

Category	: International Rice Research Conference
Select Theme	: Genetic improvement
Endorsement email	:
Keyword 1	: Breeding Strategy
Keyword 2	: Marker-assisted selection
Keyword 3	: Selection accuracy
Title of Entry	: Introgression of blast (Pi9), bacterial leaf blight (Xa7) and brown planthopper (Bph3) resistance genes into MARDI commercial rice variety MR219
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Abstract : Brown planthopper (BPH), Rice blast and bacterial leaf blight (BLB) are the three most prominent pests and diseases threatening the rice production in Malaysia. Massive crop damage and multi-ringgit yield loss were triggered by these pests and diseases especially at areas practicing no variety rotation for each growing seasons. MR219 is among the most favourable variety adopted by farmers due to high yielding character. However, it has become less resistance against BPH, blast and BLB after more than 10 years of cultivation. In this project, a double-cross technique (or multiple crosses) was employed to introgress three candidate resistant genes namely bph3, Pi9 and X7 from donor parents into Malaysian elite rice variety, MR219. Marker assisted selection (MAS) was used as foreground markers for monitoring of introgressed genes among the breeding lines, while marker assisted backcrossing (MAB) which utilized polymorphic background markers for enhancing and shortening breeding cycles and increase selection efficiency. Currently, we have successfully introgressed these three resistant genes in 6 individual plants at BC2F1 stage with similarity distance range between 30.8 to 72.6 percent with MR219. These results showed that the objective of this project has been achieved. Details of the findings will be further discussed in this paper.

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