

## A review on *Ampelocissus latifolia* with its ethnomedicinal importance

Bandana Pradhan, Tripti Bouri\*

Department of Botany, Bankura Sammilani College, Kenduadihi, Bankura, West Bengal, India

### Abstract

*Ampelocissus latifolia*, an important ethnomedicinal plant of the family Vitaceae, distributed mainly in Asian countries including in India. The plant is not explored properly in respect of its pharmacognosy, phytochemistry and pharmacology. This paper deals with the thorough review on medicinal values, phytochemistry and pharmacological studies investigated in this taxon and lacuna of the contemporary studies on this plant as well.

**Keywords:** *Ampelocissus latifolia*, ethnomedicine, ethnobotany, pharmacology

### Introduction

*Ampelocissus latifolia* is a massive twining herbaceous climber. The genus has more than 90 species globally. The stem has a hollow and spherical structure and the fruits are reddish-brown in colour and also resemble to cultivate grapes. *A. latifolia* is a species of flowering plant in the family Vitaceae, which has more species in tropical regions and also subtropical parts of Asia, Australia, Africa, and America. It is commonly known as the wild grape. The broad geographical and ecological range of basal position within the Rosids makes the evolutionary history of the grape family interesting. Research on plants has gained more attention globally in recent years. Depending on the chemical components they contain, these plants can be used to treat a variety of illnesses. For those who are impoverished and marginalized, medicinal plants offer an inexpensive source of healthcare. In light of this, the current review aims to provide a thorough analysis of the morphological characteristics, medicinal significance, phytochemistry, and pharmacological characteristics of the intriguing element, as well as brief remarks on the areas that require further investigation and protection.

### Materials and Methods

Thorough field survey has been done in forest areas of Bankura district for last two years (2022-2023). Tribal people of the district thoroughly interrogated regarding

medicinal use of *Ampelocissus latifolia*. Identification confirmed with the help of different floras [15, 21, 28]. Few saplings were taken from forest and planted in medicinal garden of Botany department, Bankura Sammilani College for ex-situ conservation. For review on its occurrence, phytochemistry, pharmacology relevant and standard literature was consulted through electronic databases such as PubMed, Science Direct, Scopus, Google Scholar, Academia and Web of Science.

### Results and Discussion

#### Etymology of the nomenclature

It is the type species for the *Ampelocissus* genus and was first identified by its scientific name, *Vitis latifolia*, which was published in 1824 [2]. The species was reclassified under the genus *Ampelocissus* by Jules Émile Planchon in 1884 [7, 11]. The genus derived from Greek words: ampelos means vine and kissos meaning ivy. So, it basically means “ivy-like vine”.

#### General description

Large twining herbaceous climbers with perennial rootstock. Leaves broadly orbicular-cordate, angled 3-5 to 7 shallowly-lobed or shallowly-lobed, dentate, glabrous. Flowers in pyramidalpaniculate compactcymes, reddish brown, peduncles with 2-branched slender tendrils. Calyx truncates. Petals oblong. Berries ellipsoid, black 2 or 3-04 seeded. Seeds ellipsoid, stony.



**Fig 1:** Plant habit (Left); A flowering twig (right).

**Common name / Local name:** Gowalia lata (Bengali), Pani lata (Assame), Junglidrakh (Gujrati), Katti-bel (Hindi), Munthiri (Munthiri).

**Flowering and Fruiting:** May – June.

### Distribution

*Ampelocissus latifolia* is native to Bangladesh, Bhutan, India, Nepal, Pakistan, Thailand [25]. It is widely distributed across the Indian subcontinent. It can be found in various regions, including India, Pakistan, Nepal and Bangladesh. In India, it is particularly prevalent in the Himalayan region, the Western Ghats and states like Andhra Pradesh, Karnataka, Kerala, Maharashtra, Odisha and Tamil Nadu [12]. In West Bengal this plant is reported from Birbhum, Bankura, Hooghly, Burdwan.

