

**ALLELOPATHIC POTENTIAL OF RICE HUSK ON
GOOSEGRASS (*Eleusine indica*) AND LETTUCE (*Lactuca sativa*)**

**NURUL SOLEHAH BINTI SAMSUDIN
BACHELOR OF SCIENCE AGROTECHNOLOGY
(HONS.) HORTICULTURE TECHNOLOGY
(2019324791)**

**Faculty of Plantation and Agrotechnology
UNIVERSITI TEKNOLOGI MARA**

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DECLARATION

This Final Year Project is a partial fulfilment of the requirements for a Degree of Bachelor of Science in Agrotechnology (Hons.) Horticulture Technology in the Faculty of Plantation and Agrotechnology, Universiti Teknologi MARA.

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Candidate's signature: Date : January 2022

Name : Nurul Solehah binti Samsudin

Student I.D. No : 2019324791

ABSTRACT

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Herbicide has been main strategy for effective control of goosegrass (*Eleusine indica*) in lettuce (*Lactuca sativa*). However, the excessive use of the same herbicides has led to human health and environmental concern besides resulting in the evolution of herbicide resistance in goosegrass. Manipulation of rice husk allelopathy is an option for goosegrass control in lettuce. Thus, this study aims to determine allelopathic potential of rice husk on goosegrass and lettuce under greenhouse conditions. Two-separate experiments were done, (i) Crude extract application [2 Factors: rice husk extract concentrations 3 (20, 40, and 80g/L) and 2-test rice husk variety (MR220 and MR297)], (ii) Rice husk debris application [2 Factors: rice husk residue rate 3 (5, 25, and 50 g rice husk/3000g soil) and 2-test rice husk variety (MR220 and MR297)]. Each polybag contained five seeds of goosegrass and one seedling of lettuce. Growth parameters of each bioassay species were recorded three weeks following treatment. At a concentration of 40 g/L MR297 aqueous extracts, lettuce biomass and leaf area were stimulated by 80%. By contrast, at 20 g/L rice husk extract, both rice varieties inhibited goosegrass seedling emergence by 85%. Goosegrass emergence was decreased by 85% at 5 g / 3000 g of soil treated with rice husk debris, with MR297 inhibiting weeds more effectively. MR297 outperformed MR 220 by increasing lettuce leaf area by 54% at the rate 25 g/3000g soil of debris. These findings suggest that the rice husk of MR297 and MR220 have distinct compositions and amounts of water soluble allelochemicals that could be used to suppress goosegrass while promoting lettuce development.

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