

Characterisation of *Magnaporthe oryzae* isolates from rice in peninsular Malaysia

ABSTRACT

The genus *Pyricularia* (anamorph)/*Magnaporthe* (teleomorph) includes important destructive pathogens causing blast disease on various species from the family Poaceae. Thirty-five *Magnaporthe* isolates were collected from diseased rice plants (variety MR219) in different rice-growing regions of Malaysia, including the five states of Selangor, Penang, Kedah, Kelantan, and Perak between 2010 and 2014. DNA sequence analyses of the internal transcribed spacer (ITS), actin, β -tubulin and calmodulin gene regions, random amplified polymorphic DNA (RAPD) and intersimple sequence repeat (ISSR) analyses were conducted to analyse 35 *Magnaporthe* isolates. Phylogenetic analysis of the combined dataset confirmed the identification of all isolates as *M. oryzae* with a high distance from other *Magnaporthe* (*Pyricularia*) species. RAPD and ISSR analyses indicated the existence of a relatively low similarity index value among *M. oryzae* isolates through identification of four main clades. The clustering of RAPD and ISSR analyses demonstrated that there was a correlation between the isolates and their geographical origins.

Keyword: Genetic diversity; ISSR; *Oryza sativa*; RAPD; rDNA-ITS; Rice blast