APPLICATION OF MARKERS ASSISTED BACKROSSING IN SALINITY TOLERANCE FOR RICE BREEDING

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Summary

This study focuses on developing new salinity tolerance and high yielding rice lines, using markers assisted backcrossing (MABC) as a high technology tool for breeding. Total of 500 SSR markers on 12 rice chromosomes were screened for parental polymorphic markers. Of which, 52 primers in the Saltol region were checked with the two parents varieties to identify polymorphic primers for screening the Saltol region of the breeding populations. An analysis of 63 SSR markers on approx. 500 plants for each backcross generation of ASS996/FL478 for three steps selection. The two BC1F1 plants P284 and P307 which had the highest recipient alleles up to 89.06% and 86.36%, were chosen for the next backcrossing. Three BC2F1 plants with the recipient alleles up to 94.03 and 93.18% were used to develop BC3F1 generation. The best BC3F1 plant was P284-112-291 with all the recipient alleles and Saltol region. Evaluating the selected lines BC3F2 to BC3F5 in the greenhouse and on the saline affected farm for breeding purpose. The results have confirmed this breeding strategy is effectiveness.

Keywords: AS996, marker assisted backcrossing, rice, Saltol, QTL.