


KULATHA: THERAPEUTIC APPROACH- A COMPREHENSIVE REVIEW
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ABSTRACT

Ayurveda for the achievement of long, happy and healthy life has described *Trayopasthamba* (three sub pillars of life) - *Ahara*, *Nidra* and *Brahmacharya*. Among these *Ahara* is considered as the foremost sustainer of life. The classics have enumerated various food articles which come under the purview of food as well as medicine. *Kulatha* is one such dietary article having multiplicity in use from time immemorial. It can be utilized in different therapeutic conditions as food and also as medicine. They are good sources of proteins, which help to supplement cereals by improving their protein nutritive value. They also provide optimum quantities of minerals, vitamins and dietary fibre. It can be used as medicine both internally and externally. From Vedic period onwards different Ayurvedic samhitas has mentioned the pharmacological properties of *Kulatha*. It has been included under the *Pathyas* of many diseases such as *Prameham*, *Amavatam*, *Swasam* etc. In Ayurvedic classics under the *Kritannakalpana supa*, *Holaka* and *Yusha* are mentioned with *Kulatha*. Different preclinical and clinical trials has proved *Kulatha* as non toxic and therapeutically effective. *Kulatha* is cost effective and can be useful for the prevention as well as for the duration of diseases.

KEYWORDS: *Trayopasthamba*, *Ahara*, *Kulatha*, *Kritanna*.

INTRODUCTION

Ayurveda for the achievement of long, happy and healthy life has described *Trayopasthamba* (three sub pillars of life) - *Ahara*, *Nidra* and *Brahmacharya* [1] *Ahara* replenishes the subtle elements of the body, *Nidra* soothes the body and mind and observance of *Brahmacharya* is conducive for spiritual well being. Among these *Ahara* is considered as the foremost sustainer of life.[2] The classics have enumerated various food articles which come under the purview of food as well as medicine. *Kulatha* (Horse gram) is one such dietary substance. Horse gram was considered Horse fodder and its full potential as part of the human diet has not been exploited completely. It is high in protein and iron which makes it a wholesome food that should be added to the diet on a regular basis.

Kulatha

Horse gram, popularly known as the “poor man’s pulse crop”, is one of the hardest among legume crops. The horse gram is normally used to feed horses, though it is also commonly used in dishes. In traditional Ayurvedic cuisine, horse gram is considered a food with medicinal qualities. The word *Kulatha* derived from the root word - *kul+stha + ka*. *Nirukti* of *Kulatha* is “*Kulambhoomilagnam sat tishtati*” which means that one which stays deep rooted in the ground [3].

Latin name: *Dolichos biflorus* Linn

Family: Fabaceae

Species: *Vigna unguiculata* (Lin.) Walp., *Dolichos unguiculata*, *Dolichos uniflorum* (Lamk.), *Macrotyloma uniflorum*.^[4]
Historical review of Kulatha

The popularity of *Kulatha* as an important food grain remains unchallenged from the Vedic period to the present era.

Samhitha period

Acharya Charaka has mentioned *Kulatha* in *Swedopagagana* and *Shimbidhanyavarga*^[5]. Susruta included it among *Artavajanakadravya* and *Dhanyavarga* [6]. Vagbhata in *Ashtangahrudaya* cited *Kulatha* among *Dhanyavarga* only^[7]. *Ashatangasamgraha* included it under *Sodhanaadigana* (*Asthapanagana*).^[8]

Nighantu period

Kulatha has been mentioned under *Dhanyavarga* in *Dravyaguna Samgraha*^[9], *Madanapala Nighantu*^[10], *Kaiyadeva Nighantu*^[11], *Bhavaprakasa Nighantu*^[12], *Shaligrama Nighantu*.^[13] In *Raja nighantu*^[14] and *Shodala Nighantu*^[15] it is mentioned among *Shalyaadivarga* and *Shimbidhanyavarga* respectively. *Dhanwanthari Nighantu* [16] explains *Kulatha* under *Dhanyas* mentioned in *Suvarnaadivarga*. In *Priya Nighantu*^[17] it comes under *Pippalyadivarga* and in *Palasadivarga* in *Nighantu Adarsh*.^[18]

