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## Review Article

### ANCIENT AND MODERN REVIEW OF NUTRITIONAL VALUE AND THERAPEUTICAL BENEFITS OF MUDGA (GREEN-GRAM)

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#### Abstract

According to Caraka Samhita, the varieties of pulses as Mudga (green gram) and Masha (black-gram) have been described in Samidhanya varga and are called Vaidala (dicotyledons). Mudga is the best as soup, is very easily digestible, slightly increase Vata; the green is better than the other one. In Ayurveda usefulness of green-gram is mentioned in many diseases like jwara (fever), medorog (obesity), kapha, pitta, rakta disorders. Along with this Ayurveda also mentioned the importance of mudga (green-gram) in the disturbed condition of Agni (digestive fire). Mudga (green gram) acts as a kaphapittashamak by means of its different gunas (properties). Mudga (green gram) is light for digestion hence preferred in patients suffering from agnimandya (disturbed digestive fire). Due to this speciality Mudga (green gram) remains a key component while thinking about the medicine and dietary supplementation in the diseases caused by agnimandya (disturbed digestive fire).

**Keywords:** mudga (green-gram), mudga, *Phaseolus aureus*, mudgayush, netrya.

#### INTRODUCTION

According to Caraka Samhitas, the varieties of pulses as Mudga (green gram) and Masha (black-gram) have been described in Samidhanya varga and are called Vaidala (dicotyledons).<sup>1</sup> In Susruta Samhita all these pulses have been grouped and described under Mudga vargas.<sup>2</sup> The species known as Mudga does not excessively generate Vayu in the system but tends to purify and invigorate the organ of vision.

The green species is the best of all the varieties of Mudga. Mudga is the best as soup, is very easily digestible, slightly increase Vata; the green is better than the other one.<sup>4</sup> According to Caraka Samhitas Mudga is best among pulses utilised in the form of soup. It is kashaya (astringent) and madhur (sweet) in taste, pungent in Vipaka, cold in potency, laghu (light) and ruksha (dry). It alleviate the vitiated kapha and Pitta.<sup>5</sup>

#### Classification of Mudga (Green-Gram)

Table 1:1 Scientific Classification of Green-Gram

Kingdom <sup>7</sup>	Plantae
Unranked	Angiosperm
Unranked	Eudicots
Unranked	Rosids
Family	Fabaceae
Order	Fabales
Genus	<i>Vigna</i>
Species	<i>V. Radiata</i>
Binomial Name	<i>Vigna radiata</i>
Synonyms	<i>Phaseolus aureus</i> Roxb.

Table 1:2 Ayurvedic Classification of Green-Gram

Kul <sup>6</sup>	Shimbikul
Latin Name	<i>Phaseolus aureus</i>
English Name	Green-gram
Sanskrit Name	Mudga
Marathi name	Moog
Hindi Name –	Mung
Rasa (taste)	kashaya (astringent) and madhur (sweet)
Vipaka	Pungent
Virya (Potency)	sheet (cold)
Guna (property)	Laghu (light) and ruksha (dry).
Dosha Relation	It alleviates the vitiated kapha and Pitta.
Effect on health	Netrya (good for vision), pathyakar (wholesome), grahi (constipative)
Effect on disease	Jwara (fever), medorog (obesity), kapha, pitta, rakta disorders

**Nutritional Value of Green-Gram per 100 g****Table 2:1 Mature Seeds, Raw**

Energy <sup>7</sup>	347 kcal
Carbohydrates	62.62 g
Proteins	23.86 g
Fats	1.15 g
Fiber	16.3 g
Vitamin C	4.8 mg (6 %)
Calcium	132 mg (13 %)
Magnesium	189 mg (53 %)
Phosphorus	367 mg (52 %)
Potassium	1246 mg (27 %)
Sodium	15 mg (1 %)
Sugars	6.60 g

**Table 2:2 Mature Seeds, Sprouted, Raw**

Energy <sup>7</sup>	30 kcal
Carbohydrates	5.94 g
Proteins	3.04 g
Fats	0.18 g
Fiber	1.8 g
Vitamin C	13.2 mg (6 %)
Calcium	13 mg (1 %)
Magnesium	21 mg (6 %)
Phosphorus	54 mg (8 %)
Potassium	149 mg (3 %)
Sodium	6 mg (0 %)
Sugars	4.13 g
Thiamine (vit B <sub>1</sub> )	0.084 mg (7 %)
Riboflavin (vit B <sub>2</sub> )	0.124 mg (10 %)
Niacin (vit B <sub>3</sub> )	0.749 mg (5 %)
Pantothenic acid (vit B <sub>5</sub> )	0.38 mg (8 %)
Vitamin B <sub>6</sub>	0.088 mg (7 %)
Folate (vit B <sub>9</sub> )	61 µg (15 %)
Vitamin E	0.1 mg (1 %)
Vitamin K	33 µg (31 %)
Zinc	0.41 mg (4 %)

