

Boosting up immunity by taking rice



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Food security is synonymous to securing the supply of rice in Bangladesh. Rice is more than just a food to us. It is part of our culture, element of trade to reduce hunger, alleviate poverty and maintain political stability in Bangladesh. The country has a satisfactory upward trend in rice production for decades. From 2013 the country is self-sufficient in grain production. Bangladesh Rice Research Institute (BRRRI) is one of the key contributors behind this tremendous success.

Initially, BRRRI's target was to produce more rice in less land and feed the ever increasing population of the country. But now, with the increase of per-capita income and socio-economic condition demand and taste of the people have been changed. Moreover, Bangladesh will have to fulfill the SDGs by 2030 while one of the important goals of SDGs is doubling the productivity of food to ensure nutrition of people. So, BRRRI has given special emphasis on producing nutrient enriched and export quality premium rice varieties.

We know, the low income marginalized people of Bangladesh who cannot afford to eat fish, meat, milk and eggs every day. They mostly depend on rice for their daily necessary nutrition requirement. Nearly two-thirds of the daily diet consists of rice. Among other cereals rice is the best considering the amount of first limiting amino acid Lysine and True Digestibility (TD), Biological Value (BV), Net Protein Utilization (NPU) and Digestible Energy (DE) are the highest. On the other hand, tannin is present in the lowest amount in rice and it is allergen (glutein) free.

Rice provides 70 to 75% carbohydrates and 60 to 65% protein of daily requirement. So we have to fix our strategies how to meet the rest 25 to 30% of carbohydrates and 35 to 40% protein deficiency. Most of our old rice varieties protein level was only 8 to 9% but our new varieties protein content is 9 to 10.8% (For Example BRRRI dhan81, 10.3%, BRRRI dhan86 10.1%, BRRRI dhan96 10.8% protein).

It is evident that if 1% protein content increases in rice, 6.5% more daily requirement of protein can be met up. So our target is to develop 12 to 13% protein content rice variety so that we can meet at least 80% of the daily protein requirement. Besides, rice also contributes 8% Fat, 5.8% Ca and 91.6% P of RDA.

Zn is another essential trace element that is crucial for

growth, development, and the maintenance of immune function. An adult needs 12-15 mg of zinc daily, lactating mothers need 16 mg and infants need 2-10 mg of zinc. Most of our old rice varieties Zn content level is about 15 ppm but our new varieties Zn content is 25-27.7 ppm which will be able to meet up 30 - 60% of daily requirement but our target is to reach up to 80%.

So our "Zn" rice (BRRRI dhan62, BRRRI dhan64, BRRRI dhan72, BRRRI dhan74 and BRRRI dhan84) can play significant role in food security as well as nutrition assurance and immunity development during and after pandemic situation. If we can put "Zn" rice in public food program and government relief program it will play a significant role to boost up immunity of our people.

Iron is another micronutrient for human body. The common sources for Fe are red meat, milk, egg, fish, liver, different types of vegetables which are not accessible to all. Earlier Fe level of inbred rice was 3 to 5 ppm but in our new variety BRRRI dhan84 has 10 ppm. Under high Fe and high Zn research program, we are targeting to release new varieties with dual advantage like 15ppm Fe with 45ppm Zn which will meet up 50% of Fe and about 80% Zn.

We know Vitamin-A deficiency (VAD) is still a major public health issue in Bangladesh. Vitamin A enriched rice (Golden Rice) has brought us the oppor-

tunity to address the problem for majority of the people as they eat rice 2-3 times daily. Golden rice can supply up to 30-50% of the estimated average requirement for vitamin A.

Another important issue, there is common myth among mass people that eating rice may cause obesity, which is totally wrong. If it was true the rural people who eat rice thrice in a day could have suffered from obesity and diabetic. But, Scientists found that rice based diet were less likely to be obese than those living in countries where rice consumption is low. In order to consider rice as a staple food, we need to get at least 65-70% calories from rice.

Moreover, BRRRI already has developed Low GI rice for Diabetic patient like BR16, BRRRI dhan46, BRRRI dhan69. BRRRI already strengthened Black Rice and Nutraceutical rice research and identified Anti-oxidant rice BR5, BRRRI dhan34, BRRRI dhan87, BRRRI dhan88 and GABA (Gamma Amino-butyric Acid) rice BRRRI dhan31 for Alzheimer disease.

BRRRI is not only concentrating on increasing productivity but also is trying to make our staple food enriched with nutrition to build a hunger free and healthier nation. I hope our nutrient enriched rice can contribute to nutritional security during and the post Covid-19 situation.

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