

ASTHISHRUNKHALA_BONE BOOSTER

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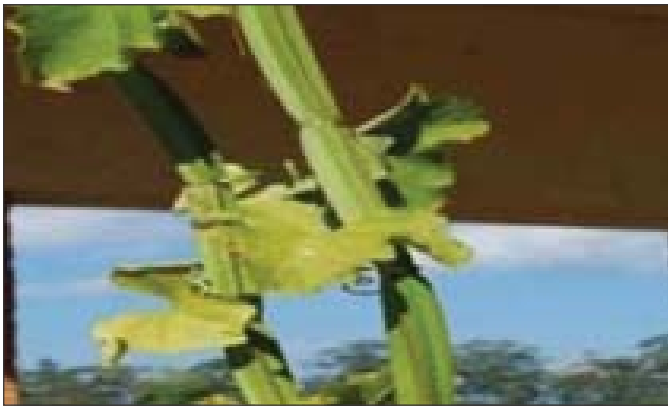
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ABSTRACT

Cissus quadrangularis L. (Asthishrunkhala), a plant belonging to the Vitaceae family, is a well-known medicinal species native to India. It is widely utilized as a herbal remedy across tropical regions of the country. Classical Ayurvedic texts such as Bhavaprakash and Chakradutta recommend it as a general health tonic, especially for individuals with bone-related conditions, and highlight its therapeutic potential against several ailments. This review article presents a detailed account of Asthishrunkhala, covering its ethnobotanical background, traditional uses, morphological features, phytochemical composition, pharmacological activities, and safety profile. This review article serves as a valuable resource for practitioners interested in Asthishrunkhala and its potential therapeutic uses.

Keywords: *Cissus quadrangularis* Linn., Asthishrunkhala, Bhagna Sandhanakara.



INTRODUCTION

Cissus quadrangularis L. (Asthishrunkhala), the most widely recognized species of the Vitaceae family, is commonly referred to as “Hadjod” in Hindi. It is an ancient medicinal plant that originates from the warmer regions of India and Ceylon (Sri Lanka). The plant is also reported to grow in parts of Sri Lanka, Malaya, Java, and West Africa.¹ In India, it is found extensively, particularly in hot climates, and is often cultivated in gardens where it is usually propagated through stem cuttings. The stem has a bitter taste and is used both internally and externally for the treatment of bone fractures, as well as for disorders related to the back and spine. The leaves and tender shoots are known for their strong alterative properties and are used in managing bowel-related ailments. The stem juice is considered beneficial in treating irregular menstruation.² In southern parts of India, the stem is commonly consumed as a pickle to promote bone strength and to

aid in the repair of damaged epithelial tissues following injury.³ Additionally, the plant juice is believed to help in scurvy, and the ash derived from the plant is sometimes used as an alternative to baking powder.⁴ *Cissus quadrangularis* has a stem structure that resembles the shape of bones and joints in the human body. It is well known for its effectiveness in strengthening bones and managing disorders related to joints. In Ayurveda, Asthishrunkhala is not described in the Brihatrayi texts, namely Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya, but it is mentioned in various Nighantus. In Bhavaprakasha Samhita (16th century A.D.), Asthishrunkhala is included as an ingredient in Lakshadi Guggulu, which is used in the management of bone fractures (Bhagna Roga).⁵ The roots and stems of this plant are particularly valuable for promoting the healing of bone fractures. chemical constituents which may vary depending on various factors, one amongst is the geographical localities which show quantitative variation in their chemical constituents *Cissus quadrangularis* L. (Vitaceae) is a common perennial climber, which is distributed throughout India particularly in tropical regions. It is one of the most frequently used indigenous medicinal plants in India. It is commonly known as Hadjod, Asthisamhara, Harjora, Vedhari, Hadbhanga, Vajravalli in Sanskrit, Kandvel in Marathi, Haddjor in Punjabi, Hadbhanga in Oria, Vedhari in Gujrati, Perandai in Tamil, Nalleru in Telugu and Veldgrap in Indian languages and in English it is

called as Edible stemmed Vine.

