

Variability of *Fusarium* species associated with bakanae disease of rice based on virulence, vegetative and biological compatibility

ABSTRACT

Bakanae is one of the most important diseases of rice in Southeast Asia. Variability of 212 strains of *Fusarium* associated with the disease in Malaysia and Indonesia were examined. Most of the strains (59.0%) were classified into five *Fusarium* species in section *Liseola* i.e. *F. fujikuroi* (the most frequent, 37.3%), followed by *F. verticillioides*, *F. proliferatum*, *F. sacchari* and *F. subglutinans*. Pathogenicity tests on a susceptible rice seedlings variety MR 211 confirmed that only isolates identified as *F. fujikuroi* were pathogenic and able to produce typical bakanae symptoms. Results on vegetative compatibility tests indicated that there was a substantial genetic diversity within the five species. Several isolates (2.4%) were classified as heterokaryon self-incompatible (HSI) based on their inability to form a heterokaryon. In crosses with seven standard testers of mating populations (MP-A to MP-G), 69.3% of the strains were assigned to five *Gibberella fujikuroi* species complex i.e. MP-A, MP-B, MP-C, MP-D and MP-E based on their ability to produce viable ascospores. The isolates of *F. fujikuroi* belong to MP-C. The present data provide baseline information for *Fusarium* species associated with bakanae disease of rice in Malaysia and Indonesia as well as for the genotypes involved in causing the disease on rice in this region.

Keyword: *Fusarium fujikuroi*; Bakanae; Vegetative compatibility group; Virulence and mating population