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WONDER LEGUME HORSE GRAM

Smita T. Morbale¹ and Satish D. Patil¹

¹Department of chemistry, K.E.S., Anandibai Pradhan Science College, Nagothane. Raigad, Maharashtra, 402106, India.

Abstract: Today's generation has move away from traditional foods and it is high time to create awareness about the benefits and importance of lesser known pulses such as HORSE GRAM. Horse gram is a kind of bean commonly used in many south Indian states. This plant is native to the different parts of India. It is high in protein and iron which make it a whole some food that should be added to our diet on a regular basis. Horse gram is known to have many therapeutic effects but not scientifically proven though it has been recommended in Ayurveda medicine to treat renal stone, gall stone, weight loss, menstrual problems, diabetes, piles, edema etc. In recent years, isolation and utilization of potential antioxidants from legumes including horse gram are increased as it decreases the risk of intestinal diseases, diabetes, coronary heart disease, prevention of dental caries etc. Keeping in view the increasing demand of food having nutraceutical values, the present study described possibilities of exploring the horse gram, as a source of food and nutraceuticals compounds in treatment of kidney stone, diabetes, weight loss and menstrual problems.

Key Words: Horse gram, kidney stone, weight loss, menstrual problems.

I. Introduction

Horse gram is an underutilized and unexplored food legume. In Kerala horse gram is known as “muthira” which sound like “kuthira” which means horse in malayalam this might be because the legumes are used for feeding horses. It is considered as a good source of protein, carbohydrates, energy. It is tolerant to drought, salinity and heavy metal stresses. Horse gram mainly grown in India, Africa, Australia, Burma, Malaysia, Mauritius, and the West Indies under low soil fertility status with few inputs. It is adapted to wide range of temperature regimes where other crops invariably fail to survive. In India, it is generally sown late in the rainy season by resource-poor farmers in marginal and drought-prone condition. Horse gram has high levels of antioxidant and radical scavenging activities in addition to their traditional role of providing proteins and carbohydrates. It has rich source of various natural bioactive substances such as phytic acid, fiber, phenolic acid etc. These bioactive substances have immense potential for curing varieties of diseases such as common cold, throat infection, fever, urinary stones, asthma, bronchitis, leukoderma, etc. BBIs, the proteinase inhibitors have been identified to treat anti-inflammatory, obesity and several degenerative and autoimmune diseases [1-6]. However, there is a dearth of information on the specific health beneficial components in this lesser known legume. Thus, considering its immense potential as health benefit it needs to exploit as a source of nutraceutical and food industries [7].

II. Results and Discussion

Horse gram in eliminating kidney stone

Kidney stones are a painful condition and caused due to deposits of Oxalates. Horse gram is recommended for treating kidney stones. Horse gram is the best natural remedy if kidney or gall stones are detected in the early stages and are not big enough to warrant surgical intervention. It is known for its excellent diuretic and astringent property. The horse gram water has diuretic property and dissolve the kidney stone. Diuretics increase the elimination of water from the body.

Materi medica for horse-gram: According to study it is suggested that the patients of kidney and gall stones should follow the following remedy: Soak the little quantity of horse gram in a glass of pure drinking water. Keep it for 8-10 hrs or cook it in pressure cooker. Filter it. Take this infusion (Fig. 1) twice a day.



Fig. 1: Infusion of Horse gram against Kidney stone

Taking horse gram water this way for 2-3 months will help in completely eliminating the kidney and gall stones. Based on study performed by us the effect of horse gram on kidney and gall stone are represented as in Table 1.

Table 1. Survey on effects of horse gram in kidney and gall stone

Sr. No. of patients	Age	Disease	Remedy recommended	Dose	Duration	Results	Side effects
1.	22	Gall stone	Infusion/soup/salad /sprouts intake	Twice a day	1.5 month	90% relief from pain.	No
2.	25	Gall stone	Infusion/soup/salad /sprouts intake	Twice a day	1 month	80% relief from pain.	No
3.	30	Kidney stone	Infusion/soup/salad /sprouts intake	Twice a day	2 month	90% relief from pain.	No
4.	35	Kidney stone	Infusion/soup/salad /sprouts intake	Twice a day	2 month	85% relief from pain.	No
5.	38	Kidney stone	Infusion/soup/salad /sprouts intake	Twice a day	25 days	90% relief from pain.	No
6.	45	Kidney stone	Infusion/soup/salad /sprouts intake	Twice a day	1 month	90% relief from pain.	No

From our survey we have concluded that: In 1-2 months treatment we got 80%- 90% result. In 15-20 days treatment we got 65%-75% result. No side effects has been found.