TAXONOMY OF CISSUS QUADRANGULARIS

Kingdom: Plantae
 Subkingdom: Tracheobionta
 Super division: spermatophyte
 Division: Magnoliophyta
 Class: Magnoliopsida
 Subclass: Rosidae

Order: Vitales
 Family: Vitaceae
 Genus: Cissus
 Species: quadrangularis
Gana Vargikarana:
 Charak Not included in Varga
 Sushruta Not included in Gana
 Bh.Pr.Ni Guduchyadi Varga



Flower



Fruit

Morphology⁶

A tendril climber with stout fleshy jointed quadrangular stems. Tendrils are simple, long, slender and leaf opposed. In addition to the normal roots, some aerial roots arising from the jointed nodes grow downwards and strike the soil.

Leaves : simple, broadly reniform, entire or toothed, rounded, truncate or cuneate at the base.

Flower: Small, greenish in shortly peduncled cymes. Petals are 4, hooded at the apex.

Fruits: Ovoid or globose, red berries with ellipsoid seeds.

Vernacular Names^{1,2}

English: Edible stemmed vine, Adamant creeper, Bonesetter
 Hindi: Hadjod, Hadjora, Hadsarihari, Harsankari, Kandvel
 Bengali: Har, Harbhanga, Hasjora, Horjora
 Gujarati: Chodhari, Hadsand, Hadsankal, Vedhari
 Kanada: Mangarahalli
 Malayalam: Cannalamparanta, Peranta
 Marathi: Horjora, Harsankar, Kandavel, Nallar

Tamil: Piranti, Vajjravalli
 Telugu: Nalleru, Nelleratiga, Vajravalli
 Oriya: Hadavhanga
 Urdu: Harjora, Hadsankal
 Sanskrit: Vajravalli

Chemical constituents⁶

Stem contains two tetracyclic triterpenoids, g-sitosterol, 1-amyrin and g-amyrone.

Rasa panchaka⁶

Rasa Madhura
 Guna Laghu, Ruksha
 Vipak Madhur
 Virya Ushna

Useful part⁶ – Stem

Pharmacological actions⁶

Union promoting, haemostatic, carminative,
 Karma⁶- Bhagna Sandhanakara, balya.

Therapeutic indications⁶- Asthi Bhagna, Vaat vyadhi, dourbalya.

Therapeutic administration⁶-

1. Fracture⁶

सघृतेनास्थिसंहारं लाक्षां गोधूममर्जुनम् । सन्धिमुक्तेऽस्थिभग्ने च

पिबेत् क्षीरेण मानवः ॥

(वृ.मा. 46/8)

In case of Bhagna (Fracture) one should take milk processed with Asthisamhara (Cissus quadrangularis), ghee, lac, wheat and Arjuna (Terminalia arjuna).

2. Putra labhartha⁶

ज्रवल्लीरसे तुल्यं तैलं तत्कल्क मिश्रितम् । ऋतुस्नाता वधूः पिण्डं भक्षयेत् पुत्रकाक्षिणी ॥

(वै.म. 13/10)

One can use juice swaras in case of ear discharge.

4. Mennorrhagia⁷

Swaras is used with gopi chandan ,ghee and honey.

5. Antioxidant:⁸⁻¹⁸ Cissus quadrangularis extracts antioxidant activity, scavenging free radicals and inhibiting lipid peroxidation. Studies show the reversal of liver damage induced by carbon tetrachloride through restoration of antioxidant enzyme activities. The plant's stem, rich in vitamin C, carotenoids, and steroidal compounds, contributes to its antioxidant effects. Overall, Cissus quadrangularis shows promising pharmacological actions as an antioxidant, beneficial for combating oxidative stress-related conditions.

