

Study on resistant biotypes of *Echinochloa crus-galli* in Malaysia

ABSTRACT

Present study was carried out to identify resistant biotypes of *Echinochloa crus-galli* and to determine their control measures by application of herbicides. Propanil, quinclorac and cyhalofop-butyl was tested against 10 populations of *Echinochloa crus-galli* which was collected from rice fields of Kedah, Malaysia. Weed populations such as KPT, SB1, SB2, KPE, SY, TD, DB, KB1 and KB2 was identified as resistant biotypes and only KP population recorded as susceptible biotype to propanil. Out of 10 populations, only KB1 was found resistant biotypes and all others identified as susceptible to quinclorac. Weed populations of KP, KPT, SB1, KPE, SY and KB2 was found susceptible while SB2, TD and KB1 identified as resistant biotypes to Cyhalofop-butyl. Among 10 tested populations, only KB1 was found resistant biotype to propanil, quinclorac and cyhalofop-butyl. The ED₅₀ values from the dose-response experiments indicated that the resistant biotype was >four times resistant to propanil, >10 times resistant to quinclorac and >17 times resistant to cyhalofop-butyl, respectively than susceptible biotype. Resistant biotype KB1 was controlled by combined application of quinclorac and propanil at rates of 0.30 and 5.50 and kg a.i. ha⁻¹ or quinclorac and cyhalofop-butyl at rates of 0.30 and 0.80 kg a.i. ha⁻¹, respectively.

Keyword: *Echinochloa crus-galli*; Propanil; Quinclorac; Barnyardgrass