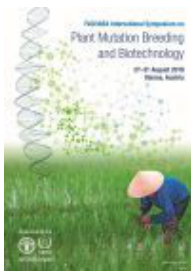


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INTROGRESSION OF BLAST RESISTANCE GENE INTO RICE CULTIVAR BC15 THROUGH MARKER-ASSISTED SELECTION

Abstract

Rice blast, caused by *Pyricularia grisea* is the most serious fungal disease of cultivated rice (*Oryza sativa* L.) causing significant yield loss in the North of Vietnam. Of the 24 identified blast resistance genes from Blast monogenic lines, 11 of these were evaluated as resistance to blast pathotypes in the North of Vietnam. In this study, Pita gene was introgressed into cultivar BC15 with good agronomic traits to strengthen its blast resistance levels through marker-assisted backcross breeding. The marker RM7102 linked to Pita gene was used to screen F1 backcross populations as force selection coupled with stringent phenotypic selection. Advance backcross line of BC5F4 generation was produced from the cross of cultivar BC15 with Pita donor line, IRBL12. Phenotypic screening against blast disease indicated that advanced homozygous blast resistant line was strongly resistant against pathotypes 757.6 and 651 in the blast disease endemic areas. The morphological, yield, grain quality, and yield-contributing characteristics were significantly similar to those of BC15. The newly developed blast resistant improved line will contribute to widening cultivation area of the highly adoptable BC15 by farmers.

Keywords: rice, blast resistance, marker-assisted backcrossing

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