

## Effects of Rice Plant Extracts and Phenolic Allelochemicals on Seedling Growth of Radish

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**Abstract :** Rice (*Oryza sativa* L.) is one of the major crops of Vietnam which has more than thousands of varieties. Many of the local varieties have greater potentiality but they are in danger of extinct. Rice plant contains many secondary metabolites that are allelopathic to other plants. Seven rice varieties were cultivated in the field condition at Hiroshima University, Japan; stems and leaves from each variety were collected later, they were extracted with methanol, hexane, ethyl acetate, butanol, and water. Total phenolic content and total flavonoid contents were high in ethyl acetate extracts. DPPH antioxidant assay results showed that the ethyl acetate extracts had the higher IC50 value. Therefore, the ethyl acetate extracts were selected for laboratory experimentation through petri dish assay. Results showed that the two-local variety Re nuoc and Nan chon completely inhibited the germination of radish seedlings. Further laboratory bioassay and field experimentation will be conducted to validate the laboratory bioassay findings.

**Keywords :** allelopathy, bioassay, *Oryza sativa*, *Raphanus sativus*

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