

Category	: International Rice Research Conference
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Keyword 1	: Biotic stress tolerance
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Keyword 3	: Mutagenesis
Title of Entry	: Evaluation for Bacterial Leaf Blight Resistant Genotypes among Mutated Population of Rice CV. Super Basmati
Presenting author	: Hafiz Muhammad Imran Arshad
Presenting author email	: iagill_1@yahoo.com
Co author 1	: Muhammad Rashid
Co author 2	: Muhammad Saleem
Affiliation presenting author	: Plant Protection Division, Nuclear Institute for Agriculture & Biology (NIAB), Jhang Road, Faisalabad, Punjab, Pakistan
Affiliation 1	: Plant Breeding & Genetics Division, Nuclear Institute for Agriculture & Biology (NIAB), Faisalabad, Punjab, Pakistan
Affiliation 2	: Soil & Environmental Sciences Division, Nuclear Institute for Agriculture & Biology (NIAB), Faisalabad, Punjab, Pakistan
Select only one type of presentation	: 15 minute oral presentation
Abstract	: Rice serves as the most important food source for Asian countries mainly in South-East Asia where it is an economical crop for farmers, who grow it on 47 million of hectares throughout the region. However, the diseases especially Bacterial leaf blight (BLB) is causing significant losses in rice production. To manage this menace, studies were carried out under the umbrella of 'Punjab Basmati Rice Value Chain Project' financed by the Asian Development Bank (ADB) and executed by Punjab Agriculture Research Board (PARB) to evaluate Basmati mutated rice genotypes developed through induced mutation by the gamma radiation (150 and 200 gy) from Super Basmati for resistance against BLB. Fifty four Basmati mutants from M6 generation were selected and evaluated for two years using artificial inoculation under field conditions at NIAB, Faisalabad. Out of which, five BLB resistant Basmati mutants (M32, M42, M45, M47 and M48) with the best desired features were identified and further evaluated for two years during cropping seasons of 2016 and 2017 in comparison with parent Super Basmati for BLB resistance in the BLB hot spot districts Sheikhpura, Gujranwala, Hafizabad, Narowal and at NIAB, Faisalabad, Punjab, Pakistan. Virulent <i>Xanthomonas oryzae</i> pv. <i>oryzae</i> strain was inoculated through clipping method. Disease data (Lesion length) were recorded after three weeks of inoculation by using disease rating scale as the leaf lesion length <5 cm considered as Resistant, 5-10cm moderately resistant, 10-15cm moderately susceptible and >15cm as susceptible. Significant differences were recorded in disease response of selected mutants as compared to Super Basmati (non-mutated). However, non-significant deviation was recorded for morphological

characteristics. All the Basmati mutants showed resistance to BLB with the range 3.3-6.2cm mean lesion length as compared to super Basmati (16cm). M48 has more resistance with least lesion length (3.3cm) and 28% higher yield than parent Super Basmati. Thus, these Basmati mutants have potential resistance against BLB and higher yield which could be considered further in breeding program for development of BLB resistant Basmati rice varieties.

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