### Ethnomedicinal uses

Various ethnobotanical uses have been reported by different authors. The roots are applied to cure wounds [13]. Root of this plant have been used for the treatment of snake bite [19]. Due to the astringent property of root, the decoction of root is also used in chronic dysentery [16]. Some researcher also reported that the plant is used in muscular pains, sores and fractured bones [10, 14]. Stem ash is applied to abdominal for easy delivery [22]. Different parts like root, bark, leaves, stem and branches of this plant are used to treat gout [25], tuberculosis [29], poisonous bites and headaches [3], colds and fever [6]. The local people of Bihar also used this plant against muscle pain, sores and fractures [13].

### Notes on Conservation

It has been found in recent ethnobotanical explorations in the tribal dominated forest localities of Bankura district of West Bengal. The plant is rare and it needs conservation efforts. *A. Latifolia* as infrequent or uncommon species from Birbhum district [26]. For ex-situ conservation purpose, we made an effort and some saplings were taken from Biharinath Hill and planted in our departmental medicinal garden. Though most recently the plant is not assessed by IUCN Red list 2025.

### Phytochemistry

Plant phytochemicals are very essential because of their therapeutic qualities. It contains anti-inflammatory, antibacterial, and antioxidant properties for both industrial and human consumption [20]. Fruit, stem, leaf and root extract of *A. latifolia* included phytochemicals such as alkaloids, flavonoids, reducing sugars and gums [22]. Several bioactive substances such as flavonoids, tannins, saponins, alkaloids, steroids, glycosides, and phenolic compounds have been found in this plant during phytochemical analyses [5,8]. *A. latifolia* is a rich source of numerous phytoconstituents including hexadecanoic acid, squalene, chalcone, stigmaterol, betulin, longifolene, daidzein, and lupeol [24, 17, 4].

### Pharmacology

*A. latifolia*, a plant belonging to the family Vitaceae, is abundant in a variety of pharmacological activity such as analgesic, anti-inflammatory, antimicrobial, antioxidant, cytotoxic, antiproliferative and apoptotic effects. A substance known as an analgesic is capable of alleviating pain without subjecting the individual to unconsciousness.

A study reported that the fruit extract produced analgesic effects through minimizing inflammation [8]. According to this study the fruits of *A. latifolia* contains complex phytochemical composition which includes flavonoids, alkaloids, and tannins chiefly responsible for its analgesic effects. More research is required to confirm it as an analgesic agent.

Anti-inflammatory are known as the drugs that reduce the body's inflammatory response. A prior study reported that the *A. latifolia* plants have the anti-inflammatory properties [30]. According to another *in vivo* investigation *A. latifolia* root extract contains anti-inflammatory effects through diminishing inflammation [23].

Antimicrobial activity is known as the ability of a substance to stop the growth of microorganisms, such as bacteria, fungus, viruses, and parasites, or to eradicate them. The root extract contains some active compounds that inhibit the antimicrobial effect [9]. Another study reported that the leaf extract of *A. latifolia* has antibacterial action by rupturing bacterial membranes, blocking enzymes, and obstructing bacterial communication [27].

Antioxidant activity is the capacity of a material to scavenge or neutralize reactive oxygen species and free radicals that could damage cells [1]. Phytochemical investigation of *A. latifolia* fruit extracts found a high concentration of flavonoids and phenolic compounds with antioxidant properties [29].

The ability of a drug to destroy or harm cells is referred to as cytotoxic activity. Conversely, antiproliferative activity reduce or prevent tumor growth without damaging the cancer cells [18]. *A. Latifolia* showed significant cytotoxic and antiproliferative effects [31].

### Conclusion

*Ampelocissus latifolia* is extremely significant both ethnobotanically and pharmacologically. It has been shown to have antibacterial and anti-inflammatory properties supported by phytochemical research that identifies a variety of bioactive chemicals. It also widely used in traditional medicine with potent phytochemicals, some of which have been investigated and there are still opportunities for further research in the fields of ethnopharmacology, phytochemistry and pharmacognosy.

### Acknowledgement

We are thankful to the tribal people of Bankura district for providing their knowledge with us. We are also thankful to the forest officers to give us permission to carry our study in the forest areas.

