



Review Article

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A REVIEW ON THE NUTRITIONAL POTENTIAL OF KULATTHA AS A DIETARY COMPONENT

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ABSTRACT

Dietary diversity plays a vital role in disease prevention and management. Kulattha (*Dolichos biflorus*), commonly known as Horse gram, is a pulse of the family Leguminosae (Fabaceae) that is mentioned in classical Ayurvedic texts under the Shamidhanya Varga and used as a key ingredient in several dietary and medicinal formulations. This underutilised neglected pulse, native to South India, is consumed worldwide in various forms, including sprouted or boiled seeds, ground flour, and health beverages, as well as in traditional Indian preparations such as yusha (soup), laddoo, snacks, and salads. Kulattha is rich in carbohydrates and proteins and contains substantial amounts of trace minerals such as iron, molybdenum, and calcium, together with Vitamin A, protein, pentosan, and water-soluble gum; other notable constituents include collidine and genistein. Owing to its favourable amino acid profile, Kulattha is nutritionally superior to many other pulses and represents a valuable grain legume with considerable nutritional and therapeutic potential. This review compiles classical Ayurvedic descriptions and contemporary scientific evidence on the nutritional composition, therapeutic properties, and dietary applications of Kulattha, and highlights its promise as a functional food for preventing and managing lifestyle-related disorders.

Keywords: Horse Gram, Yusha, Nutrition, *Dolichos biflorus*, Neglected Pulse, *Macrotyloma uniflorum*

INTRODUCTION

In Ayurveda, ahara (food) is regarded as medicine ¹, and many plants are described in classical literature not only for their dietary value but also for their medicinal properties. Kulattha (Horse Gram) is one such underutilised pulse, described in the Shamidhanya Ahara Varga and held in high regard across the Samhitas and Nighantus for its nutritional and therapeutic value². Acharya Kashyapa's aphorism, "there is no medicine like food," aptly captures the significance of Kulattha in Ayurvedic dietetics³. It is an important pulse crop cultivated throughout the sub-Himalayan tract and several southern and central Indian states, and is recognised as one of the oldest cultivated legumes valued for its nutritional and medicinal properties.

Literature and sources

This review is based on a comprehensive survey of classical Ayurvedic literature, including the Samhitas and Nighantus, together with contemporary scientific publications retrieved from online and offline databases such as PubMed, Google Scholar, and the Web of Science.

Botanical Description

Kulattha is a trailing annual herb that grows up to 500 cm long and bears light-yellow flowers. Its seeds are hard, smooth-

surfaced, ellipsoid, and flattened, ranging in colour from greyish to reddish-brown, and measure 4–6 mm in length and approximately 4 mm in width. The leaves are compound, and the seeds constitute the principal medicinal and nutritional part of the plant, serving as an excellent source of dietary protein.

Table 1: Synonyms and Taxonomic Classification

Category	Detail
Synonyms	<i>Macrotyloma uniflorum</i> (Lamk.) Verdc., <i>Vigna unguiculata</i> (Linn.) Walp., <i>Vigna sinensis</i> , <i>Dolichos unguiculatus</i> , <i>Dolichos uniflorus</i> Lamk.
Botanical Name	<i>Dolichos biflorus</i> Linn. (Dolichos: old Greek name for bean; biflorus: bearing two flowers)
Family	Papilionaceae; Fabaceae
Sanskrit	Kulattha
Hindi	Kulattha, Kurathi
Telugu	Vulavalu
Kannada	Huruli, Hurali
Tamil	Kollu, Kannam
Punjabi	Lodhar
Urdu	Kulattha
English	Horse Gram ⁴

Ayurvedic Properties (Guna Dharma) of Kulattha

Table 2: Raspanchaka description of Kulattha (Horse Gram) across the major Ayurvedic texts

