

Category	: International Rice Research Conference
Select Theme	: Pathways to health and nutrition
Endorsement email	:
Keyword 1	: Biofortification
Keyword 2	: Nutrient-dense rice
Keyword 3	: Nutrition security
Title of Entry	: Making rice healthier: Progress in development of biofortified rice varieties
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Select only one type of presentation	: 15 minute oral presentation

Abstract : Worldwide, about two billion people, particularly children and women, are affected by micronutrient deficiencies in zinc, iron, and vitamin A. Dubbed as “hidden hunger,” this health issue is especially serious in South and Southeast Asia. Rice, which is low in essential micronutrients (Fe, 2-3 ppm; Zn, 12-14 ppm, β -carotene, 0 ppm), is the major staple food in these regions, providing 50-80 percent of daily caloric intake. Zinc deficiency causes growth retardation, impaired immune function and diarrhea. Iron deficiency, on the other hand, is the most pervasive form of malnutrition and a leading cause of anemia. Vitamin A deficiency is the leading cause of preventable childhood blindness and increased child mortality from common infections. Biofortification of rice with micronutrients has been suggested to be one of the most sustainable and cost-effective approaches to delivering micronutrients to populations with limited access to diverse diets and other micronutrient interventions. There is significant genetic variation for grain zinc in rice germplasm, which can be exploited by conventional breeding to develop high-zinc varieties. Conversely, the complete absence of β -carotene production in the rice endosperm means that biotechnology approaches are required to introduce the provitamin A trait for subsequent breeding introgression into farmer-preferred varieties. Development of healthier rice varieties with micronutrients and provitamin A can contribute significantly to improve the health of human populations. The recent progress made in developing healthier rice varieties at the International Rice Research Institute will be discussed in the presentation.

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