

## **Most suitable method for preparing quick-cooking rice in relation to its nutritive composition**

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### **Abstract**

*The present investigation was undertaken to evaluate three methods (roasting, microwave heating and soak-precook drying) for preparing quick-cooking rice-The raw milled basmati rice was evaluated for the physical, cooking methods, quality and nutritional characteristics. The above three method compared on the basis of physical, cooking quality, organoleptic and nutritional characteristics and most suitable method for preparing quick-cooking rice was determined.*

*Key words: Mmicrowave, cooking, roasting,*

### **Introduction**

Rice *Oryza sativa* L is the most important crop among cereals grown worldwide under an area of 154 mha with an annual production of 636.3 million tones and productivity of 4.12 tones/ha. In India the area under rice is 44 mha with an annual production of 143.5 million tones.

Rice is very nutrition's this is the staple food for more than two-third of the world's population, who rely on nutritional benefits of rice. It is a good source of vitamins and minerals such as thiamine, niacin, iron, riboflavin, vitamin D and calcium. It is fair source of protein containing eight amino-acids. More over it has low fat, low salt, low sugar, no cholesterol and no gluten.

It is an object of the invention to provide an improved quick-cooking rice product and a method of making the same. And to provide a quick-cooking rice having natural appearance and flavour and improved month fed, improved cooking yield, improved integrity of rice and smooth texture.

Quick-cooking rice (QCR) one those that require significantly less-cooking time. The grain of quick-cooking rice is precooked in water, steam or roasted in such a manner as to retain a porous as various products such as "Enriched Rice" "Parboiled Rice" Breakfast cereals and "Baby Foods" "Rice oil", Rice-vinegar" quick-cooking Rice etc.

### **Materials and Methods**

Raw milled Basmati Rice was taken to conduct

the experiment which was recommended variety of tarai region of Uttarakhand. Neat and cleaned rice was randomly selected 180 gm of raw milled basmati rice was weighted, and then further divided in three parts 60 gm each for the production of quick-cooking rice the raw milled basmati rice was subjected to roasting, microwave heating and soaking-pre cooking drying method. Appropriate water was adding for microwave and soaking precook drying method. Observation for prepared rice by different methods was tested for moisture content, protein content, kernel elongation, volume expansion, gruel loss, cruds fat calcium, phosphorus and iron.

### **Results and Discussion**

The data presented in table 1 shows the comparative nutritive value and organoleptic characteristics of raw milled basmati rice the length, breadth, and length/breadth ratio observed in raw was milled rice 7.50 mm, 1.41 mm, and 5.33 The bulk density and was 0.80 g/cc. Porosity of rice was 44.06 percent. The moisture content was 11.74 %, protein 8.70%, crude fat 0.63% carbohydrate 78.20%. Raw milled rice was good source of carbohydrate. Phosphorus was also for end in abundant in raw milled rice. It constitute 89.0 mg/100g. Calcium was 18.30 mg/100gm and iron was 2.85 mg/100gm.

In comparison with three methods the length (11.56 mm), length/breadth ratio (7.81) and porosity (66.41%) of quick cooking rice prepared by soak-precook drying method were significantly higher than roasting and microwave heating methods. Whereas, the breadth (1.48 mm) bulk density (0.43 g/cc) and true density (1.28g/cc) were lower in soak-precook-

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Table 1: Comparison of nutrients and organoleptic characteristics of control (Raw milled rice) with different QCR method.

S. No.	Organoleptic characteristics & nutrients	Raw milled basmati	Soak-pre-cooking drying method	Roasting method	Microwave heating method
1.	Length	7.50 mm	11.56 mm	Lower	Lower
2.	Breadth	1.44 mm	1.48 mm	Higher	Higher
3.	Length/breadth ratio	5.33	7.81	Lower	Lower
4.	Bulk density	0.80 g/cc	0.43 g/cc	Higher	Higher
5.	Porosity	44.06%	66.41%	Lower	Lower
6.	Kernel elongation	1.53	1.62	Lower	Lower
7.	Volume expansion	2.50%	4.73%	Lower	Lower
8.	Protein	8.70%	7.18%	8.96	8.99
9.	Ash 0.47%	0.25%	0.54%	0.52%	
10.	Calcium	18.30mg/100gm	12.20 mg/100gm	Higher	Higher
11.	Phosphorus	89.0 mg/100gm	77.0mg/100gm	Higher	Higher

drying method. The volume expansion ratio (4.73) and kernel elongation ratio (1.62) were higher in soak-precook-drying method than the other methods. The moisture (8.20%) protein (7.18%), crude fat (0.58%), ash (0.25%) and crude fibre (0.25%) contents of the quick-cooking rice prepared by soak-precook-drying methods were lower than control, roasting and microwave heating methods due extensive loss of these nutrients during soaking, cooking and drying. Whereas in roasting and microwave heating methods the protean (8.96 and 8.99, respectively) and ash (0.54 and 0.52 respectively) higher than control calcium (12.20mg/100g) and Phosphorus 77.0 mg/100 g content of the QCR prepared by soak-precook-drying method were lower than control, roasting and microwave heating methods else to leaching losses of these minerals during processing.

In table 2 overall acceptability scores of quick-cooking rice prepared by soak-precook-drying method, microwave heating and roasting methods were given. The highest overall score given to soak-precook drying method. The scores were 7.95, 7.55 and 7.45 respectively.

Table 2: Overall acceptability score of quick-cooking rice prepared by different methods.

S. No.	Methods	Scores
1.	Soak-precooking-drying method	7.95
2.	Microwave heating method	7.55
3.	Roasting method	7.45

Thus the present investigation undertaken to study the nutrient content and organoleptic characteristics for preparing quick-cooking rice by different three methods i.e. soak-precook-drying method, microwave method and roasting method. The conclusion drawn was for preparing quick-cooking-drying method was found better than microwave heating and roasting methods.

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