

## Genetics of resistance for bacterial leaf blight in high yielding popular *Indica* rice (*Oryza sativa* L.) cultivar of Eastern Uttar Pradesh

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**ABSTRACT:** An experiment was conducted to examine the inheritance of bacterial leaf blight disease resistance in rice cultivars TN-1 (used as susceptible check), HUR 4-3, RP BIO-226 and their six populations of cross HUR 4-3 × RP BIO-226 against the strain *BX043* (*wild type*) of pathogen *Xanthomonas oryzae* pv. *oryzae*. The resistant cultivar RP BIO-226 showed 3.76 % disease severity, while susceptible cultivar HUR 4-3 showed 54.79% disease severity and susceptible check TN-1 showed 75.17% disease severity against the pathogen *Xanthomonas oryzae* pv. *oryzae*. The area under disease progress curve (AUDPC) of resistance cultivar was 59.57, which was significantly less than the susceptible cultivar (638.28) and check (885.85). The F<sub>1</sub> hybrid populations were observed to be resistant with average disease severity 9.03% and AUDPC 126.60. The F<sub>2</sub> (segregating) and back-cross (B<sub>1</sub> and B<sub>2</sub>) populations were phenotypically classified into three distinct classes as highly resistant or resistant, moderately resistant, and moderately susceptible or susceptible in the ratio 13:3, 1:1 and 1:0 (non-segregating type), respectively which is mainly due to cumulative effects of three resistant genes *Xa21*, *xa13*, and *xa5* and their chi square value was 4.09 and 1.34 indicating that observed data are in accordance with expected ratio and followed the inhibitory gene action and Mendelian pattern of inheritance of resistance for bacterial leaf blight in rice.

**Key Words:** Bacterial leaf blight, disease severity, inhibitory gene action, symptoms, AUDPC