6. Anti-inflammatory action¹⁹⁻²⁴ by Cissus quadrangularis shows potent anti-inflammatory action inhibiting edema formation induced by arachidonic acid. Its components, including flavonoids and β sitosterol, block both lipoxygenase and cyclooxygenase pathways, suggesting dual inhibition of arachidonic acid metabolism. This makes it comparable to aspirin or ibuprofen in its anti-inflammatory effects. Additionally, Cissus extract inhibits COX-1 activity, further confirming its anti-inflammatory properties. Its inclusion in Ayurvedic formulations underscores its effectiveness in healing fractures and associated disorders [71-76].

Matra⁶ - Swaras 10-20 ml

Yoga (formulations)⁶

1. Asthisamharadi Churna

2. Asthisamhara Taila

3. Lakshadi Guggulu

Properties and Actions-

अस्थिसंहारकः प्रोक्तो वातश्लेष्महरोऽस्थिरुक । उष्णः सरः कृमिघ्नश्चदुर्नामघ्नोऽक्षिरोगजित् ॥

रुक्षः स्वादुर्लघुर्वृष्यः पाचनः पित्तलः स्मृतः ॥

(भा.प्र. गुडूच्यादि वर्ग-226-227)

वज्रवल्ली सरा रुक्षा कृमिदुर्नमनाशिनी । दीपत्युष्णा विपाके च स्वाद्वी वृष्या बलप्रदा ॥

अस्थिशृङ्खलिका चोष्णा वातश्लेष्महरी सरा । वातव्याधिहरो प्रोक्ता त्वस्थिसन्धानकारिणी ॥

अस्थि सन्धानजननी वातश्लेष्महरा गुरुः ॥

(कै.नि. ओषधि वर्ग-1594-1595)

अस्थिशृङ्खलिका चोष्णा वातश्लेष्महरी सरा । वातव्याधिहरो प्रोक्ता त्वस्थिसन्धानकारिणी ॥

(प्रि.नि. पिप्पल्यादि वर्ग-58)

REFERENCES

1. Udupa K.N, Chaturvedi G.N, Tripathi S.N, Advances in research in Indian medicine, vol. 12; 1970.
2. P.C. Sharma, Database On Medicinal Plants Used In Ayurveda, volume I, MB Yelne, TJ Dennis: Central Council for Research in Ayurveda and Siddha Department of ISM and H, Ministry of Health and Family Welfare (Govt. of India) Reprint; 2002.
3. Grinnell F, Billingham RE, Burgess L. Distribution of fibronectin during wound healing in vivo, J Invest Dermatol 1981; 76: 181-189.
4. The wealth of India: A dictionary of Indian Raw Materials and Industrial Products. Raw materials Vol. II., Delhi 1950. Reprinted by INSDOC, Delhi-12. p. 184.
5. Bhavaprakasa Samhita, Madhyam Khanda, Chikitsa prakaran, edited by Bhisagratna Pandit Shri Brahma Sankara Mishra, Chaukhamba Sanskrit sansthan Varanasi, ninth edition, 48 chp. Bhagnadhikar, sloke no 34; 2005. p. 491.
6. Dr.Prakash L. Hegde, Dr.Harini A. Volume 2 A textbook of dravyaguna vijnana , Chaukhamba Publications New Delhi P.80-83
7. The kashi Sanskrit series, Bhavprakash , Chaukhamba Sanskrit sansthan Varanasi P.418-419
8. Deka DK, Lahon LC, Saikia J, Mukit A. Effect of Cissus quadrangularis in accelerating healing process of experimentally fractured radius-ulna of dog: a preliminary study. Indian Journal of Pharmacology. 1994;26(1):44-45.
9. Hatazawa R, Tanaka A, Tanigami M, Amagase K, Kato S, Ashida Y, et al. Cyclooxygenase-2/prostaglandin E2 accelerates the healing of gastric ulcers

