B 06

Evaluation of F1 hybrids rice using biparrental progeny design and characterization by RAPDs and microsatellite techniques

Annual rice production in Sri Lanka is 2.6 million metri9c tons and average yield is 3.5 ton/ hectare. Sri Lanka would require 2.9 million tons of rice production to feed its

population of 20 million in the year 2,000. Hybrid rice production combined with molecular techniques is used as a new approach to meet this challenge.

Six crosses were carried out using biparental progeny design to produce six F_1 hybrids and heterobeltiosis and standard heterosis were evaluated in these crosses for two traits: no. of days for 50 % flowering.

For the trait no. of tillers/plant, two crosses IR 66707/ At 95-15-21 and IR 69625/Bg 380 showed heterobeltiosis of 28.5% & 22.3% respectively. F_1 hybrids of all crosses showed standard heterosis compared with Bg 300 and Bg 357. Only the cross IR 66707/ At 95-15-12 showed heterosis compared to Bg352 & Bg 94-1 and Bg 403. Narrow sense heritability determined by biparantal progeny design, for the above trait was 84.0%. For the trait, no. of days to flowering, the F_1 hybrid of the cross IR 66707/ At 95-15-12 showed heterobeltiosis.

PCR based microsatellite finger printing was used to differentiate F_1 hybrids from their parents. DNA amplifications were observed & could differentiate parents and F_1hybrids clearly in IR 66707/At 95-15-12 & IR 68896/At 354 crosses by microsatellite technique.