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Possibility of breeding super rice cultivars using gene linkage

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Abstract

The rapid growth of world population, reduction of cultivated areas for crop production, and detrimental effects of pests, diseases, and climate changes have required to breed new rice cultivars with high yield, accepted quality, but strong resistance to abiotic and biotic stresses. However, traditional breeding needs much time to breed a new cultivar, whereas the successful use of molecular breeding is still questionable. We have developed a novel mutation which allow to cross many rice cultivars together with low segregation, that allow to breed a new cultivar in only several cropping. The mechanism has been unknown, but we suggest that gene linkage may play a crucial role, of which the semi dwarf gene might be the center gene for gene linkage occurrence. The phenomenon of this possible gene linkage is contrary to Mendel rules, but it is promising to breed new rice cultivars, of which, the most elite genes in rice might be able to gather in a targeted rice variety.

Keywords: Rice, mutation, gene linkage, semi dwarf gene, new cultivar

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