



Review Article

MASHA (*Phaseolus Mungo* Linn.): A COMPREHENSIVE CLASSICAL AND SCIENTIFIC REVIEW

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ABSTRACT

Masha (*Phaseolus mungo* Linn.), commonly known as black gram, is an important dietary and medicinal pulse extensively utilized in Ayurveda since the Vedic period. Classical Ayurvedic literature categorizes *Masha* under *Shami Dhanya*, attributing to it significant nutritional and therapeutic value. The present review aims to comprehensively compile and analyze classical Ayurvedic references along with modern scientific findings related to *Masha*, without redundancy, to establish its holistic significance. Classical sources from the Atharvaveda through Samhita and Nighantu literature describe *Masha* in terms of its synonyms, *Vargikarana*, *Rasapanchaka*, *Dosha karma*, *Rogaghnata*, and its inclusion in numerous formulations, particularly in *Vajikarana* and *Vatavyadhi* contexts. Modern perspectives included in this review encompass taxonomical classification, pharmacognostical characteristics, cultivation practices, trade aspects, chemical constituents, nutritional profile, and experimental research evidence. Phytochemical and nutritional analyses reveal that *Masha* is rich in proteins, dietary fiber, essential amino acids, minerals, and bioactive compounds such as flavonoids and saponins, supporting its traditional use in nourishment, strength promotion, and metabolic regulation. Experimental studies further demonstrate antioxidant, immunomodulatory, hepatoprotective, and antihyperlipidemic activities. This integrated review highlights *Masha* as a nutritionally superior pulse with validated therapeutic relevance and emphasizes the need for clinical studies to strengthen its application in Ayurvedic practice and nutraceutical development.

INTRODUCTION

Ayurveda emphasizes both disease management and the preservation of health through appropriate diet and medication. Among dietary pulses used therapeutically, *Masha* (*Phaseolus mungo* Linn.) occupies a prominent place due to its dual role as food and medicine. Widely cultivated across India, *Masha* is valued for its high nutritional density and therapeutic versatility. While its traditional importance is well established, contemporary research has expanded understanding of its pharmacognostical, phytochemical, and nutritional attributes. The present review seeks to integrate classical Ayurvedic concepts with modern scientific evidence, providing a

structured and comprehensive account of *Masha* relevant to academic study, clinical application, and future research.

Chronological Review

Vaidika Kala^[13]

- In Atharvaveda "*Rathajitaa*" is mentioned as *Paryaya* of *Masha*.
- *Masha* is mentioned in *Yajurveda*.
- In *Koushika sutra* its *Mantha* and *Pishta* are mentioned.
- *Masha* mentioned as *Medhya* and in *Yajna*.
- One who perform *Yajna* should not indulge food prepared from *Masha*.
- Is mentioned under *Shamidhanya* along with *Vrihi* and *Yava*.
- *Masha* is used in *Pumsavana* along with *Yava*.

Samhita Kala^[1-3]

- In Charaka Samhita, *Masha* is mentioned in *Shamidhanya varga*, *Swedopaga gana*, and as an

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ingredient in many important formulations like *Vrushya* in many *Yogas* in *Vajikarana adhyaya*, as an ingredient of *Agaruvadhya taila* in *Jwara chikitsa*.

- In *Sushruta Samhita*, the drug is mentioned under *Kudhanyavarga*, as *Vrushya*, and in *Shosha chikitsa*.
- In *Asthanga Hrudaya*, *Masha* is mentioned in *Shimbidhanya varga*, as an ingredient in many *Yogas* like *Kasa* and *Rajayakshma Chikitsa*.

Nighantu Kala [4-12]

Nirukti [5]

माष - मषति हिनस्ति, मष हिंसायाम्।

- It is mentioned in almost all *Nighantus* like *Abhidhana manjari*, *Dhanvantari nighantu*, *Raja nighantu*, *Bhavaprakasha nighantu*, *Nighantu ratnakar*, *Kaiyadeva nighantu*.
- In *Bhavaprakasha Nighantu*, mentioned in *Dhanyavarga*.
- In *Kaiyadeva Nighantu*, quoted in *Oshadhi varga*.
- In *Raja Nighantu*, mentioned under *Shaalyadi varga*.

