

Efficacy of *Exserohilum longirostratum* on barnyard grass (*Echinochloa crus-galli* spp. *crusgalli*) under field conditions.

ABSTRACT

An isolate of *Exserohilum longirostratum* obtained from *Rottboelia cochinchinensis* in Malaysia was highly pathogenic to barnyardgrass (*Echinochloa crus-galli*), a serious weed in rice fields in Malaysia. In glasshouse trials, high levels of barnyardgrass control were achieved when *E. longirostratum* was applied as a conidial concentration at 105 conidia/mL. This conidial concentration may not be sufficient for field use; therefore, a mini plot trial was carried out to assess the bioherbicidal potential of the fungus and the efficacy of different inoculum types under field conditions. Excellent barnyard grass disease as indicated by Area Under Disease Progress Curve (AUDPC) was achieved with mycelium (AUDPC = 583.8 unit²); mycelium + pretichlaclor (AUDPC = 610.4 unit²) and conidia alone (AUDPC = 468.3 unit²) compared to conidia + pretichlaclor (AUDPC = 395.8 unit²). Although conidia caused lower disease severity on barnyard grass compared to mycelium, this inoculum equally reduced the competition from barnyard grass as indicated by lower mean dry weight and fewer barnyard grass tiller numbers. Positive correlations between AUDPC of rice and its tiller number and AUDPC of rice and its dry weight were recorded while negative correlations were observed for the AUDPC of barnyard grass and its tiller number and AUDPC of barnyard grass and its dry weight. These findings confirmed that *E. longirostratum* applied either in the form of conidia or mycelium was effective against barnyard grass under field conditions.

Keyword: Field efficacy; Bioherbicide; Barnyardgrass; *Exserohilum longirostratum*.