Ayurvedic Text	Rasa (Taste)	Virya (Potency)	Vipaka (Post digestive effect)	Guna (Qualities)
Charaka Samhita ⁵	Kashaya (astringent)	Ushna (hot)	Amla (sour)	Ushna (hot)
Sushruta Samhita ⁶	Kashaya (astringent)	Ushna (hot)	Katu (pungent)	Ushna (hot)
Ashtanga Sangraha ⁷	Kashaya (astringent), Swadu (sweet)	Ushna (hot)	Amla (sour)	Ruksha (dry), Laghu (light), Vidahi (causing burning), Tikshna (sharp)
Bhavaprakash Nighantu ⁸	Kashaya (astringent)	Ushna (hot)	Katu (pungent)	Laghu (light), Vidahi (causing burning), Medohara (fat-reducing)
Raja Nighantu ⁹	Kashaya (astringent), Katu (pungent), Tikta (bitter)	Ushna (hot)	Katu (pungent)	Ruksha (dry)
Madanpal Nighantu ¹⁰	Kashaya (astringent)	Ushna (hot)	Katu (pungent)	Laghu (light), Vidahi (causing burning), Sara (essence-promoting)
Kaideva Nighantu ¹¹	Kashaya (astringent)	Ushna (hot)	Amla (sour)	Laghu (light), Ruksha (dry)

Kulattha holds a significant place in rural and traditional Indian diets. It is widely consumed as dal and serves as a staple food in several regions, particularly in South India—especially Andhra Pradesh—and in Maharashtra. Owing to its affordability and substantial nutritive value, it constitutes an essential dietary component in rural communities. ¹²

Nutritional Benefits of Kulattha

Kulattha, classified as a Shami Dhanya, it is nutritionally significant and, as described in Ayurveda, possesses considerable therapeutic properties. Classical texts describe it as both Pathya (a wholesome diet) and Aushadha (a medicine) owing to its multifaceted nature, and it is employed in the management of several conditions. Classical Ayurvedic preparations such as Kulattha Yusha, Kulattha Siddha Bhat, and Kulattha Pancha Yusha are described across various Samhitas and Nighantus. ¹⁴

Nutritional Value Analysis

Table 3: Nutritional composition of Kulattha per 100 g ¹³

Macronutrient	Content (%)	Micronutrient	Content (per 100 g)
Moisture	5.8%	Calcium	238 mg
Protein	22.6%	Iron	6.77 mg
Carbohydrates	66.9%	Phosphorus	311 mg
Fat	1.8%	Magnesium	1.64 mg/g
Crude Fibre	1.6%	Manganese	31.26 µg/g
Ash	2.9%	Zinc	29.34 µg/g
Resistant Starch	2.15%	Copper	10.28 µg/g
Dietary Fibre	16.7%	Niacin	1.5 mg
Soluble Fibre	1.32%	Riboflavin	0.2 mg
Insoluble Fibre	15.38%	Thiamine	0.4 mg