Table 1: Synonyms of Masha [4,7,8]

Granth	Cha.Sa	Su.Sa	A.H	Dh.Ni	Ra.Ni	Kai.Ni	A.M	Bha.Ni	Ni.R
<i>Baladhya</i>				+	-	-			
<i>Kuruvinda</i>				+	+	-			
<i>Mamshala</i>				+	+	-			
<i>Pitrujottam</i>				+	+	-			
<i>Sati</i>				-	-	+			
<i>Harirbija</i>				-	-	+			
<i>Vrishakara</i>				+	+	+			
<i>Kukkundam</i>							+		
<i>Mahamudgam</i>							+		

Table 2: Gana / Vargikarana of Masha [4-12]

Samhita / Nighantu	Ganas / Varga
Charaka Samhita	<i>Swedopaga, Shami Dhanyavarga</i>
Sushruta samhita	<i>Kudhanya Dhanyavarga</i>
Ashtanga Hrudaya	<i>Shimbi Dhanyavarga</i>
Bhavapakasha Nighantu	<i>Dhanyavarga</i>
Dhanvantari Nighantu	<i>Dhanyavarga</i>
Kaiyadeva Nigahantu	<i>Oshadhivarga</i>
Raja Nighantu	<i>Shaalyaadvarga</i>

Table 3: Vernacular Names of Masha [17]

Arab	Masha
Bengal	Mash-Kala, Tircorai-Kalai, Mashakalai, Mash-Kulay.
English	Black gram
Gujarat	Adad, Arad
Hindi	Urd, Urid, Thikiri
Kannada	Uddu
Konkani	Udid
Malayal	Uzhunnu, Ulunnu, Cheru-poiaar.
Marathi	Udid, Maga
Persian	Benu masha
Punjab	Mash, Mak, Urad
Tamila	Ulundu, Ulunthu, Patchay-pyre, Panny-pyre
Telugu	Minumulu, Kariminimulu, Minumu, Uddulu

Table 4: Rasapanchaka of Masha ^[4-12]

	Cha.Sa	Su.Sa	A.H	Dh.Ni	Ra.Ni	Bha.Ni	Kai.Ni	A.M	Ni.R
Guna									
Guru	+	+	+	+			+		+
Snigda		+	+	+	+		+		+
Sara							+		
Rasa									
Madhura	+	+	+				+		+
Veerya									
Usna		+	+		+		+		
Vipaka									
Swadhu		+	+	+	+				+
Amla							+		

Guna - Guru, Snigda, Sara; **Rasa** - Madhura; **Veerya** - Usna; **Vipaka** - Swadhu, Amla

Table 5: Action on Dosha of Masha ^[4-12]

Granth	Cha.Sa	Su.Sa	A.H	Dh.Ni	Ra.Ni	Bha.Ni	Kai.Ni	A.M	Ni.R
Vatashamaka	+	+		+	+	+	+		
kaphapittashamaka			+						
Kaphapittakara						+	+		
Kaphakara					+				+
Pittakaphakara				+		+			+

Table 6: Karma According to Classics of Masha ^[4-12]

Karma	Cha.Sa	Su.Sa	A.H	Dh.Ni	Ra.Ni	BhNi	Kai.Ni	A.M	Ni.R
Stanya		+		+		+	+		+
Vrushya		+				+	+	+	+
Balya	+	+	+	+		+	+		
Shukrala		+	+	+		+	+		+
Brumhana				+		+	+		
Tarpana		+		+		+			
Bhinnamutramala	+	+		+		+			+
Ruchya				+					+
Sramsana				+	+	+			
Purishajanana					+				
Mamsamedavardhaka									+

Karma - Stanya, Vrushya, Balya, Shukrala. Brumhana, Tarpana, Binnamutramala, Ruchya, Sramsana, Purishajana


Table 7: Rogaghnata of Masha ^[4-12]

	Cha.Sa	Su.Sa	A.H	Dh.Ni	Ra.Ni	Bha.Ni	Kai.Ni	A.M	Ni.R
Stanyalpata	+						+		
Vajikara	+	+					+		
Vatavyadhi	+	+						+	+
Nadidourbalya	+								
Sandhivata	+								
Pakshaghata	+								
Karnanada	+								
Ardhita	+			+		+	+		+
Aruchi	+				+				
Arsha	+						+		+
Vibhanda	+								

Udarashoola	+								
Basthishoola	+								
Mutrakruchra	+								
Klaibhya	+								
Apasmara	+								
Yoniroga	+								
Krushata	+								
Dourbalya	+	+			+				
Rajayakshma	+	+	+		+				
Kasa	+		+						
Swasa	+			+		+	+		+
Madathyaya	+		+						
Bhagandara		+							
Vatarakta		+							
Gudakila						+			

Karma – Stanyalpata, Vatavyadhi, Rajayakshma, Dourbalya, Mutrakruchra etc

Table 8: Rogagnata of Masha [1-3,14,15]

