Host range of Exserohilum monoceras 1125, a potential biological control agent for Echinochloa spp.

ABSTRACT

A total of 54 plant species, including varieties and breeding lines from 14 families and 33 genera were screened against Exserohilum monoceras, a fungal pathogen with potential as biocontrol agent for barnyard grass, Echinochloa crus-galli. The selected plant species were treated with spore suspensions at about 2.5 x 107 spores/ml concentration in glasshouse conditions supplemented with 24 h dew. The ability of the fungus to infect the plants was evaluated by disease incidence and disease severity which translated into disease index (DI). The disease index of Echinochloa crus-galli var. crus-galli, E. crus-galli var. formosensis and E. stagnina were 4 (dead) while those for E. colona and E. oryzicola were 3 (severely damage). Among the economic plants tested, only Zea mays was infected with a disease index of 2 (tolerant). Young Imperata cylindrica was dead (DI = 4), however the older plant showed hypersensitive reaction (DI = 2). Other plants that were infected were Cymbopogon sp. (DI = 1), Paspalum sp. (DI = 3) and Rhynchelytrum repen (DI = 3). Exserohilum monoceras did not infect selected varieties of rice in Malaysia, such as MRQ 50, MRQ 74, MR 219, MR 220 and MR 84. Vegetables and medicinal plants used in the test were also not infected.

Keyword: Exserohilum monoceras; Host range; Echinochloa spp.; Bioherbicide