Table 4: Formulations and Indications of Kulattha in Classical Ayurvedic Texts

Ahara Kalpana (Dietary Preparation)	Classical Reference	Ingredients / Method of Preparation	Therapeutic Uses (Indications)
Kulattha Yusha (Horse Gram Soup)	Charaka Samhita, Chikitsa Sthana ¹⁵	Kulattha seeds boiled in water; the filtered decoction is used as a thin soup (Yusha), prepared with salt, ginger, and other spices as indicated.	Rajayakshma, Kaphaja Arsha, Shotha, Vataja Chardi, Vataroga, Shwasa
Kulattha Yusha	Sushruta Samhita ¹⁶	Kulattha seeds cooked and prepared as a light soup (Yusha).	Kaphaja Jwara
Kulattha Yusha	Ashtanga Hridaya ¹⁷	Yusha prepared from Kulattha seeds.	Sannipataja Vikara and Kapha-Vataja Vikara
Kulattha Yusha	Kashyapa Samhita ¹⁸	Kulattha Yusha prepared as a thin gruel or soup.	Kasa, Shotha, Arochaka
Kulattha Yusha	Harita Samhita ¹⁹	Yusha prepared from Kulattha seeds, administered as a light dietary preparation.	Shukla Meha
Kulattha Pancha Yusha (Five-fold Horse Gram Soup)	Various classical texts	A group of five specific Yusha preparations made from Kulattha, each with distinct combinations of herbs, spices, and adjuncts as per classical formularies.	Multiple conditions, including Vataja and Kaphaja disorders, digestive ailments, and urinary disorders
Kulattha Siddha Bhat (rice cooked with Horse Gram decoction)	Classical Ayurvedic texts	Rice (Shali) cooked in the decoction (Kwatha) of Kulattha seeds; serves as a wholesome Pathya Ahara.	Mootraroga, Ashmari (stone)
Kulattha Dal (boiled lentil preparation)	Traditional Ayurvedic dietetics	Kulattha seeds soaked overnight, boiled until soft, and seasoned with turmeric, salt, asafoetida, and ginger; consumed as a staple dal.	Medoroga, Vibandha(constipation), Arsha(piles); general nutrition and digestive health
Ankurita Kulattha (sprouted seeds)	Ayurvedic dietetics / Dravyaguna	Kulattha seeds soaked in water for 8–12 hours and allowed to sprout; consumed raw or lightly cooked.	Increases nutrient bioavailability; beneficial in Madhumeha (diabetics), anaemia, and general debility; a rich source of Vitamin C

Kulattha Churna (ground Horse Gram flour)	Classical Ayurvedic texts and Nighantus	Dried Kulattha seeds ground into fine powder; used in preparations such as laddoo and flour-based dishes.	Ashmari, Medohara, Shukrashmari; used as a diuretic and nutritional supplement
Kulattha Kwatha (Horse Gram decoction)	Charaka Samhita, Sushruta Samhita	Kulattha seeds boiled in water (1:16 ratio) until reduced to one-fourth; filtered and administered warm.	Ashmari, Mootrakrichra, Shwasa
Kulattha Vilepi (thick gruel)	Ayurvedic classical dietetics	Kulattha seeds cooked with excess water to a semi-solid consistency; a light, easily digestible preparation.	Convalescence, digestive weakness (Mandagni), post-fever recovery, Vataja disorders
Kulattha Supa (soup)	Traditional Ayurvedic practice	A thin, spiced soup prepared by cooking Kulattha with cumin, ginger, pepper, and salt; consumed especially in winter.	Pratishyaya, Jwara, weight management, Shwasa, Kasa
Kulattha Salad (raw / boiled preparation)	Ayurvedic dietetics	Boiled or sprouted Kulattha mixed with fresh vegetables, lemon, and rock salt; consumed as a light meal.	Medoroga

Side Effects and Contraindications

Kulattha is contraindicated in hyperacidity and gastric ulcer; Acharya Charaka describes it as Amalapittajanaka (productive of acid bile), rendering it unsuitable in such conditions. It is also not recommended in gout, as it may aggravate Rakta Dhatu and worsen the condition, and it should be avoided in bleeding disorders owing to its Raktapropaka (blood-increasing) properties.²⁰

Therapeutic Uses of Kulattha

Urinary Calculi (Kidney Stone) Kulattha is beneficial in the management of kidney stones and is recognised in both traditional and alternative systems of medicine for this purpose.²¹

Diabetes -Gupta *et al.* reported the antidiabetic effect of an alpha-amylase inhibitor isolated from the seeds of *Dolichos biflorus* in streptozotocin–nicotinamide-induced diabetic mice. Horse gram has shown benefits in managing diabetes and is rich in antioxidants that may help reduce the risk of developing the condition.²²

Weight Management- Horse gram has also shown benefits for weight management. It has natural fat-reducing properties, and its soup is commonly consumed to aid weight loss.²³