Yogas	Adhikara	References
<i>Bhrumhani gutika</i> <i>Vajikarana ghruta</i> <i>Vajikarana pinda rasa</i> <i>Vrushya mahisha rasa</i> <i>Vrushyamasha yoga</i> <i>Trayavrushya godagda yoga</i> <i>Shashtikodi gutika</i> <i>Apathyakara swarasa</i> <i>Vrushyakshira</i> <i>Vrushya payasa</i> <i>Vrushyapoopalika</i> <i>Apathyakara ghrutam</i>	<i>Vajikaranadhikara</i> 	Cha.chi. 2-1/26 Cha.chi. 2-1/33 Cha.chi. 2-1/38 Cha.chi. 2-1/42 Cha.chi. 2-1/47 Cha.chi. 2-2/3,5 Cha.chi. 2-2/4,7 Cha.chi. 2-2/14 Cha.chi. 2-2/18 Cha.chi. 2-2/14 Cha.chi. 2-2/16 Cha.chi. 2-4/28
<i>Agaruvadhya taila</i>	<i>Jwaradhikara</i>	Cha.chi. 3/266
<i>Amritadhya taila</i>		Cha.chi. 29/102
<i>Masha yoga</i>	<i>Vajikaranadhikara</i>	Su.chi. 26/29
<i>Tilamasha choorna</i>	<i>Shoshadhikara</i>	Su.chi.
<i>Masha yusha</i>	<i>Kasadhikara</i>	A.Hr.chi 3/19
<i>Mashadi choornam</i>	<i>Rajayakshmadhikara</i>	A.Hr.chi 5/80
<i>Mashendari pathyam</i>	<i>Parinama shoola</i>	C.D
<i>Swalpamasha taila</i> <i>Masha taila</i> <i>Dvitiya masha taila</i> <i>Trutiya masha taila</i> <i>Maha masha taila</i>	<i>Vatavyadhi adhikara</i>	C.D 22/154-172 C.D 22/187-200
<i>Mashalepa</i>	<i>Darunaka- Ksudraroga</i>	C.D 55/86
<i>Pratishyayahara mashayoga</i>	<i>Naasaroga</i>	C.D 58/22
<i>Dugdha mashapayasa yoga</i>	<i>Vrushyadhikara</i>	C.D 66/10
<i>Bhruhatechchagalyadi ghruta</i>		B.R
<i>Mahamasha taila</i>	<i>Vatavyadhi</i>	B.R 241-142

Taxonomical Position¹⁹

Kingdom: Plantae
 (unranked): Eudicots
 (unranked): Rosids
 Order: Fabales
 Family: Fabaceae
 Subfamily: Faboideae
 Tribe: Phaseoleae
 Genus: *Vigna*
 Species: *V. mungo*

Binomial name

Vigna mungo

Synonyms

Azuki mungo
Phaseolus hernandezii
Phaseolus mungo
Phaseolus roxburghii

Morphological Features Phaseolus Mungo^[16]

- Much branched climbing or erect annual herb.
- The tap root produces a branched root system with smooth, rounded nodules.
- Leaves: Trifoliate, Stipules peltate, Leaflets ovate, rhomboid, slightly lobed.
- Racemes: capitate, 4-8 flowers, peduncles 1.5-4 cm long, calyx 2-3 mm long, teeth lanceolate.
- Pods: narrow, cylindrical and up to 3.5-6.5 long, covered with long spreading hairs, 6-12 seeded.

Distribution^[17]

- *Masha* is a native of India and is cultivated as a major pulse crop almost throughout India.
- The producing areas are Madhya Pradesh, Uttara Pradesh, Maharashtra, Himachal Pradesh, Punjab, Harayana, Bihara, West Bengal, Andhra Pradesh,

Tamil Nadu, Gujarat, Orissa, Assam, Kerala, Jammu & Kashmira, Karnataka and in some parts of Delhi.

Cultivation and Propagation^[17]

- The crop is grown principally on clayey and black cotton soils but red loamy, light red or brown alluvial soils which are not shallow, are also suitable.
- It is grown almost entirely as a dry crop in tracts with a rainfall not exceeding 85cm; where rainfall is heavier, it is raised only after rains.
- Normally the crop is sown in June / July or as late crop in October.
- For land preparation, fields are ploughed once or twice to bring soil to a fine tilth.
- Seeds are generally broadcast or sown in rows 25cm apart in ploughed furrows and later smoothed by a harrow.
- In 7-10 days, the plants are well above the ground.
- The plants flower in 7 weeks from sowing and in 3 months the pods are ready for harvesting.
- It is always preferred to harvest pods before they are fully ripe, to avoid shattering of dry grains.
- The dried pods are threshed and winnowed for seed separation.
- On average, a pure crop yields about 500-725 kg seeds/ha.
- Shoot re generation in *Phaseolus mungo* / *Vigna mungo* and other related species using cotyledonary node explants has been reported.
- Explant was obtained from 4day-old in vitro germinated seedling within 2 weeks.

