

Category	: 8th Rice Genetics Symposium
Select Theme	: Genetic improvement
Endorsement email	:
Keyword 1	: Mutagenesis
Keyword 2	: Marker-assisted selection
Keyword 3	: Genetic gain
Title of Entry	: Development and characterization of huge mutagenetic population of Samba Mahsuri, a popular mega variety of rice for enhancing scope of marker assisted selection
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Select only one type of presentation	: 15 minute oral presentation
Abstract	: To induce the variation in Samba Mahsuri, a mega variety of rice and use novel variations in MAS, saturation mutagenesis was done and developed 10,500 EMS mutagenized population(M5). Screening of such population through artificial inoculation, led to the identification of four independent lines having extreme levels of tolerance to diverse virulent isolates of sheath blight and diverse population of yellow stem borer. Besides this, five lines showed resistance to most virulent pahotypes of BLB. We have also identified stable mutants having strong culm (lodging resistance), confirmed these mutants through various morphological, physiological and anatomical features, which indicated the increase in culm diameter, higher lignifications and thickening of epidermal cell wall. Mutant showing early maturity and having distinct yield contributing traits such as long, dense panicles with complete panicle emergence, upper internode elongation having similar BPT grain type were also identified and majority of these mutant showed 93-99% similarity on whole genome level as well with the SSR analysis. Efforts on characterizing and tagging the mutants showing complete panicle emergence, strong culm, sheath blight through MUTMAP as well as through SSR markers led to the identification of obvious genomic regions and causative SNPs associated with these traits. The results emanating from such analysis will certainly enhance the scope of MAS, which will provide solutions alternative to the use of transgenics. We also advanced whole mutagenic population to the advance generation(M5) for further characterization. All the

mutant populations are maintained as a national repository for harnessing the genetic variations an important rice variety.

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