Botanical description

A branched sub-erect or trailing annual with small trifoliate leaves, bearing when mature narrow, flat, curved pods 3.5 to 5 cm long, tipped with a persistent style. The pods contain 5-6 flattened ellipsoid seeds, 3-6 mm long. ^[19]

Geographical distribution

It is a native of India and is distributed throughout the tropical regions. It occurs all over India up to an altitude of 1600 m. It is cultivated in Tamilnadu,

Uttarpradesh, Nagpur and parts of Assam. In Kerala, horse gram is traditionally grown during Rabi season in the paddy field and terraced uplands (Palliyals). In Southern

districts of Kerala state, there is a practice of raising horse gram along with tapioca. [19]

Table 1: Synonyms of Kulatha mentioned various Samhitas and Nighantus [5, 6, 7, 10, 11, 12, 14, 16]

Synonyms	CS	SS	AH	BP	KN	MNi	DN	RN
Kulattha	+	+	+	+	+		+	+
Kulatthika				+		+		
Tamrabija								+
Tamravrna							+	
Shwetabija								+
Chakra						+		
Kulala						+		
Locanahita					+	+		+
Kumbhakari					+	+		+
Drakprasada						+		+
Vajana						+		
Apara						+		
Kulali					+	+		
Cakshushya					+	+		+
Pitamudga							+	
Aliskandha							+	
Surashtraka							+	

Varieties

- a) According to Susruta 2 types- *Kulatha* and *Vanyakulatha*[20]. *Vanyakulatha* is indicated in *Anaha*, *Medoroga*, *Gudakeela*, *Hikka*, *Swasa*, *Nayanamaya* and *Kapharoga* but *Raktapittakara*. *Vanyakulatha* is included in *Chakshushya* group by Dhanwanthari Nighatu. [21]
- b) According to Raja Nighantu 3 types- *Tamrabeeja*, *Shwetabeeja* and *Sitetarabijah*. [14]

Chemical Constituents

Urease, strepogenin, p-sitosterol, genistein, 2'-hydroxygenistein, dalbergioidin, kievitone, phaseollidin, isoferreirin, coumesterol, psoralidin, 5-0-a-Lrhamnopyranosyl(1 +2)-0-P-D-glucopyranoside, phytohaemagglutinins, P-Nacetylglucosaminidase, a- & P-galactosidases, a-mannosides, P-glucosides, 5-hydroxy-7,

3'4'-trimethoxy-&methyl isoflavone-5-neohesperidoside, Dglucose, D-galactose, L-rhamnose, D-arabinose and L-ascorbic acid and amino acids viz., glycine, alanine, cysteine, serine and aspartic acid (seeds); genistein, 2'-hydroxygenistein, dalbergioidin, kievitone, phaseollidin, coumesterol, psoralidin, lectin like glycoprotein (content from leaves and stem); dolichinA and dolichin B (leaves); isoferreirin (5, 7, 4'-trihydroxy-2'-methoxyisoflavanone) (plant). [22]

Physical constituents

Total ash- Not more than 5%; Acid-insoluble ash- Not more than 1%; Alcohol-soluble extractive- Not less than 3%; Water-soluble extractive- Notless than 12%. [23]

Table 2: Properties of Kulatha mentioned various Samhitas and Nighantus [5, 6, 7, 10, 11, 12, 14, 24, 25]

	Rasa	Virya	Vipaka	Guna
C. S	Kashaya	Ushana	Amla	Ushana
Su. S	Kashaya	Ushana	Katu	Ushana
A. S	Kashaya, Swadu	Ushana	Amla	Ruksha, Laghu, Tikshana, Vidahi
A. H	Kashaya, Swadu	Ushana	Amla	Ruksha, Laghu, Tikshana, Vidahi
Y. R	Kashaya	Ushana	Amla	Ruksha, Ushana, Sara,
B. P	Kashaya	Ushana	Katu	Laghu, vidahi, Medohara, raktakrut
K. N	Madhura, Kashaya	Ushana	Amla	Laghu, Ruksha, Vidahi
R. N	Kashya, Katu, tikata	Ushana	Katu	Ruksha
MP. N	Kashaya	Ushana	Katu	Laghu, Vidahi, Sarah

Pharmacokinetics

Karma- *Grahi, Mootrala, Netravikaranasaka, Vidahi, Swedasmagraha, Krimihara, Pittakrut, Medohara.*