Trade and Commerce^[17]

Retail market price seed Rs 70-90 per Kg (2025),

Table 9: Chemical Constituents of *Masha*^[17]

Seed	Plant	Black Bean
Gamma-Glu-met, vitexin, Beta-sitosterol, lysine, phenylalanine, cystine, methionine, threonine, sulpholipids, phosphotidic acid, mono & digalactosyl diglycerides, diphosphatidylglycerol identified as polar lipid components of galactolipids, arabinogalactan, myristic, palmitic, stearic, oleic, lenoleic, linolenic acid, stigmaterol, glutamyl-S-methylcysteine with homoglutathione and and derivatives of glutamic acid, aspartic acid, phenylalanine, leucin.	p-coumaroyl-, caffeoyl-, feruloyl-tartronic acid, genistein, 2-hydroxy-genistein, dalbergiodin, cyclokievitone, 5-deoxykievitone, glycinol, isoferreirin, eurenol, kaempferol 7-o-rhamnoside, quercetin 3-o, quercetin 3-o-glucoside, phaseollin, 3-o-galactosyltransferase, saponin, ajugose, raffinose, stachyose, verbascose, lindane, tannin.	Soyasaponin 1, 2, 5; Saponin A, B

Table 10: Nutritional value per 100 g (3.5 oz) of *Masha* ^[19]

Carbohydrates	58.99
Sugars	0
Dietary fiber	18.3
Fat	1.64 g

Protein	25.21
Vitamins	
Thiamine (B1)	(24%) 0.273 mg
Riboflavin (B2)	(21%) 0.254 mg
Niacin (B3)	(10%) 1.447 mg
Pantothenic acid (B5)	(0%) 0.0 mg
Vitamin B6	(22%)
Choline	(0%) 0 mg
Vitamin C	(0%) 0 mg
Vitamin E	(0%) 0 mg
Vitamin K	(0%) 0 µg
Minerals	
Calcium	(14%) 138 mg
Iron	(58%) 7.57 mg
Magnesium	(75%) 267 mg
Manganese	(0%) 0 mg
Phosphorus	(54%) 379 mg
Potassium	(21%) 983 mg
Sodium	(3%) 38 mg
Zinc	(35%) 3.35 mg
Other constituents	
Water	10.8

Table 11: Showing Research Profile of *Masha* [18,20,21]

Research Activity	Part Used
Evaluation of immunomodulatory activity of <i>Vigna mungo</i> (L) hepper.	Petroleum ether, ethanol and aqueous extract of <i>Vigna mungo</i> seeds.
Hepato and nephro-protective effect of methanolic extract of <i>Vigna mungo</i> (Linn.) Hepper on rifampicin induced toxicity in albino rats.	Antihyperlipidemic activity of <i>Clitoria ternatea</i> and <i>Vigna mungo</i> in rats.
In vitro, antioxidant effect of seed coats extracts of <i>Vigna mungo</i> .	Seed coat extracts of methanol and aqueous ethanol.

DISCUSSION

The therapeutic significance of *Masha* described in Ayurvedic classics is well explained through its *Rasapanchaka*, particularly *Madhura Rasa*, *Guru-Snigdha Guna*, *Ushna Veerya*, and dual *Vipaka*, which together support its *Balya*, *Brumhana*, and *Vrushya* actions. These properties justify its frequent indication in *Vatavyadhi*, *Dourbalya*, *Shukrakshaya*, and *Rajayakshma*, as reflected by its extensive use in *Vajikarana* and *Vatashamaka* formulations such as *Vrushyamasha Yoga* and *Mahamasha Taila*.

Modern pharmacognostical and phytochemical studies substantiate these traditional claims by identifying nutritionally and pharmacologically active constituents, including high-quality proteins, essential amino acids, flavonoids, fatty acids, and minerals.

Experimental evidence demonstrating antioxidant, immunomodulatory, hepatoprotective, and antihyperlipidemic activities supports its role in tissue nourishment and metabolic regulation. However, variations in Dosha karma described across Nighantus highlight the importance of context-specific usage based on Prakriti and disease stage. Cultivation constraints and yield variability further indicate the need for agronomic optimization and standardization.

CONCLUSION

Masha (*Phaseolus mungo* Linn.) emerges as a nutritionally rich and therapeutically versatile pulse with strong foundations in Ayurvedic literature and growing scientific validation. Its classical attributes as a *Balya*, *Vrushya*, and *Vatahara* drug are supported by

modern pharmacological and nutritional evidence. The integration of traditional knowledge with contemporary research underscores its relevance in addressing debility, metabolic disorders, and reproductive health. Future directions should focus on clinical validation, formulation-based studies, and standardized nutraceutical applications to enhance its role in evidence-based Ayurveda and global health nutrition.

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