

Genic Analysis of Rice Blast Resistance of Yunnan Upland Rice Cultivar Haonaihuan

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The F3 line crossing combinations, i. e. Haonaihuan crossed with Japanese cultivars, Toyonishiki and Todorokiwase, and Yunnan cultivar, Xintuanheigu, were used in the genic analysis of the resistance, for the inoculation of Japanese and Kunming strains under field and greenhouse conditions, in Kunming. Under the field pathogenic conditions, the resistance segregation in the F3 lines of the two combinations with the cultivar Haonaihuan can be ascribed to the inheritance of 2 pairs of minor genes that possess an additive effect. This finding has been further confirmed in experiments of artificial inoculation of the Kunming strain, CO5, conducted in the greenhouse.

As for the Japanese strains, TH47-9, Naga67-150 and Ken60-19, the resistance of the cultivar Haonaihuan is also controlled by the two pairs of minor genes, except that the recessiveness or dominance of the genes varies with the inoculated strains.

The resistance of the cultivar Haonaihuan to the Japanese strain Ai75-7 is controlled by a pair of major genes and 2 pairs of minor genes with additive effect. As for the Japanese strain TH77-01, the resistance is also controlled by a pair of major genes and 2 pairs of minor genes with additive effect. Only the pair of major genes is different from those acting against Ai75-7 and the 2 pairs of minor genes act against the Japanese strains, TH77-01 and Ai75-7, and the Kunming strain, CO5, as well.