Assessment of Rice Genotypes for Drought Tolerance Using SSR Markers

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ABSTRACT

Phenotypic response of the 24 rice genotypes to drought tolerance and recovery ability was evaluated at flowering stage under field conditions. The results indicated that for drought tolerance, the genotypes were classified into five groups from score 1 to score 9 and for recovery ability, none of the genotypes scored 1 and 9. The genotypes were classified into 3 groups score 3, 5 and 7. A total of 70 alleles were detected by 24 polymorphic markers with an average of 2.92. Polymorphic information content (PIC) value varied from 0.980 to 0.990 with an average of 0.985. An efficient separation of 25 rice genotypes based on SSR data into two groups was achieved by using unweighted pair group method with arithmetic means (UPGMA) clustering procedure based on genetic similarity expressed by the Jaccard similarity coefficient (JSC). Genotypes that are derivatives of genetically similar type clustered more together. The present study provided an overview of the genetic diversity of the 24 rice cultivars for drought tolerance. Since the SSR markers are neutral and co dominant, they are powerful tools to assess the genetic variability of the cultivars under study .The information about genetic diversity of these cultivars will be very useful for proper selection of parents in rice breeding programs especially for gene mapping and eventually for the application of marker assisted selection (MAS).

Key words : Drought, PIC,Polymorphison, Rice, SSR Markers