

Thesis Title      Laboratory Investigation on Efficacy  
of Extract from Sweetflag (Acorus  
calamus Linn.) Rhizomes on Brown  
Planthopper (Nilaparvata lugens Stal.)

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#### ABSTRACT

The insecticidal efficacy of sweetflag (*Acorus calamus* Linn.) rhizome extract on brown planthoppers (*Nilaparvata lugens* Stal.) had been examined under laboratory conditions. The crude extract used in this study were obtained by various extraction methods. Fresh rhizomes were crushed, maceration with water, liquor and

ethanol. The dry rhizomes were ground and extracted in soxhlet extraction apparatus with ethanol.

Bioassay tests for contact and stomach poison to nymph and adult brown planthoppers of fresh rhizome extract indicated that ethanol crude extract (ECE) gave the highest nymphal and adult mortality. The ECE at 150 mg/ml caused the death of nymphs and adults, 95.85% and 98.98%; via contact poison, where as the death caused via stomach poison were 36.94% and 48.01%, respectively.

The toxicity of dry rhizome ethanolic extracts (DEE) via contact and ingestion at 40 mg/ml to nymph and adult was over 50% mortality. The extract of the same concentration also inhibited hatchability by 73.13%.

The adults from nymphs fed on rice treated with DEE at 20 mg/ml showed no effect on egg production. However, at this concentration could repell 62.10% of insects. In addition, the extract at the concentration of 80 mg/ml. showed systemic action, causing 90.00% nymphal mortality.

Under shade and sunlight condition. The toxicity of the DEE extract sprayed on plants decreased quickly. Addition of some chemicals such as piperonyl butoxide, white oil and neem oil to the extract did not increase the efficacy and prolong the shelf life of the extract.