Horse gram in diabetes

From the literature study we found that the horse gram are rich in antioxidants [8]. Anti-oxidants helps in controlling the sugar level by slowing down carbohydrate digestion and reduce insulin resistance by inhibiting protein tyrosine phosphatase 1 beta enzyme.

In study we found that during sprouting its anti-diabetic medicinal property gets reduce. As the majority of antioxidants properties were confined to the seed coat and its removal would not do any good. Survey on effects of horse gram in diabetes is presented as in Table 2.

Table 2. Survey on effects of horse gram in diabetes

Sr. No. of patients	Age	Remedy	Dose	Duration	Results	
					BEFORE	AFTER
1	29	Whole gram intake. Not sprouted.	Regularly twice a day	Daily for 2 months	170 mg/dl	135 mg/dl
2	35	Whole gram intake. Not sprouted.	Regularly twice a day	Daily for 3 months	220 mg/dl	170 mg/dl
3	45	Whole gram intake. Not sprouted.	Regularly twice a day	Daily for 2 months	230 mg/dl	195 mg/dl
4	48	Whole gram intake. Not sprouted.	Regularly twice a day	Daily for 3 months	185 mg/dl	150 mg/dl
5	49	Whole gram intake. Not sprouted.	Regularly twice a day	Daily for 3 months	250 mg/dl	210 mg/dl

From our survey we have concluded that Patients between age group of 29-35 years we have found 20 percent decrease in their sugar level after treatment. Patients between age group of 36-49 years we have found 30 percent decrease in their sugar level after treatment.

Horse gram useful in weight loss

Eating a healthy diet is getting more popular these days especially with the rise in obesity. A healthy diet suggests whole grains, beans or legumes, fresh fruits and vegetables. One of the best way to get fiber into our diet is to eat whole grains like horse gram. Horse gram is a big cure for weight loss and slimming. Horse gram contains the zero fats in it. It is very good legume in controlling and reducing cholesterol. The nutrient values of horse gram are as mentioned in Table 3. The effect of horse gram as weight loss remedy in as shown in Table 4. For weight loss study horse gram is consumed in different forms as shown in figure 2.

Table 3. Nutrient values of horse gram per 100 gms of serving

<i>Nutrients</i>	<i>Amounts</i>
Energy	321 Cal
Moisture	12 gm
Protein	22 gm
Fat	0 gm
Mineral	3 gm
Fibre	5 gm
Carbohydrates	57 gm
Calcium	287 mg
Phosphorous	311 mg
Iron	7 mg

Table 4. Effect of horse gram as weight loss remedy

Dose duration	Age of patients	Loss in weight (Kg)	Loss in waist (Cm)
Before treatment	53	73	40
After 1 month	-	65	35
Before treatment	39	75	42
After 1 month	-	69	39
Before treatment	46	83	42
After 1 month	-	76	37

**Fig. 2:** Various food forms of horse gram

From survey we have concluded that: The size of waist has been reduced than the size before the treatment. The weight has been reduced than the weight before treatment.

Horse gram helpful in treating menstrual problems

Horse gram is considered to have curative properties in helping with menstruation problems. Especially women with irregular periods and excess bleeding can benefit by taking horse gram water regularly or adding horse gram soup or sprouts to your daily diet. It is recommended in stopping heavy bleeding after pregnancy. In Ayurveda medicine, women are recommended to take 1 teaspoon of horse gram powder every morning. The results of survey study are as shown in Table 5.

