

SEMINAR

A seminar was organized in the year 2018 to 2019 with the participation of university faculty members, post graduate students and scientists from home and abroad. Executive summary of the seminar paper is given below.

VITAMIN A RICE AND THE RELATED ISSUES

Dr. Jiban Krishna Biswas*

Executive Summary

A significant number of children (20%) aged between 0.5-5 years have been suffering from VAD. Out of them, around 2% has been suffering from night blindness. Getting permanently blind due to VAD is an established fact in our country. Anyway, it is estimated that 88 children are getting blind each day. The number is quite alarming. To satisfy the RDA (recommended dietary allowance) of the children aged between 1-3 years need eight servings of dark leafy vegetables a day. So, it is almost impossible to satisfy the children from the poor back ground with vitamin A requirements from vegetables and fruits. Rice having vitamin A would be better option for a country like us where 80 percent of the calorie is coming from principal food rice. Unfortunately, vitamin A is absent in the rice endosperm (*Chaul*). But Rice has the mechanism of β -Carotene (precursor of vitamin A) synthesis only in the green tissues and with the growth of the rice plant, the relevant gene responsible for β -carotene synthesis get inactive. Golden rice has been developed inserting three genes like *Zmpsy*, *ctrl* and *pmi* in its DNA sequence. The source of *Zmpsy* is maize. The genes *ctrl* and *pmi* are taken from bacteria *Pantoea anatis* and *Escheria coli*, respectively. *Zmpsy1* expressed as enzyme ZmPSY1 (Phytoene synthase enzyme: Protein) and CRTI (Phytoene desaturase enzyme: Protein) in the carotenoid biosynthesis pathway. The *pmi* gene expresses as PMI (Phospho mannose isomerase: Protein) acts as selection marker for the ability of transformed calli and plantlets to grow on mediums that contains mannose.

* National Consultant, Healthier Rice Project, IRRI, 8 July 2018