### References

1. Aktar A, Bhuia S, Chowdhury R, Hasan R, Islam Rakib A, AI Hasan S. *et al.* Therapeutic Promises of Bioactive Rosavin: A Comprehensive Review with Mechanistic Insight. *Chemistry Biodiversity*, 2024;21(7):202400286. <https://doi.org/10.1002/cbdv.202400286>
2. Anonymous. *Vitis latifolia*. Germplasm Resources Information Network. Agricultural Research Service, United States Department of Agriculture, 2009.
3. Ayyanar M, Ignacimuthu S. Ethnobotanical survey of medicinal plants commonly used by Kani tribals in Tirunelveli hills of Western Ghats, India. *Journal of Ethnopharmacology*, 2011;134(3):851-864. <http://doi.org/10.1016/j.jep.2011.01.029>

4. Chaudhuri A, Chatterjee S, Chaudhuri A, Ray S. In vitro assessment of apoptosis induced by phytochemicals from *Ampelocissus latifolia* (Roxb.) Planch. In relation to total phenolics and flavonoid contents. *J. Indian Chem. Soc.*,2020;97(12c):2874-2883.
5. Chaudhuri A, Ray S. Cytotoxic and antiproliferative activities of aqueous extract from aerial parts of *Ampelocissus latifolia* (Roxb.) Planch. On Dalton's lymphoma cells. *Journal of King Saud University-Science*,2020a;32(3):1978-1985. <https://doi.org/10.1016/j.jKSUS.2020.01.046>
6. Chaudhuri A, Ray S. In vitro free radical scavenging activities of aerial parts' aqueous extract and extract fractions of *Ampelocissus latifolia* (Roxb.) Planch. In relation to total phenolics and flavonoid contents. *Journal of King Saud University-Science*,2020b;32(1):732-739.
7. Chen I, Manchester SR. Seed morphology of modern and fossil *Ampelocissus* (Vitaceae) and implications for phytogeography. *American Journal of Botany*,2007;94(9):1534–1553. doi:10.3732/ajb.94.9.1534. PMID 21636520.
8. Das BK, Fatema UK, Hossain MS, Rahman R, Akbar MA, Uddin F. *et al.* Analgesic and anti-inflammatory activities of the fruit extract of *Ampelocissus latifolia* (Roxb.) Planch. On laboratory animals. *British Journal of Pharmaceutical Research*,2014;4(12):1477.
9. Ganorkar R, Deshmukh O, (n.d.). Preliminary Phytochemical Screening and Antibacterial Activity of *Ampelocissus latifolia* (Roxb.) Planch. *Ijrbat*. In RP Ganorkar, OS Deshmukh *ijrbat*. In, 2025. [http://ijrbat.in/upload\\_papers/02102017025412174.pdf](http://ijrbat.in/upload_papers/02102017025412174.pdf)
10. Jain, Tarafder, *Econ. Bot.*,1970;24:266.
11. Jules Emile Planchon, *Les vignes des tropiques du genre Ampelocissus considerees au point de vue pratique (part I), La Vigne Americaine et la Viticulture en Europe*,1884;8(12):370–381.
12. Khare CP. *Indian Medicinal Plants*. Springer, New York, 2007.
13. Kirtikar KR, Basu BD. *Indian Medicinal plants*, 1975, 1- IV, New Delhi (Repr.)
14. Kishore M, Hanumantha Rao Y. Green synthesis and characterization of silver nanoparticle from *Ampelocissus latifolia* root extract. *Materials Today: Proceedings*,2018;5(13):26271-26279. <http://doi.org/10.1016/j.MATPR.2018.08.077>
15. Malhotra, Moorthy. *Bull bot. survey of India*,1973;15:13.
16. Manilal KS, Sivarajan VV. *Flora of Calicut: The flowering plants of the greatest Calicut area consisting of the western sectors of Calicut and Malappuram districts*. Bishen Singh Mahendra Pal Singh, Dehradun, 1982.
17. Mishra R, Billore KV. *Some Ethno-Botanical loves from Banswaradistrict*.Nagarjun, 1983, 229.