Rogagnata- *Kasa, Swasa, Hikka, Peenasa, Daaha, Anaha, Arsa, Ashmari, Shukrashmari, Gulma, Netravikara, Shoola, Krimiroga, Sheetapitta, Hridroga, Amavata, Annadrava soola, Gandamala, Mootraroga, Sopha, Prameha, Rajorodha, Meda, Jwara.*

Pharmacological activities

Antihepatotoxic, Hypocholesterolemic, Diuretic, Hypotensive, Antispasmodic, Abortifacient, Myocardial stimulant, Haemagglutinating, Hypolipidaemic, Spasmolytic, Antistress, Hypoglycaemic and Virus inhibitory. The raw seeds of *Kulatha* has the ability to reduce postprandial hyperglycemia by slowing down carbohydrate digestion and reduce insulin resistance by inhibiting protein tyrosine phosphatase 1 betaenzyme^[26].

Seasonal Indication - Since *Kulatha* has *Ushnavirya* and *Amlavipaka* it cannot be used in *Greeshma rithu* (summer season).

Contra indications

Pregnant women, *Silajaturasayanaseva*,^[27] during *Rasaseva* - *Kakaaragana* is contraindicated.^[28]

Nutritive value of horse gram^[29]

Components per 100 gm	
Edible portion (%) 100	Minerals (gm) 3.20
Carotene (microgram) 71.00	Vitamin C (mg) 1.00
Moisture (gm) 11.80	Fibre (gm) 5.30
Thiamine (mg) 0.42	Magnesium (mg) 172.00
Proteins (gm) 22.00	Carbohydrate (gm) 57.20
Riboflavin (mg) 0.20	Sodium (mg) 11.50
Fats (gm) 0.5	Energy (kcal) 321.00
Niacin (mg) 1.50	Potassium (mg) 762.00
Sulphur (mg) 181	Calcium (mg) 287.00
Iron (mg) 8.40	Copper (mg) 1.03
Chlorine (mg) 8.00	Phosphorous (mg) 311.00

Ahara (Diet)

Food that is taken for the purpose of nourishment of the body in the form of solids or liquids is known as *Ahara*. According to Acharya Charaka our body is the supreme and final product of *Ahara*. The right kind of food consumed in proper manner leads to proper growth of the body. Most of the incurable diseases are produced due to improper food. So an intelligent and self controlled person should take conducive food in right quantity at the right time to prevent diseases.

Aharadravya contains *Dhanyavarga* one of the staple food of India. *Dhanyavarga* is again divided into *Shukadhanyavarga* (varieties of rice) and *Shimbidhanya varga* (legumes or pulses). Acharya Charaka named *Shimbidhanya* as *Shamidhanya*^[30] and Susruta included it under *Kudhanyavarga*.^[31]

Legumes or pulses are important constituents in the diet of a very large number of people, especially in the

developing countries. Further they are good sources of proteins, which help to supplement cereals by improving their protein nutritive value. They also provide optimum quantities of minerals, vitamins and dietary fibre.

Diet has a pivotal role in the prevention of many diseases which is unfortunately ignored by people. For the prevention of diseases and promotion of health Charaka has mentioned regular intake of food articles in the name of *Nityasevaniyaahara* which comprises of food items like *Shasthika* (variety of rice), *Shali* (variety of rice), *Yava* (barley), *Mudga* (Green gram), *Saindhava* (rock salt), *Amalaka* (Indian gooseberry), *Jangalamamsa rasa* (meat of terrestrial animals), *Madhu* (honey), water, *Payah* (milk) and *Sarpi* (ghee).^[32]

This food combination forms a balanced diet which is to be consumed regularly. Among them *Dhanya varga* (Pulses) forms an important group which supplies the required proteins both in the qualitative and quantitative aspects. *Kulatha* is one among the *Shimbidhanya* which is cultivated in several parts of South India, mainly as dry crop in moderate rainfall areas.

Kulatha as Pathya

Pathya apathya has been mentioned in Bhaishajya ratnavali.

Madhya Jwara (during middle stage of *Jwara*), *Arsas, Kasaroga, Mukharoga, Siroroga, Sutikaroga, Kapharoga, Hikka, Swasa, Vatavyadhi, Urusthambha, Asmari, Prameha, Sthoulya, Sotha, Slipada, Vidradhi.*

Kulatha as Apathya

Raktapitta, Rajayakshma, Amlapitta, Visarpa, Visphota, Pittaroga, Vatarakta, Pradara.

