UNIVERSITI TEKNOLOGI MARA

EFFECT OF *Etlingera coccinea* CRUDE EXTRACT AS BIO-WEEDICIDE AGAINST WEEDY RICE *(Oryza sativa* COMPLEX*)*

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Thesis submitted in fulfillment
of the requirements for the degree of
Master of Science
(Biology)

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Etlingera coccinea is herb plant that is used and consumed by the indigenous ethnics in Borneo. This study pursued the possible allelopathy potential of *E. coccinea* as a new bio-weedicide in combating the growth of weedy rice (*Oryza sativa* complex). The application of synthetic herbicide endorses the herbicide resistance incident among the paddy weeds and affect the environment as well as human health. The allelopathic compounds in dried powder of stem and leaf extract were extracted by using three different solvents namely methanol (80% aqueous), ethyl acetate (80% aqueous) and hexane (80% aqueous). Colour Test method used to detect the presence of secondary metabolites and Thin Layer Chromatography (TLC) to elute the different Rf values. Quantitative analysis showed that *E. coccinea* contained more flavonoid especially in leaf part. The ethyl acetate leaf extract recorded higher percentage of seed germination inhibition (100%) at 100 g/mL. The water uptake percentage, radicle length and hypocotyl length decrease as the extract concentration increase both in seed bioassay and pot experiment. Therefore, *E. coccinea* possess an allelopathic property particularly in leaf ethyl acetate extract to deter the growth of weedy rice thus can be further examine and studied for its commercial purpose of being bio-weedicide some day in the future in combating the infestation of other weeds in crop plantation.

Keywords: Allelopathy, Colour Test, Thin Layer Chromatography, Seed germination, Water uptake

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Nurfitri binti Harman (2022)
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