**Table 2:3 Boiled Mudga (Green-Gram)**

Energy <sup>7</sup>	105 kcal
Carbohydrates	19.15 g
Proteins	7.02 g
Fats	0.38 g
Fiber	7.6 g
Vitamin C	1.0 mg (1 %)
Calcium	27 mg (3 %)
Magnesium	0.298 mg (0 %)
Phosphorus	99 mg (14 %)
Potassium	266 mg (6 %)
Sodium	2 mg (0 %)
Sugars	2.00 g
Thiamine (vit B <sub>1</sub> )	0.164 mg (14 %)
Riboflavin (vit B <sub>2</sub> )	0.061 mg (5 %)
Niacin (vit B <sub>3</sub> )	0.577 mg (4 %)
Pantothenic acid (vit B <sub>5</sub> )	0.41 mg (8 %)
Vitamin B <sub>6</sub>	0.067 mg (5 %)
Folate (vit B <sub>9</sub> )	159 µg (40 %)
Vitamin E	0.15 mg (1 %)
Vitamin K	2.7 µg (3 %)
Zinc	0.84 mg (9 %)

**Table 2:4 Whole Dried Seeds of Green-Gram**

Energy <sup>7</sup>	334 kcal
Carbohydrates	56.7 %
Proteins	24.0 %
Fats	1.3 %
Fiber	4.1 %
Minerals	3.5 %
Calcium	124 mg
Iron	7.3 mg
Phosphorus	326 mg
Vitamin A	94
Thiamin	0.47
Riboflavin	0.27
Niacin	2.1

**Table 3: Glycemic Index of Mudga (Green-Gram)**

Food Serving Size <sup>8</sup>	Glycemic Load per Food Serving	Glycemic Index	Glycemic Index Rating
150 g	5	31	Low

**Glycemic Index Explained**

The glycemic index is a measurement of the type or quality of carbohydrate in a particular food and how fast 50 g of this carbohydrate raises blood glucose levels (and consequent insulin secretion and effects produced by the pancreas) as it is digested.

**Glycemic Response to Mudga (green-grams)**

Carbs in Mudga (green-gram) has a slow effect on blood sugar levels.

**Glycemic Load Explained**

While the glycemic index classifies foods according to how fast 50 g of carbs in them raises our blood glucose levels, Glycemic Load indicates how fast a standard portion of a particular food like Mudga (green-gram) raises blood glucose and thus gives an indication of glycemic and insulin response.

**Nutritional Importance of Green- Gram Fiber<sup>9</sup>**

Like its many bean cousins, mudga (green-grams) are filled with fiber. A one cup serving of boiled beans provides 15 g of fiber over 60 percent of the daily minimum recommended amount. The high fiber content of mudga (green-gram) makes them useful for diet and weight management. The fiber slows digestion, which helps to stabilize blood sugar and stave off hunger. The fiber also aids digestion as it scrubs its way through your digestive system.

**Calories and Fat**

Mudga (green-grams) are low in saturated fat and have no cholesterol. A one cup serving has 212 calories, but only six of these calories are from fat. The high fiber content of mudga (green-gram) slows the release of the calories into the blood stream. The glycemic rating of 31 for mudga (green-grams), according to Carbs-Information, indicates that mudga (green-grams) have a slow effect on blood sugar and make a good diabetic food. Mudga (green-grams) provide about 4 g of sugars.

### Minerals

Mudga (green-gram) provide a diversity of minerals. A one-cup serving provides 16 percent of the minimum daily recommended amount of iron, 15 percent of potassium, 11 percent of zinc, 16 percent of zinc, 10 percent of phosphorus, 24 percent of magnesium and 30 percent of manganese.

### Vitamins

Mudga (green-gram) provide a variety of vitamins, including pantothenic acid, vitamin A, vitamin K, niacin and vitamin B-6. A one-cup serving provides 80 percent of the minimum daily recommended amount of folate.

### Protein

Though a one cup serving of mudga (green-grams) provides 14 g of protein- almost three times as much as a glass of milk or an egg- it does not offer a complete complement of amino acids. It should not be used a sole source of protein. Nonetheless, it is superior to many seeds and most beans in the amount and quality of protein it provides, according to the Oklahoma Agricultural Experiment Station.

### Preparation Effects

Limited cooking enhances the nutritional qualities of mudga (green-grams), but overcooking can reduce the nutritional benefits. Over-cooking also detracts from the palatability of the beans, rendering them into a mush that only die-hard mung fans can love.<sup>10</sup>

### Plant Information

Mudga (green-grams)<sup>9</sup> can either come from a vine or from an upright plant. Both are annuals and will grow 1 to 5 feet in length. Mudga (green-gram) have trifoliolate leaves and light yellow flowers that cluster at the tip of the plant. The mature pods can be yellow-brown to black in colour and are generally 5 inches long with 10 to 15 seeds inside. Mudga (green-gram) plants like warm temperatures and sandy, nutrient rich soil with good drainage. Excessive humidity, rainfall or drought can reduce yields or promote diseases on the plant.

### Uses

Mudga (green-grams) are a staple in Chinese cuisine where they use the whole bean or its sprouts. In Europe, the beans are commonly referred to as green gram. In the United States, they are simply called bean sprouts and are commonly served in salads and sandwiches.