Kulathayusha as Pathya

Nasaroga, Amavata, Sula, Gulma, Hridroga, Sheetapitta.

Uses

Kulatha can be used as *Pathyahara* and *Oushada*. In South India *Kulatha* is used in the preparation of various side dishes. In north India especially in Maharashtra and costal region of Goa *Kulatha* is used for *Laddu* preparation^[33]. Ayurvedic classics mention different *Kritannas* made of *Kulatha* including *Supa, Holaka* and *Yusha* are of medical importance. Since *Kulatha* has *Ushnavirya* and *Amlavipaka* it is better to reduce its use during hot climate (*Greeshmarithu*).

Kulathayusha

When one part of *Vaidala* (dal/pulses) cooked in 18 parts of water, it is called as *Yusha*^[34]. *Kulathayusha* pacifies *Kapha* and *Vata*. It has *saraguna* and increases *Agni*. It reduces *Gulma, Arsa, Asmari, Tuni, Pratuni, Prameha, Medoroga* and *Swasa*^[35].

Kulathasupa

Supa is a liquid preparation similar to *yusha*. When split pulses are prepared in water adding ginger and asafoetida it is termed as *Supa*. *Kulathasupa* has *Kashaya rasa, Katuvipaka, Ushna, Vatasamaka, Kaphavirodhi*, increases *Pitta* and *Rakta* and reduces *Kasa* and *Swasa*.^[36]

Holaka

Half ripened pulses are baked on flame of hay and are known as *Holaka*. *Holaka* doesn't aggravate *Vata*,

pacifies obesity and *Kaphadosa*. Their properties are similar to the pulses of their origin^[37].

Medicinal preparations include both internal and external medicines.

Internal medicines (Formulations)

Kulathaadyaghritam in *Asmari*, *Kulathayusha* in *Vatikasula*, *Kulathaguda* in *Hikka*. *Saptasaram kashaya* in *Vridhhi*, *Vahnimandya*, *Shula* etc, *Dhanwantharam ghritha* in *Pramehapitaka*, *Pashanabhedadi ghritha* in *Vatajaasmari*, *Kulathaadiyusha* and *Mamsarasa* in *Hikkaswasa*, *Kulathaadi mahasneha* in *Vatavyadhi* for *Seka*, *Abhyanga*, *Avagaha*, *Annapana*, and *Anuvasana*, *Kosathakyaadi yoga* in *Vastiviyapath*, *Balataila*, *Satavaritaila*, *Prasaranitailam* in *Moodagarbhachikitsa*.

External medicines

Kolakulathaadi lepa for *Udvardana*, *Kolaadyutkaarika* in *Vatavyadhi*, *Kulathakashaya* for *Snana* in *Kaphajasopha*. Moreover it is used in *Sodhana* and *Marana* process of *Dravyas* like *Vajra*.

Scope of Research

The safety evaluation of *Kulatha* seeds on albino rats had proven that its therapeutic dose and five times more than therapeutic dose didn't produce any significant changes in haematological, biochemical and histopathological parameters of the albino rats which can be considered to have any pathological significance^[38].

A comparative clinical trial conducted by Rana Gopal Singh et. al concluded that *Kulatha* can be used to reduce the recurrence of calcium oxalate stones and its shown to have a better result than conventional potassium citrate in such patients.^[39] In addition to this a research work of *Kulathayusha* on bronchial asthma conducted by Tiwari Ashishkumar concluded that intake of *Kulathayusha* for 1 month in a dose of 120mL morning and evening in empty stomach is effective in improving the subjective and objective parameters of bronchial asthma.^[40] This indicates the scope of further research on *Kulatha* in different therapeutic conditions.

CONCLUSION

Kulatha in Ayurvedic classics have been attributed the status of both diet and drug due to its versatile properties. *Kulatha* as medicine finds its use in a range of ailments varying from acute to chronic conditions. The factors necessary for a food article to be considered as diet are cost effectiveness, availability, palatability and its contribution to health. *Kulatha* satisfies all this criterias. Thus it can be utilized in different therapeutic conditions as food and also as medicine.

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