
Review Article

Hadjod in tradition: cultural uses and food value of *Cissus quadrangularis* L. (Vitaceae)

Sandhya Sharma^{1*}, Rani Runam Kumari², Pyaree Bandod¹ and Ankita Sharma¹

¹Department of Botany, Government Arts and Commerce College, Rau, Indore, Madhya Pradesh, India

²Department of Botany, Bhupendra Narayan Mandal University, Madhepura, Bihar, India

*Email-Id: sandhyasharma83@gmail.com; ORCID: <https://orcid.org/0009-0009-1374-511X>

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Abstract: *Cissus quadrangularis* L. (Vitaceae), commonly known as Hadjod or Asthisamhari, is an important plant with a long history of use in Indian traditional medicine. In Sanskrit texts, it is referred to as 'Asthisamhari', meaning associated with bone joining or healing. Present review was designed to study the nutritional profile, traditional and culinary uses of *C. quadrangularis*. It was done by compiling various datasets available on online databases, regional flora and published reports. The collected information was critically analysed and structurally presented in this review. Traditional knowledge from different communities demonstrated the diverse uses of this plant and its integration into food and healthcare practices. Alongside its medicinal applications, the plant has also been used as a food, particularly its young stems. Reported nutritional studies indicate that the stem contains appreciable amounts of carbohydrates, protein, dietary fibre, fat and minerals, highlighting its potential as a functional food ingredient. The available evidence suggests that *C. quadrangularis* represents an important link between traditional medicine, food, nutrition and cultural heritage. However, further research is required to establish nutrient bioavailability, effects of food processing, safety and clinical efficacy. This review highlights the potential of *C. quadrangularis* as a culturally significant medicinal and food plant and identifies opportunities for its future scientific and functional food applications.

Keywords: Asthisamhari, bone health, ethnobotany, functional food, nutritional value, traditional medicine

Introduction

Traditional food and medicinal systems are an important part of global cultural heritage (Ghosh et al., 2023). Across generations, indigenous communities have developed knowledge of locally available

plants and their uses as food, medicine and household remedies (Wang et al., 2025). Many of them are traditionally used for both nutritional and medicinal purposes, called 'nutraceuticals' (Puri et al., 2022), providing essential dietary nutrients and disease-resistant therapeutic compounds. Documenting this knowledge is important for preserving cultural practices and understanding their possible relevance to modern nutrition and healthcare. In the current period, the need for effective healthcare has significantly increased with the rising incidence of accidents and injuries, which can lead to both acute and long-term health problems (Keeves et al., 2021). Bone and muscle-related injuries are particularly common following road accidents, falls, sports activities, occupational hazards and other forms of physical trauma (Gane et al., 2018). Although modern medicine has made significant advances in the diagnosis and treatment of such conditions, increasing interest in natural and plant-based alternatives has encouraged researchers to revisit traditional knowledge and the associated medicinal practices (Yuan et al., 2016). Plants used in traditional systems such as Ayurveda, Unani and Siddha have therefore gained renewed scientific interest for their potential role in managing various health conditions (Pandey et al., 2013), including bone-related problems. Among these plants, *Cissus quadrangularis* L., (Figure 1) is a perennial climber species belonging to the family Vitaceae (Bafna et al., 2021) and holds an important place in Indian traditional medicine. The species is indigenous to tropical regions, with a natural distribution extending across South Africa, Madagascar, the Arabian Peninsula, the Indian subcontinent and parts of Myanmar (Agnihotri et al., 2026). It is adaptable to hotter regions with severe dry conditions (Vinoth and Kumar, 2025). In India, it is commonly known as Hadjod or Asthisamhari. The traditional name 'Asthisamhari' is associated with the concept of bone joining or healing as, it has been used for generations for bone-related disorders and fracture management (Agnihotri et al., 2026). Beyond its medicinal importance, *C. quadrangularis* has also been used as a traditional food, with its stem incorporated into various culinary preparations (Prasad et al., 2018). Therefore, an effort has been made through this review to study this particular climber species for its medicinal and culinary uses and to link the traditional practices to its nutritional profile through literature review and which will highlight its potential as a functional food ingredient. This was accomplished by compiling and critically analysing data from online databases, regional floras and published reports. The findings were critically analysed, reviewed and are presented in a structural manner for easy understanding. The present review therefore, explores the cultural & traditional uses, culinary applications, nutritional value and longstanding role of *C. quadrangularis* in Indian traditional medicine, while highlighting its potential as a food and health-promoting plant.

Methodology

Relevant literature on *Cissus quadrangularis* L. was collected from scientific databases, including PubMed, Scopus, Web of Science, ScienceDirect and Google Scholar, using keywords such as "*Cissus quadrangularis*," "Hadjod," "Asthisamhari," "ethnobotanical uses," "nutritional composition," "food applications" and "pharmacological activities." Relevant research articles, reviews, ethnobotanical studies and traditional literature were selected. Regional flora, books and published reports documenting species distribution and traditional practices were also referred. Information on

its traditional uses, plant parts, food applications, nutritional and mineral composition, phytochemicals & therapeutic properties was compiled, compared and organised into thematic sections and tables for a systematic presentation of the findings (Kumar et al., 2025; Sahu et al., 2026).