### Medicinal Uses

Mung is used in making mudgayush in sansarjana karma after panchkarma therapy. It is also used in fever, obesity, and various diseases due to Agnimandya. It is useful in dourbalya (weakness), daha (heat disorders), tvakroga (skin disorders). Its flour is an excellent detergent and can be used as a substitute for soap. It removes the dirt and does not cause any skin irritation. Its application over the face bleaches the color and gives good complexion. Dr. Leung, who specializes in Chinese herbs, states that the mudga (green-gram) is commonly eaten in China for therapeutic reasons. It is used to treat heat rash, heatstroke, food poisoning and mumps. It is also used as a poultice to treat skin conditions such as acne, boils and burns. Consuming mudga (green-gram) sprouts may also lower cholesterol and provide protection against

diabetes according to research conducted by Y. Yao, F. Chen, M. Wang, J. Wang and G. Ren and published in the October 2008 issue of "Journal of Agricultural and Food Chemistry.

### Benefits of Mudga (Green-Gram)

Mudga (green-grams)<sup>11</sup> are the most common source of edible bean sprouts, according to the University of Florida. Nutritionally, mudga (green-gram) are similar to vegetables; they count toward your daily recommendations for vegetable servings. Mudga (green-gram) are healthy for most people and you might want to consider adding them to your diet.

### Versatility

Sometimes it can be difficult to increase the amount of vegetables in your diet; a benefit of mudga (green-gram) is that they are versatile. Cooked mudga (green-gram) work well in soups and stir-fries and you can add raw mudga (green-gram) sprouts to sandwiches or salads. Wash them well before you eat them.

### High in Vitamin C

Mudga (green-gram) provide about 14 mg of vitamin C per cup, according to the USDA. This is nearly 25 percent of the daily value for vitamin C. A deficiency can lead to poor wound healing and bleeding gums. Vitamin C is an antioxidant and it may reduce your risk for cataracts or coronary heart disease.

### Weight Control

Mudga (green-grams) are a low-calorie food with only 30 calories in a 1-cup serving. They also provide nearly 2 g of dietary fibre in each cup. Dietary fibre comes from the parts of plant foods that your body cannot digest; a high-fibre diet can help you control your weight because foods with fibre tend to be more satisfying so you eat less.

### Low-Sodium

A benefit of mudga (green-gram) is that they are nearly sodium-free, with only 6 mg per cup of raw sprouts. A high-sodium diet can increase your risk for high blood pressure; the 2010 Dietary Guidelines recommend staying under 2,300 mg per day, based on a 2,000-calorie diet. One cup of mudga (green-gram) also contains 155 mg of potassium. Potassium from fruit, dairy products, beans, whole grains can aid in blood pressure control.

### CONCLUSION

Mudga (green-gram) is very useful in sansarjana karma after panchkarma therapy and various diseases due to Agnimandya (disturbed digestive fire). Mudga (green gram) acts as a kaphapittashamaks by means of its different gunas (properties). It can help you control your weight. Nutritional value suggests that Mudga (green-gram) helps to maintain health by preventing diseases.

### REFERENCES

1. Caraka Samhita Sutrasthana Choukhamba Surbharti Publication by Dr Tripathi Bramhananda and Dr Pandey Ganga Sahay; 2007. verse No.27/6. p. 501.
2. Susruta Samhita Sutrasthana vol. 1 Choukhamba Vishvabharati Publication by Sharma Priya Vrat; 2004. verse No.46/27. p. 468.
3. Biogenic Secrete of Food in Ayurveda Choukhamba Sanskrit Pratisthan by Dr Gupta LP; 1999. verse No.3. p. 25.
4. Astanga Sangraha of vagbhata Sutrasthana Choukhamba Vishvabharati Publication by Sharma Priya Vrat; 2006. verse No.7/25. p. 105.

5. Caraka Samhita Sutrasthana Choukhamba Surbharti Publication by Dr Tripathi Bramhananda and Dr Pandey Ganga Sahay; 2007. verse No.27/23. p. 504.
6. Dravya guna - vigyana vol.2 Choukhamba Vishvabharati Publication by Prof D Lucas Shanth Kumar; 2008. p. 530.
7. [http://en.wikipedia.org/wiki/Mung\\_bean](http://en.wikipedia.org/wiki/Mung_bean) assessed on 17/07/2013
8. <http://www.livestrong.com/article/269027-mung-bean-nutrition/> assessed on 18/07/13
9. [http://www.livestrong.com/article/274978-mung-bean-nutritional-information/?utm\\_source=livestrong\\_oparandutm\\_medium=4](http://www.livestrong.com/article/274978-mung-bean-nutritional-information/?utm_source=livestrong_oparandutm_medium=4) assessed on 18/07/13
10. <http://www.livestrong.com/article/269027-mung-bean-nutrition/> assessed on 18/07/13
11. <http://www.livestrong.com/article/402990-mung-bean-benefits/> assessed on 18/07/13

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