

Basmati Rice: Quality Traits and Nutritional Content

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Introduction

Rice is a major food staple for more than half of the world's population. It is the essential food across the world and also supports the economy of our country to prosper as our agricultural livelihood is based upon this staple food. Several studies suggest that Asian countries and communities consume this staple food on a daily basis. Rice and its different and popular varieties, at least hundred in number are available with our country.



Basmati Rice

Basmati Rice has a special position for its aroma, flavor and grain size. 'Basmati' derived from the Sanskrit and Hindi name '**Basamati**' means fragrant. The Indian Subcontinent is considered as the place of origin for this distinct species of Rice called as "Basmati Rice". There are two types of this long, slender grained and aromatic rice variety *i.e.* White and Brown Rice. India is the leading country in the world for production of

Basmati Rice and it also leads in the export of Basmati rice. In India, the regions which are having GI tag (geographical indication) for basmati rice are the major cultivators of Basmati Rice such as the states of Punjab, Haryana, Himachal Pradesh, Western U. P and J & K and Delhi *etc.* The rice variety can be labeled and regarded as Basmati if it is having the parameters; like the min. average precooked milled rice length of 6.1 mm and precooked milled rice breadth of 2mm (As per APEDA, The Indian Govt. Agency).

Types of Basmati Rice:

There are about twenty nine identified varieties of basmati rice having its own distinct properties like flavor, aroma, texture, length of grain and nutritional content. Some of the most prominent types of basmati rice are as follows:

Pusa Basmati 1121

Known as muchal basmati having a long-tipped point and slender grains which are soft to the palate. It is extensively used for making Biryani.

Pusa Basmati – 1

It has extra-long grains along with a pleasant aroma . On cooking, each kernel expands four times of its normal size. It is easy to digest

Ranbir Basmati

Very popular and old variety, largely consumed in J & K and Dehradun regions. The grains are long with an extraordinary flavour and taste.

Basmati 386

It is a premium variety whose grains usually stretch two time of its length on cooking.

Taraori Basmati

It is also called as "Karnal Local" and considered as widely famous rice variety in the Taraori region. It is cultivated since 1933 and believed to be the oldest basmati rice variety . This long, slender-grain rice is aromatic and mostly used for wedding functions and special occasions.

Basmati 217

It is the newest type in India and valued for its unique taste and rich aroma. This variety is having grains which are extra-long and superfine and taste best for making biryani and pulao .

Types of Basmati Rice

Quality Traits

The yield in rice was enhanced greatly through the development of the semi-dwarf varieties and cultivars in 1960s. In the recent years plant breeders and scientists focused on improvement of the quality of rice for market value. To determine the quality, we can consider the several aspects of rice kernel such as appearance of endosperm, length and shape of kernel, milling quality, cooking quality, aroma and protein content. There are four traits of rice grain quality:



Different Quality Traits of Basmati Rice

Improvement of Quality Traits

- ✓ Improvement through Backcross Method
- ✓ Improvement of quality through QTL pyramiding
- ✓ Transgenic approach for nutritional quality
 - Golden Rice
 - Golden Rice 2

- ✓ Bio-fortification with essential nutrients and amino acids to improve its nutritional quality.

Brown and White Basmati Rice

Brown basmati rice: It has outer bran layer which makes it more nutritious. When cooked then its having chewing texture along with nutty aroma. It is packed with soluble and insoluble dietary fibre.

White rice: It is processed and bran & germ layers are removed. As it is processed, it is having softer and sticky texture when it is cooked in comparison to basmati rice.

Both the rice varieties contain all the eight essential amino acids. Both varieties are gluten-free and have high contents of carbohydrates. The

Glycaemic Index (GI) of basmati rice, that measures how quickly blood sugar level rises in body after consuming a particular food ranges between 50 and 58 which makes basmati rice a very healthy alternative of carbohydrates (As per Journal Critical Reviews in Food Science and Nutrition).



Basmati Rice Nutritional Facts:

There are two types of fragrant basmati rice *i.e.* brown and white. Basmati rice of brown type retains its outer bran layer with more fibre and nutrients whereas in white type it has been processed and bran is also removed. Basmati rice is highly valued due to its healthy nutrient profile. There are vitamins, minerals, fibre, protein and minimal fat in Aromatic basmati rice which makes it a healthy and perfect meal. Apart from this it also contains essential nutrients like copper, zinc, calcium, potassium, magnesium and vitamins B1, B6, E and K which reflects the super health benefits of Basmati Rice.

Nutritional

Low Arsenic Content

- Basmati rice varieties which are cultivated in India and Pakistan contain low levels of arsenic compared with other rice varieties. Arsenic is a heavy metal and increases the risk of diabetes, heart problems and other health issues. So due to low arsenic content, Basmati rice can be a healthy option.

Facts of

Fortification

- Basmati rice is fortified and enriched with essential nutrients like iron, thiamine, folic acid and niacin which are added to it during the processing to meet out the demand of these essential vitamins and minerals and boost up the nutritional profile of Basmati Rice.

Basmati Rice

Whole Grain

- Brown basmati rice contains the outer bran layer which is full of nutrients and considered as whole grain. Whole grain cereals helps in reducing the risks of chronic diseases such as diabetes and heart related problems.

Nutritional facts of Basmati Rice

Health Benefits of Basmati Rice

- Manages Diabetes
- Regulates Blood Pressure
- Manages Weight
- Promotes Digestion
- Keeps Heart Healthy
- Averts Cancer and its Risk



Conclusion:

Rice is a major staple food across the world and mass population in India feed on this staple food. There are so many varieties of Rice in India. Basmati rice is preferred by large fraction of population due to its fragrance, long grain size, aroma and nutty flavor. There are various notified and identified varieties of Basmati rice such as Pant Basmati 1, Pant Basmati 2, Pusa Basmati 1, Pusa Basmati 6, Pusa Basmati 1121, Pusa Basmati 1728, Pusa Basmati 1718, Taraori Basmati, Kasturi, Basmati 370, Basmati 386, Ranbir Basmati *etc.* Basmati rice



has a very nutritive profile. Basmati rice has lower arsenic content than other varieties of rice. It is fortified with essential vitamins and minerals. Basmati rice is available in both white and brown varieties and as it is having high dietary fibres and low glycaemic index (GI), it helps to improve digestion and manage & reduce the risks of several chronic diseases.

