

**GENOTYPING AND PHENOTYPING OF SELECTED RICE GERMPLASM FOR BLAST DISEASE RESISTANCE UNDER LOCAL CONDITIONS**

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Rice blast caused by fungal pathogen *Magnaporthe oryzae* is the most destructive disease in rice cultivation worldwide. Even though the pathogen affects the entire plant, neck and panicle blasts are the most severe forms, causing 100% yield losses in server infections. Zenith and Usen are blast-resistant varieties that are widely used in blast-resistant international rice breeding programs worldwide. This study screened panicle blast resistance genes *Pikh* and *Pita/Pita-2* in local rice varieties Bg352, At362, and Usen and Zenith. Pachchaperumal was used as the susceptible control. Dominant marker *YL155/YL87* and co-dominant marker *Pikh* were used to amplify the *Pita/Pita-2*, and *Pikh* genes, respectively, from the selected rice germplasm. The same varieties were phenotyped for blast resistance in local environmental conditions. Three replicates of each variety were inoculated at two weeks after the heading stages. The plants were inoculated by spraying the mycelium suspension of two isolates of *M. oryzae* that were previously Koch's postulated. After inoculation, plants were incubated for 72 hours in humid chambers to facilitate disease development. A neck blast was observed on Bg352 and At362; however, no symptoms were observed on Usen, Zenith, and Pachchaperumal. Panicle blast symptom development was inconsistent in the replicates in any of the varieties. Hence, these observations need to be verified. The resistant *Pita/pita-2* gene was present in Bg352 and At362. However, *Pikh* resistant allele was not amplified from Bg352 and At362. Verification of resistance phenotypes of Usen and Zenith and identification of allelic variations will assist in identifying potential donor parents for blast resistance in rice crop improvement.

**Keywords:** *Maganaporthe oryzae*, Panicle blast, *Pita/Pita-2*, *Pikh*