18. Mitra S, Banerjee D, Mandal M. Traditional uses and phytochemistry of *Ampelocissus latifolia* (Roxb.) Planch tuberous root through GC-MS technique. *J. Economy Environ. Soc.*,2017;1(2):49-53.
19. Mizan M, Tasnim Yana N, Mohamod Wasaf Hasan A, Burhan Uddin M, Abu Sayeed M, Hasan A. *et al.* Anticancer Potential of Diazepam: pharmacological Relevance and Clinical Evidence. *Journal of Phytochemical Insights*,2025;1(01):1-9. <https://doi.org/10.71193/jpci.20250003>
20. Murthy KS, Sharma PC, Kishore P. Tribal remedies for snake bite from Orissa. *Ancient science of Life*, 1986;VI:(2):22-123.
21. Nwozo OS, Effiong EM, Aja PM, Awuchi CG. Antioxidant, phytochemical and therapeutic properties of medicinal plants: A review. *International Journal of Food Properties*,2023;26(1):359-388.
22. Panigrahi G, Murti SK. *Flora of Bilaspur District, M.P.* Botanical Survey of India, Calcutta,1989:1:1-396.
23. Parag AP, Vanita K, Bhanu R. Estimation of variation in the Elemental contents of methanolic soxhlet leaf extract of *Ampelocissus latifolia* (Roxb.) Planch. By ICP-AES technique. *International journal of Pharmacy and Pharmaceutical Sciences*, 2013, 5.
24. Patel JG, Patel NM, Patel AA, Patel AJ, Patel S. Comparison of Anti-inflammatory activity of *Ampelocissus latifolia* (Roxb.) root extract: Oral administration Vs. Topical application. *Journal of Natural Product and Plant Resource*,2013;3(5):64-70.
25. Patil MV, Patil DA. Ethnomedicinal practices of Nasik District, Maharashtra, *IJTK*,2005;4(3):287-290.
26. Pettit GR, Mukku VJ, Cragg G, Herland DL, Knight JC, Herald CL. *et al.* Antineoplastic agents.558. *Ampelocissus sp.* Cancer cell growth inhibitory constituents. *Journal of natural products*,2008;71(1):130-133. <https://doi.org/10.1021/np068050q>
27. *Plant of the World Online (POWO) 2025.* <https://powo.science.kew.org> (Accessed 10/06/2025).
28. Pradhan B, Rahaman CH. Documentation of medicinal flora of Birbhum district, West Bengal, India. *Remarking an Analysis*,2019;3(10):120-124.
29. Prusti A, Behera K. Ethnobotanical exploration of Malkangiri district of Orissa, India. *Ethnobotanical Leaflets*, 2007(1).
30. Rajak KK, Pahilani PM, Kumar H. Antibacterial Activity of *Ampelocissus latifolia* Tuberous Root Extract against Diverse Microbes. *Asian Journal of Chemistry*,2023;35(8):1951-1956. <http://doi.org/10.14233/AJCHEM.2023.28061>.
31. Sanyal MN. *Flora of Bankura district*, Bishen Singh Mahindra Pal Singh, Dehradun, 1994.
32. Singh H, Lily MK, Dangwal K. Evaluation and comparison of polyphenols and bioactivities of wild edible fruits of North-West Himalaya, India. *Asian Pacific Journal of Tropical Disease*,2015;5(11):888-893. [https://doi.org/10.1016/S2222-1808\(15\)60951-3](https://doi.org/10.1016/S2222-1808(15)60951-3)
33. Tamilarasi CT, Subasin U, Kavimani S, Jaykar B. Phytochemical and Pharmacological evaluation of *Ampelocissus latifolia*. *Ancient Science of Life*,2000;20:(1,2):14-18.
34. Viswanathan N, GowriV, Punnagai K. Investigation of In-vitro Antiproliferative activity of *Ampelocissus latifolia* root extract on MCF-7 breast cancer cells *Ampelocissus latifolia* root extract against MCF-7 breast cancer cells. *Research Journal of Pharmacy and Technology*,2023;16(8):3595-3600. <https://doi.org/10.52711/0974-360X.2023.00593>.