- via EP4 receptors. *American Gastrointestinal and Physiology* 2007;293(4):G788-G797. *Journal Liver of Physiology* 1999;892(1):146-154.
10. Matsuzawa Y, Funahashi T, Nakamura T. Molecular mechanism of metabolic syndrome X: contribution of adipocytokines and adipocyte-derived bioactive substances. *Annals of the New York Academy of Sciences*. 1999;892(1):146-154.
 11. Furukawa S, Fujita T, Shimabukuro M, Iwaki M, Yamada Y, Nakajima Y, et al. Increased oxidative stress in obesity and its impact on metabolic syndrome. *Journal of Clinical Investigation*. 2017;114(12):1752-1761.
 12. Brown RK, Kelly FJ. Evidence for increased oxidative damage in patients with cystic fibrosis. *Pediatric Research*. 1994;36(4):487-492.
 13. Gutteridge JM, Swain J. Lipoprotein oxidation: the 'fruit and vegetable gradient' and heart disease. *British Journal of Biomedical Science*. 1993;50(3):284-288.
 14. Atalay M, Laaksonen DE. Diabetes, oxidative stress and physical exercise. *Journal of Sports Science and Medicine*. 2002;1(1):1-8.
 15. Ngondi JL, Oben J, Musoro FD, Etame SLH, Mbanya D. The effect of different combination therapies on oxidative stress markers in HIV infected patients in Cameroon. *AIDS Research and Therapy*. 2006;3(1):1-8.
 16. Agbor GA, Oben JE, Ngogang JY, Xinxing C, Vinson JA. Antioxidant capacity of some herbs/spices from Cameroon: a comparative study of two methods. *Journal of Agricultural and Food Chemistry*. 2005;53(17):6819-6824.
 17. Huang MT, Ho CT, Lee CY, editors. Phenolic compounds in food and their effects on health II: antioxidants and cancer prevention [Internet]. Washington (DC): American Chemical Society; 1992 [cited 2024 Nov 28]. (ACS Symposium Series; vol. 507). Available from: <https://pubs.acs.org/doi/book/10.1021/bk-1992-0507>
 18. Spiegelman BM, Flier JS. Obesity and the regulation of energy balance. *Cell*. 2001;104(4):531-543.
 19. Ferrándiz ML, Alcaraz MJ. Anti-inflammatory activity and inhibition of arachidonic acid metabolism by flavonoids. *Agents and Actions*. 1991;32(3-4):283-288.
 20. Jainu M, Devi CSS. Attenuation of neutrophil infiltration and proinflammatory cytokines by *Cissus quadrangularis*: a possible prevention against gastric ulcerogenesis. *Journal of Herbal Pharmacotherapy*. 2005;5(3):33-42.
 21. Puerta RD, Martínez-Domínguez E, Ruíz-Gutiérrez V. Effect of minor components of virgin olive oil on topical anti-inflammatory assays. *Zeitschrift für Naturforschung C*. 2000;55(9-10):814-819.
 22. Jainu M, Devi CSS. Gastroprotective action of *Cissus quadrangularis* extract against NSAID-induced gastric ulcer: role of proinflammatory cytokines and oxidative damage. *Chemico-Biological Interactions*. 2006;161(3):262-270.
 23. Hatazawa R, Tanigami M, Izumi N, Kamei K, Tanaka A, Takeuchi K. Prostaglandin E2 stimulates VEGF expression in primary rat gastric fibroblasts through EP4 receptors. *Inflammopharmacology*. 2007;15(5):214-217.
 24. Cospite M. Double-blind, placebo-controlled evaluation of clinical activity and safety of Daflon 500 mg in the treatment of acute hemorrhoids. *Angiology* [Internet]. 1994 [cited 2024 Nov 28];45(1):1-5. Available from: <https://search.ebscohost.com/login.aspx?direct=true&profile=ehost&scope=site>