Cholesterol Management- Kumar *et al.* demonstrated that *Macrotyloma uniflorum* extracts exhibit strong activity against hypercholesterolaemia and obesity. The anti-hypercholesterolaemic effect of the extract was examined in rats by assessing food consumption, weight gain, serum lipid profile, serum glutamate oxaloacetate transaminase (SGOT), serum glutamate pyruvate transaminase (SGPT), and body fat levels; these effects resulted in reduced LDL cholesterol and increased HDL cholesterol.²⁴

Diarrhoea- Horse gram is rich in flavonoids, which possess antidiarrhoeal properties. Its dietary fibre content is an essential nutrient for gastrointestinal health and aids in alleviating diarrhoea.²⁵

Colds and Fever- Kulattha dal is beneficial for physical ailments such as colds and fever and is used as a traditional remedy for these conditions. Given its inherently hot properties, it is particularly well suited for consumption during winter.²⁶

Irregular Menstruation- Horse gram has demonstrated efficacy in managing female health conditions, including menstrual irregularities.²⁷

Constipation- Horse gram is rich in dietary fibre, which aids in relieving constipation; fibre softens stool and facilitates its passage, making Kulattha dal a beneficial component of healthy digestion.²⁸

Cardiovascular Health-The National Center for Biotechnology Information (NCBI) notes that the fibre content of horse gram can significantly reduce the risk of heart attack by lowering cholesterol levels. It also contains phenolic acids, flavonoids, and tannins, which offer cardioprotective benefits.²⁹

Haemorrhoids (Piles)- Kulattha is also used in Ayurvedic practice to manage haemorrhoids.³⁰

Hepatoprotective Activity- Parmar *et al.* demonstrated the significant hepatoprotective properties of *Macrotyloma uniflorum* seeds against D-galactosamine- and paracetamol-induced hepatotoxicity in rats.³¹

DISCUSSION

Diet plays an essential role in determining human health outcomes. In the modern era, unhealthy dietary habits, combined with sedentary lifestyles, have contributed significantly to the rising burden of lifestyle-related disorders. Increasingly, individuals struggle to distinguish between foods that promote health and those that undermine it. Among traditional legumes, Kulattha remains relatively underutilized despite its wide range of nutritional and therapeutic properties.

Shifts in food preferences and market trends have led to a decline in the consumption of kulattha, resulting in the neglect of its medicinal and nutritional benefits. This pulse possesses remarkable qualities that highlight the need for greater awareness and its inclusion in contemporary diets. The increasing prevalence of sedentary lifestyles has been directly linked to the growing incidence of obesity, type 2 diabetes, cardiovascular diseases, and metabolic disorders. Promoting traditional dietary practices is therefore essential—not only for preserving cultural heritage but also as a sustainable, evidence-based strategy for improving health, preventing lifestyle disorders, and enhancing overall well-being.³²

Kulattha is one of the oldest traditional legumes incorporated into Indian dietary practices and Ayurveda. Nutritionally, it is an excellent source of plant-based protein and complex carbohydrates while being low in fat. Its high dietary fibre content supports digestive health and helps regulate blood glucose levels. Furthermore, scientific studies have demonstrated its hypoglycaemic, hypolipidaemic, antimicrobial, and nephroprotective properties, underscoring its relevance as a functional food in the prevention and management of lifestyle-related disorders.

CONCLUSION

Kulattha can be consumed in various dietary forms, including soup, vilepi, sprouts, dal, and flour-based preparations. Its regular inclusion in the diet may improve nutritional status and reduce the risk of chronic disease. Despite its considerable health benefits, consumption of Kulattha has gradually declined because of changing food preferences and a lack of awareness, particularly among younger generations. Kulattha therefore merits active promotion as a functional and therapeutic food in modern dietary practice. Greater awareness of its nutritional value, medicinal importance, and ease of dietary incorporation could help revive

its traditional use and contribute to improved public health outcomes.

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