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Producing transgenic rice with improved traits and yield – how far have we come?

ABSTRACT

Improving rice production is of current global concern so that food security is maintained especially in developing nations where rice remains as the staple food. With the aid of molecular biology, various isolated genes conferring to abiotic, biotic and herbicide stress tolerance has been successfully transferred into rice. Attempts have also been made to enhance grain yield, nutritional characteristics, fragrance and photosynthetic capacity of rice. The success of a commercialized transgenic rice largely depends on the biosafety and environmental risks assessments as these information translates into consumersô acceptance towards genetically modified (GM) rice. As the renowned Golden Rice has received the green light for field trial in the Philippines and Bangladesh, this would serve as a catalyst for better acceptance of GM food crops. A brief case study on the commercialization of transgenic BT rice in China will also be discussed. The review aims to bring useful insights for future endeavors in improving traits for rice through genetic engineering.

Keyword: Genetic engineering; Rice; Transgenic; Traits; Yield