Bipolaris sorokiniana: a potential indigenous plant pathogen to control goosegrass (Eleusine indica) in oil palm plantations

ABSTRACT

Indigenous plant pathogens, namely Bipolaris sorokiniana, Phoma herbarum and Curvularia aeria, were evaluated in the nursery to assess their potential of controlling goosegrass (Eleusine indica). Two experiments were conducted, which involved pathogenicity test and host range test. The pathogenicity test showed that B. sorokiniana was more pathogenic to E. indica compared to P. herbarum and C. aeria. Infection of B. sorokiniana on E. indica occurred on the fifth day after inoculation, with 2 x 10^6 CFU ml^-1. On the Day 35 after treatment, B. sorokiniana caused 94% disease severity, the highest damage compared to the other two fungal plant pathogens. The increase in disease severity affected E. indica’s growth, causing dry weight losses of up to 28.5 g, which was significantly lower than the dry weight of E. indica treated with C. aeria (39.5 g) and untreated control (39.2 g). Nevertheless, B. sorokiniana did not infect oil palm seedlings. In other host plants, such as tomato, lady finger, sweet corn, chives, banana, eggplant, chili, sweet potato, Napier grass and spinach, B. sorokiniana only caused mild disease severity ranging from 10% to 20%. Therefore, this study suggests that B. sorokiniana may have the potential to be used as a biological control agent for E. indica in oil palm plantations.

Keyword: Weed biocontrol; Bipolaris sorokiniana; Eleusine indica