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Breeding elite rice lines resistant against rice tungro virus disease

D Krishnaveni, CN Neeraja, SK Mangrauthia, D Ladhakshmi, GS Laha and Chitra Shanker
Directorate of Rice Research, India

Rice tungro virus disease (RTD) is the most destructive viral disease of rice occurring in regular cycles causing huge yield losses. RTD is caused by a complex of two viruses, *Rice tungro bacilliform virus* (RTBV) and *Rice tungro spherical virus* (RTSV). The viral pair is transmitted by the insect vectors, known as green leafhoppers (GLH), *Nephotettix virescens* and *N. nigropictus* in a semi-persistent manner. Host plant resistance is the most effective and economical method for control of this disease. A number of donors have been identified through national and international screening nurseries. Though more than 40 RTD resistant/tolerant varieties have been released, the popular varieties adopted by the farmers are susceptible to this disease even today. Earlier studies on tungro resistance identified tentative locations of a few RTV resistance loci on chromosome 4. At DRR, for RTD resistance, two QTLs were identified on chromosome 7 and 2 in Utrirajapan land race through molecular mapping and the major QTL *qRTV-7* was fine mapped. Through extensive production oriented surveys, five regions were identified as endemic to RTD. The popular varieties grown in endemic regions viz., IR64, BPT5204, MTU1010, ADT39 and CR1009 which are susceptible to RTD were selected and the major QTL *qRTV-7* is being introgressed into these varieties through marker assisted backcrossing.

krishnaveni4@gmail.com