Table 5. Horse gram in treating menstrual problems

Sr. No. of patients	Age	Problems	Remedy recommended	Dose	Duration	Results
1.	12	Irregular periods	Empty stomach drink boiled horse gram water	Once a day	4 cycles	Regular periods
2.	15	Excess bleeding	Empty stomach drink boiled horse gram water	Once a day	3 cycles	Normal bleeding
3.	18	Irregular periods	Empty stomach drink boiled horse gram water	Once a day	5 cycles	Regular periods
4.	25	Heavy bleeding after pregnancy	Drink boiled horse gram water	Once a day	1 week	Normal bleeding
5.	30	Irregular periods	Empty stomach drink boiled horse gram water	Once a day	3 cycles	Regular periods

From the survey we have concluded that horse gram has shown effective results in menstrual problems like irregular periods, excess bleeding, and heavy bleeding

Other benefits of horse gram

- **DIURETIC:** It's used to elevate the levels of urination.
- **ASTRINGENT:** It's used to shrink or constrict skin tissue.
- **ALL AROUND MEDICINAL AGENTS:** Horse gram has been used by the Ayurveda as a cure for issues such as conjunctivitis, worm removal, rheumatism, and piles.
- **COUGH MEDICINE:** In this form, horse gram is capable of relieving the symptoms of cold and cough, particularly assisting in clearing and expectorating phlegm.
- **DERMATOLOGICAL WONDER:** If you have skin eruptions, boils, or rashes, then liquefied horse gram powder is your best bet in controlling and eliminating these dermatological problems.
- **FEVER REMEDY:** If you have a high fever, just take a dose of horse gram liquid in order to decrease your high temperature.
- **PEPTIC ULCER TREATMENT:** Certain tests have proven that lipids extracted from horse grams are known to heal rats with peptic ulcers.

III. Conclusion

Horse gram is an important food and feed crop traditionally grown in arid regions of the developing world and often considered as minor/ neglected/ underexploited/ poor man's pulse. Its innate climate resilience suggests its scope as a suitable alternative in the present climate change era. It is a treasure house of various therapeutic, bioactive compounds along with excellent nutritional quality makes it a wholesome food that should be added to diet on a regular basis. The present study explored the Horse gram and its benefits against diseases like kidney stone, gall stone, diabetes, weight loss and menstrual problems. After studying we found that Horse gram showed more benefits with no side effects.

IV. References

1. Shekelle PG, Hardy M, Morton SC, Coulter I, Venuturupalli S, Favreau J, et al. 2005. Are Ayurvedic herbs for diabetes effective? *J Fam Pract.* 54(10): 876–86.
2. Narahari SR, Aggithaya MG, Suraj KR. 2010. Conducting literature searches on Ayurveda in PubMed, Indian, and other databases. *J Altern Complement Med.* 16(11): 1225–1237.
3. Park J, Ernst E. 2005. Ayurvedic medicine for rheumatoid arthritis: A systematic review. *Semin Arthritis Rheum.* 34(5): 705–13.
4. Singh BB, Vinjamury SP, Der-Martirosian C, Kubik E, Mishra LC, Shepard NP, 2007, Ayurvedic and collateral herbal treatments for hyperlipidemia: A systematic review of randomized controlled trials and quasi-experimental designs. *Altern Ther Health Med.* 13, 22.
5. Bhartiya A, Aditya JP, and Kant L. 2015. Nutritional and remedial potential of an underutilized food Legume horsegram (*macrotyloma uniflorum*): a review. *The Journal of Animal & Plant Sciences,* 25(4), 908-920.
6. Kaundal SP, Sharma A, Kumar R, Kumar V and Kumar R. 2019. Exploration of medicinal importance of an underutilized legume crop, *Macrotyloma uniflorum* (lam.) Verdc. (horse gram): a review *IJPSR,* 10(7): 3178-3186.
7. Prasad SK, and Singh MK. 2015. Horse gram- an underutilized nutraceutical pulse crop: a review *J Food Sci Technol.* 52(5): 2489–2499.
8. Rajagopal V. Pushpan C.K. Antony H. 2017. Comparative effect of horse gram and black gram on inflammatory mediators and antioxidant status *Journal of Food and Drug Analysis.* 25(4), 845-853.