):85–97.
15. Prasad AD, Shyma T, Raghavendra MP. Traditional herbal remedies used for management of reproductive disorders in Wayanad District, Kerala. *Int J Res Pharm Chem*. 2014;4(2):333–41.
16. Tripathy PK, Kumar, Sanjeet J, K P. Nutritional and medicinal values of selected wild cucurbits available in Similipal biosphere reserve forest, Odisha. *Int J Pharm Sci Res*. 2014;5(10):5430–37.
17. Bankar MV, Bhosle NP. Ethno botanical survey of medicinal plants in Ajanta region (MS) India. *J Pharm Biological Sci*. 2017;12(6):59–64.
18. Patil US, Kutemate OG. Ethno-medicinal plants used by the Korku tribes from southern Melghat, Buldana district, Maharashtra, India in the treatment of hepatic disorders. *Int J Curr Res*. 2017;9(10):59082–4.
19. Juyal P, Ghildiyal JC. Medicinal phyto-diversity of Bhabar Tract of Garhwal Himalaya. *J Med Plants Stud*. 2013;1(6):43–57.
20. Kanchanapoom T, Kasai R, Yamasaki K, Kazuo Y. Cucurbitane, hexanorcucurbitane and octanorcucurbitane glycosides from fruits of Trichosanthes tricuspidata. *Phytochemistry*. 2002;59(2):215–28.
21. Chopra RN, Nayar SN, Chopra TC. Glossary of Indian Medicinal Plants. New Delhi: Council of Scientific & Industrial Research; 1956. p. 247.
22. Gaur RD. Flora of the district Garhwal North West Himalaya, Srinagar, Uttarakhand (India). Transmedia Publishers; 1999. p. 811.
23. Jayakumar C, Devi VM, Reddy PDM, Sridar R. Oil extraction from Trichosanthes tricuspidata seed using conventional soxhlet apparatus. *Asian J Chem*. 2020;32(1):9–12.
24. Khare CP. Indian Medicinal Plants An Illustrated Dictionary With 215 Pictures of Crude Herbs 123, 1/211. JanakPuri, New Delhi-110058, India; 2007. p. 671–2.
25. Kitajima J, Mukai A, Masuda Y, Tanaka Y. Studies on the constituents of Trichosanthes root. III. Constituents of roots of Trichosanthes bracteata. *Yakugaku Zasshi*. 1989;109(4):265–70.
26. Kasai R, Sasaki A, Hashimoto T, Ohtani K, Yamasaki K. Cycloartane glycosides from Trichosanthes tricuspidata. *Phytochemistry*. 1999;51:803–8.
27. Bhardwaj S, Rashmi. Phytochemical evaluation and antibacterial potential of Trichosanthes tricuspidata root extracts against human pathogenic bacteria. *Int J Life Sci Pharm Res*. 2015;5(2):30–5.
28. Saboo SS, Priyanka K, Thorat, Tapadiya GG. Evaluation of phytochemical and anticancer potential of chloroform extract of Trichosanthes tricuspidata Lour roots (Cucurbitaceae) using in- vitro models. *Int J Pharm Pharm Sci*. 2013;5(4):203–8.
29. Francis XT, Dhanasekaran G. In Vitro Antibacterial potential of Trichosanthes tricuspidata Lour. Against pathogenic bacteria. *World J Pharm Pharm Sci*. 2018;7(2):1436–41.
30. Dubey BK. Evaluation of phytochemical constituents and anthelmintic activity of aerial part of Trichosanthes tricuspidata Lour. *Int J Pharm Phytopharmacol Res*. 2013;3(2):104–6.
31. Rodge S, Biradar SD. Antioxidant activity of some medicinal plants of family Cucurbitaceae. *World J Pharm Res*. 2017;6(4):946–51.
32. Bell S, Thilagar AG, Sivasudha, Mohan, Suganya, Angappan RK, et al. Trichosanthes tricuspidata modulates oxidative toxicity in brain

hippocampus against pilocarpine induced status epilepticus in mice. *Neurochem Res*. 2013;38(8):1715–25.
33. Sonwalkar RP, Kadam PS. Trichosanthes tricuspidata methanol and petroleum ether extract effect on Culex. *Weekly Sci*. 2013;1(6):1–3.
34. Srinivasan K, Bajpai P, Thangavel SK. Antihyperglycemic activity of Trichosanthes tricuspidata root extract. *Bangladesh J Pharmacal*. 2013;8:305–10.
35. Kannan M, Pugazenthi R, Karthikeyan M, Rajasekar S. Evaluation of gastro protective effect of Trichosanthes tricuspidata Linn. *Int J Pharm Sci Rev Res*. 2012;12(1):1–12.
36. Bell S, Manthra AG, Ireen V, Thilagameena C, Akshaya S, Clara S, et al. Free radical scavenging potential and antihaemolytic activity of methanolic extract of Pouteria campechiana (Kunth) Baehni. And Trichosanthes tricuspidata Linn. *Biocatalysis Agricultural Biotechnol*. 2019;18:1–8.
37. Koriem KMM, Asaad GF, Megahed HA, Zahran H, Arbid MS. Evaluation of anti-pyretic effect of Trichosanthes tricuspidata Linn on albino rats. *Int J Res Pharm Biomed Sci*. 2011;2(4):1718–20.
38. Ahuja A, Jeong D, Kim MY, Cho JY. Trichosanthes tricuspidata Lour. methanol extract exhibits anti-inflammatory activity by targeting SYK, SRC and IRAK Kinase Activity. *Evidence-Based Complement Altern Med*. 2019;p. 1–14. doi:10.1155/2019/6879346.

Author biography

P Rekha, Senior Research Fellowships

Ajay Kumar Meena, Assistant Director

T Satheesh Kumar, Assistant Professor

Cite this article: Rekha P, Meena AK, Kumar TS. Ethnobotanical, phytochemical and pharmacological profile of Trichosanthes tricuspidata: An updated review. *IP Int J Comprehensive Adv Pharmacol* 2021;6(3):102-107.