

Category	: International Rice Research Conference
Select Theme	: Genetic improvement
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Keyword 1	: Biotic stress tolerance
Keyword 2	: Marker-assisted selection
Keyword 3	: Breeding Strategy
Title of Entry	: Identification of physiological races of <i>Xanthomonas oryzae</i> pv <i>oryzae</i> , evaluation of bacterial blight resistant pyramid lines and development of resistant varieties through marker assisted selection in Bangladesh
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**Abstract** : A total of 230 rice bacterial blight diseases leaf samples were collected from different regions of Bangladesh. The samples were air dried and stored in 4o freeze. From the collected samples, 125 isolates of Xoo were isolated and purified. Among them, 80 isolates were evaluated for pathogenicity test. Single colonies were isolated and maintained. The experiment was conducted at the experimental field of Bangladesh Rice Research Institute, Gazipur, Bangladesh during boro, 2016-17. Thirty days old seedling were transplanted in the field. Eighty sets of 12 NILs and 14 pyramid lines along with susceptible checks were transplanted for pathogenicity test of 80 BB isolates. Eighty BB isolates were grown on PSA medium. Inoculum of each isolates was prepared with distilled water. At maximum tillering stage, 3 hills of each lines were cut for each BB isolates by leaf clipping method. Crosses were made between recipient (BRRI dhan28 and BRRI dhan29) and donor parents (IRBB57, IRBB58 and IRBB60). For data collection, lesion data of 20 inoculated leaves were recorded at 14 days after inoculation. Disease reactions were categorized based on lesion length where < 3 cm was considered as resistant and > 3 cm was rated as susceptible. The isolates that showed more than 3 cm lesion length on inoculated leaves considered as virulent and that showed less than 3 cm lesion length considered as avirulent isolates. None of the isolates was virulent to all these resistant genes tested in this study. The results showed that a total of 8 Xoo races were existed in Bangladesh. The genes Xa1, Xa2, Xa3, Xa4, Xa10, Xa11 and Xa14 didn't show any resistant reactions against any of the isolates tested. The R genes xa5, Xa7, Xa8 and xa13 showed 3.75 to 27.5 % resistance frequency among the isolates. Only Xa21 gene showed resistant reactions to all the isolates. Among the pyramid lines, IRBB57, 58, 60, 63, 64 and 65 were resistant against the BB pathogen in Bangladesh. For the development of BB resistant varieties, BC2F1 generations were advanced conferring Xa21 and xa13 genes through phenotyping and marker assisted selection.

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