Figure 1: Quadrangular stems of *Cissus quadrangularis* showing distinct nodes, internodes and tendrils

Traditional medicinal practices

C. quadrangularis (Figure 2) has a long history of use in traditional medicine, particularly in India and other tropical regions. Different communities have used various parts of the plant to manage bone-related disorders, pain, inflammation and other health conditions (Table 1). It has also been described in ancient sanskrit texts (Agnihotri et al., 2026):

Granthimana-sthi-sanghari Vajrangi-chaasthi-shrinkhala I
Asthisangharakah Prokto-vatshlesh-maharo-ashtiuk II
Ushnah Sarah Krimighna-shradurnamghno-akshirogjit I
Ruksha-swadur-laghu-vrishyah Pachnah Pittalah Smiritah II

The verse characterises *C. quadrangularis* as a light, dry and astringent herb with a hot potency and digestive properties, traditionally indicated particularly for bone-related disorders and fracture healing. It is also described as *Vāta-śleṣma-hara*, *krimighna* and *śūlaghna*, indicating its traditional use in Vāta-Kapha disorders, intestinal worm infestations and pain-related conditions. The description of

Asthisamhari/Asthisamharaka and *Asthiśrīṅkhalā* particularly highlights the plant's association with bone health and skeletal repair. Its traditional applications reflect generations of indigenous knowledge passed down through communities. These practices also provide an important basis for understanding the plant's potential medicinal and therapeutic value.



Figure 2: Plant parts of *C. quadrangularis*: a) leaf and b) flowers

Table 1: List of ethnomedicinal uses associated with different plant parts of *C. quadrangularis*

Plant parts	Medicinal use(s)	Source(s)
Leaves	Tetanus	Prasad et al., (2018)
Roots	Intestinal worms; rheumatic pain; chikungunya fever and joint pain; dysentery and bloody stool; epilepsy	
	In treatment of fractured bone	Sundaran et al., (2020)
Stem	Dental caries/gum swelling; headache and fever; bone fracture	Prasad et al., (2018)
	Diarrhoea	

	Promoting lactation after childbirth	Sundaran et al., (2020)
	In treatment of fractured bone	
	Stem paste is boiled in limewater and given in asthma	
	Scurvy, debilitating menstrual disorders, otorrhoea and epistaxis	
	Treats acid reflux, gastritis, eye disorders, piles and anaemia.	
Whole plant	Fed to cattle to stimulate milk flow.	Prasad et al., (2018)
	Haemorrhoids and certain bowel infections.	
	Dental caries/gum swelling; joint pain	

Culinary aspects

Apart from its medicinal uses, *C. quadrangularis* has also been documented for its use as a traditional food. In particular, its young stems are used to make various dishes, such as chutney, dosa and various fried and snack items (Table 2).

Table 2: List of various culinary preparations of *C. quadrangularis*

Cuisine/ Food preparation	Locations	Sources
Chutney	Pallipalem, East Godavari, Andhra Pradesh	Prasad et al., (2018)
Dosa-like preparation		
Vada (fried snack)		
Cooked with onion and turmeric	Kwazulu-natal, South Africa	Singh et al., (2025a)
Bhajia mixture/chilli bite (Blended or cut into small pieces, added to the mixture and fried)		

Nutritional Value

C. quadrangularis is traditionally valued not only as a medicinal plant but also as a potential source of nutrition. Its edible stem has been incorporated into various traditional food preparations, providing nutrients alongside bioactive compounds. Studies have reported appreciable levels of carbohydrates,

protein, dietary fibre, fat and minerals in the plant (Table 3). Given its widespread traditional use for promoting bone health, its calcium content is particularly relevant and supports this traditional claim.

Table 3: Nutritional composition and relevance of *C. quadrangularis* (Singh et al., 2025b)

Nutritional parameter	Content (per 100 g)	Nutritional relevance
Carbohydrate	40.9 ± 0.14 g	Major macronutrient and an important source of dietary energy
Crude protein	15.60± 0.10 g	Provides dietary protein required for tissue growth and repair, enzyme function, transport and other physiological functions
Crude fibre	11.4 ± 0.11 g	May contribute to dietary fibre intake and gastrointestinal health
Fat	9.2 ± 0.09 g	Contributes to dietary energy and supports various physiological functions
Calcium	32.29 ± 0.69 mg	Important for bone integrity, muscle contraction and other physiological functions associated with calcium uptake
Magnesium	1.38 ± 0.046 mg	Involved in muscle, nerve and metabolic functions
Phosphorus	0.26 ± 0.006 mg	Important for bone structure and cellular energy metabolism

Future aspects

C. quadrangularis has considerable potential as both a traditional medicinal plant and a functional food ingredient. Future research should focus on validating its traditional claims through well-designed clinical and nutritional studies, particularly for bone health and fracture recovery. Greater attention is needed to understand how traditional processing methods such as soaking, cooking, frying and fermentation affect its nutritional value, phytochemical composition and safety. Deeper studies on nutrient bioavailability, especially calcium and other minerals, would help establish its true nutritional contribution. Further research could explore the development of value-added foods, nutraceuticals and functional food products using *C. quadrangularis*. Standardisation of plant material, dosage, preparation methods and quality parameters is also essential. Integrating indigenous knowledge with modern scientific approaches may help preserve traditional practices while supporting the safe and sustainable utilisation of this culturally important plant.

Conclusion

C. quadrangularis holds an important place in Indian traditional knowledge as both a medicinal plant and a food resource. The reported presence of carbohydrates, protein, fibre, fat, calcium and other minerals suggests that its stem may have value as a nutritious and functional food ingredient. The convergence of traditional use and emerging nutritional evidence makes *C. quadrangularis* an important candidate for further research. The plant offers promising opportunities that link indigenous knowledge, nutrition, traditional healthcare and modern functional food development, while also emphasising the importance of preserving the cultural knowledge associated with its use.

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