

HORSE GRAM: SUPER FOOD FOR BETTER TOMORROW

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INTRODUCTION:

Horsegram *Macrotyloma uniflorum* (Lam.) Verdc, a traditional pulse crop native to Southeast Asia and tropical Africa, generally grown in arid and semi-arid region of India. The genus name *Macrotyloma* is derived from the Greek words *makros* which denotes large, *tylos* means knob and *loma* denotes margin, apropos knobby-like structures on the legume pods. Horsegram, commonly also known as Kulith (marathi), kollu (southern part of India), and Madras bean or madras gram, is a legume with higher nutritional profile. Along, it is said to be great-powered source, hence used to feed race horses.



Horsegram a underutilized nutraceutical crop has an immense capability to provide livelihoods to farmers and in situation of food security and food hunger. Horsegram being a rich source of protein among major leguminous crop and least expensive, is considered as poor-man's food. The year 2022 is significantly paving the way to boost the global market with vegan food, plant-based protein foods; where the utilization of plant-based protein-rich sources is on higher demand. Horsegram, being a power-packed legume can be processed and utilized in developing such vegan and plant-based foods, substituting non-vegetarian and dairy proteinous food sources. Horsegram is indeed a crop of importance in developing the better future and alleviating the malnutrition.



HORSEGRAM AS NUTRACEUTICAL:

Horse gram, a leguminous pulse with good amount of nutraceutical compounds is found to be active against wide range of diseases and disorders. The presence of nutritive bioactive compounds enhances the nutritional characteristics of the legume. The bioactive compound, protein in horsegram ranges from 18.5% to 28.5% whereas the amount of lysine (0.52 g g⁻¹ of nitrogen) was also found significantly higher. In addition, horsegram also contains crucial levels of other amino acids such as arginine, histidine, lysine, leucine, valine, etc.

Accounting for carbs, horsegram contains 43.4% of resistant starch, a non-digestible carbohydrate which is found to have curative

measures against colorectal cancer. Presence of higher amounts of crude fibers helps in gastrointestinal health and fulfil satiety.

The other non-nutritive bioactive components are also believed to lower the risk of diseases. The presence of anti-nutritional factors, either protein-ANF's or non-protein ANF's, are considered to have beneficial anti-oxidant activity. The phyto-nutrients compounds such as phenolics have found to exhibit anti-inflammatory, anti-microbial, anti-mutagenic effect. In addition, flavonoids, lignans and iso-flavones are also evaluated to display the anti-oxidant effect.

HORSEGRAM AS AYURVEDA:

Horsegram, known as kulattha in ayurveda, is recognized for its diuretic, thermogenic, astringent, hypotensive, and hypolipidemic properties. It is also known as 'Tamrabeeja' due to the metallic brown (coppery) colour of the leguminous tiny seeds. The ayurveda describes horsegram as spicy taste (*katu rasa*) and after digested it gets astringent (*kashaya rasa*). Being of hot-natured (*ushnaveerya*), easy to assimilate (*laghu*), increases pitta dosha and Rakta (*blood*).

Besides, horsegram also helps in lowering the body fat i.e., medha dhatu. It is also well-known to balance or sooth *kapha* and *vattadosh*. Since ancient times, it is known to treat urinary stones and lessen the burning effect of urine passage and also treat hemorrhoids. Horsegram can also be included in diet of men's Vajikarana food, which means to provide essential nutrients for the normal sexual function. Generally, the horsegram soup is given to the people after panchakarma treatment; this soup helps in fulfillment, reduce hunger pangs, treat ulcers and promote weight loss.



HORSEGRAM AS PRANIC FOOD:

Pranic foods are the foods that are based on the ancient diet-culture that truly belongs to Indian yogic nature. The nature describing consumption of foods especially for the need of nourishing and nurturing the soul, mind and body. Horsegram, considered as a positive pranic food, is a food that provides an immediate energy to the body, energizes you throughout the day to carry all activities, without tiredness.

UTILIZATION OF HORSEGRAM IN DEVELOPING VALUE-ADDED PRODUCT

Horsegram, a proteinous legume known as poor-man's meat, can be processed into different forms for developing nutritive food products (Kawaleet al., 2020). Horsegram is generally processed to flour and the flour is further used for preparation of different items. Traditional items such as Shengule, murukku, pithla, etc. are prepared since old times. But the recent studies have shown the utilization of horsegram flour in chapatis, pancakes, bakery items like bread, cookies, savory items like

chips, khakra, nachos, spicy-sticks, healthy sweets and treats like laddu, kheer, etc. by substituting a small portion of horsegram flour in addition to the traditional recipes. Moreover, sprouted, germinated and malted horsegram are now been a subject of interest for research studies. Sprouted horsegram are generally incorporated in preparation of horsegram soup, sprout extracts, etc., while germinated horsegram flour is used in fortification of bakery and savory items.



Horsegram chutney



Horsegram shengule



Horsegram soup

Malted horsegram flour, as now of major importance due to increase in nutritional profile and helps in ease in digestion, lighter in nature, and good functional properties such as swelling capacity, wettability and dispersibility. Malted horsegram flour can be incorporated into developing weaning foods, infant foods, nutritive mixes and geriatric food; due to its easy digestibility for all age group.

CONCLUSION:

Horsegram being a traditional crop can hence be utilized in innovative nutritional foods and recipes. The nutraceutical and medicinal properties of horsegram has proven it to be a superfood. The conversion of this leguminous crop to the edible foods will enhance the quality of food systems creating a sustainable diet culture for health concerning population. Beyond, the cultivation and processing of these highly profitable crop will generate money to the farmers and help in fighting the malnourishment by providing the protein source. Horsegram, is rightly on the way to figure out solution to food and nutritional security and thus serve a superfood for better tomorrow.

