

LOW AMYLOSE CONTENT JAPONICA RICE SELECTION BY MOLECULAR MARKER

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Summary

Rice is an important crop that supplied as food source for a half of the population on the world. Currently, the combination of traditional technique and modern biotechnology are supported the breeder to select target trait in short time and less cost. Production and quality of crop are the most interested in rice crop breeding. The quality of rice is based on three main factor are: Amylose Content, Gel Consistency and Gelatinization Temperature. The Waxy gene is located on chromosome 6 which encoded for *Granule-bound starch synthase* (GBSS) enzyme, this enzyme is a key enzyme involved in starch synthesis. The expression level of Waxy gene is positive effected on starch synthesis which related on amylose content in rice seed. The Waxy gene including two alleles: Wxa and Wxb allele. The distinguish of these alleles is replacing G nucleotide by T nucleotide at slicing intron 1, Wxa is: AGGTATA while Wxb is: AGTTATA. This mutant is reduced mature mRNA lead to less GBSS enzyme production, corresponded with less amylose. Currently, anthers culture is the high efficient methodology to produce the variety with the interested trait, these process take less time, manpower and cost. In our research, ten crossing event were performed based on divert amylose content parental line. There are 23 rice lines were released via F1 anthers cultivation in vitro. These rice lines were screened to detect G/T mutant by Waxy marker. Our results indicated 11 rice lines are low AC and 12 lines are high AC.

Keywords: Rice, amylose, Waxy gene, Granule-bound starch synthase, anthers.