PUTATIVE QTL ON CHROMOSOME 3 LINKED TO HEAT TOLERANCE IN RICE (*ORYZA SATIVA* L.)

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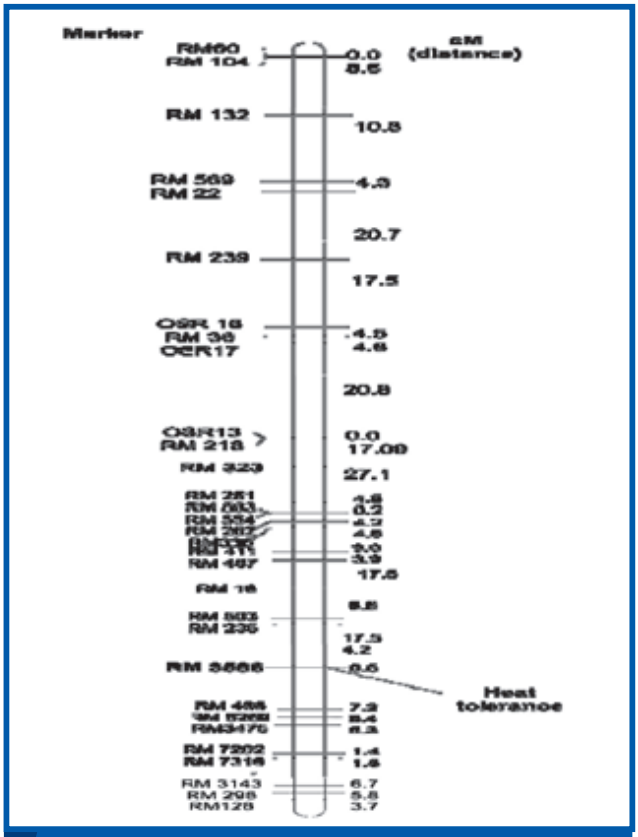
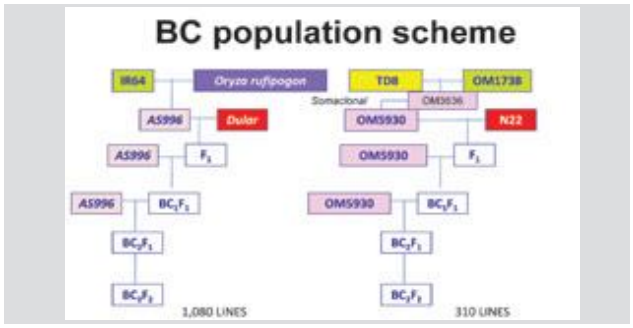
The marker-assisted backcrossing BC_2F_2 populations of AS996/Dular (1080 individuals) and OM5930/N22 (310 individuals) were conducted to study for agronomical characters as: grain yield, unfilled grain percentage, heat tolerance (HT) index, growth duration relating to heat tolerance at rice heading. The critical temperature at heading, in which it influences to grain yield, is 36°C. The correlation relation between unfilled grain percentage and HT index was significantly closed and positive. Forty five SSRs that exhibited their polymorphism were used to assess the genetic clusters among breeding materials. The donors of Dular and N22 were recognized. The recurrent parents as highyielding cultivars AS996, and OM5930 were used to apply marker-assisted backcrossing (MAB). SSR marker closely linked to the putative QTL on chromosome 3 was noticed as RM3586 to be recommended in MAB for next BC_4 development. Putative QTLs on chromosome 4 will be continued via fine mapping to detect the promising lines, which express their heat tolerance and high yielding.



QTL map indicated the target region relating to heat tolerance at the locus of RM3586 on chromosome, LOD ≥ 3.0



DNA survey on 146 accessions including 7 japonica cultivars, 139 indica ones with 45 SSRs