

INSECTICIDAL POTENTIALS OF PLANT POWDERS AGAINST PESTS OF STORED GRAINS; *Sitophilus oryzae* (RICE WEEVIL) AND *Callosobruchus maculatus* (COWPEA WEEVIL) IN SRI LANKA

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Due to the negative impacts of synthetic insecticides, there is a pressing need for alternative, eco-friendly approaches to control pests of stored grains. This study aimed to investigate the effectiveness of powders of *Syzygium aromaticum* leaves, *Allium sativum* cloves, and *Olex zeylanica* leaves against *Sitophilus oryzae* and *Callosobruchus maculatus*, pests of stored grains. Smooth plant powder was prepared by grinding the dried leaves/cloves. Hundred healthy adults of each pest species (25 per replicate) from laboratory stock cultures were exposed to five concentrations (1%, 2%, 4%, 6%, and 8% w/w) of each plant powder, mixed in 100 g of disinfected grains in plastic containers covered with muslin cloth, and mortalities were recorded after every 24 hrs until 12 days. Log-probit curves were constructed, and the lethal concentration (LC₅₀) and lethal time (LT₅₀) required to kill 50% of the population were obtained by regression analysis. When treated with $\geq 2\%$ *O. zeylanica*, both *S. oryzae* and *C. maculatus* exhibited 100% mortality within 24 hrs, and the LT₅₀ values were 10 hrs and 8 hrs, respectively. *Allium sativum* and *S. aromaticum* treatments demonstrated relatively low toxicity, as indicated by their high LT₅₀ values, with 12 days required to achieve 100% mortality in both pest species. Although the toxicity effect between *A. sativum* and *S. aromaticum* against *S. oryzae* was not significant ($p = 0.806$), *S. aromaticum* showed higher toxicity against *C. maculatus*, with a LC₅₀ of 0.85% and a LT₅₀ of 1.4 days at 2%, compared to *A. sativum*, which had a LC₅₀ of 4.9% and a LT₅₀ of 3.4 days at 2%. However, 100% mortality of *C. maculatus* was observed within 24 hrs when a high concentration, i.e. 8%, was used. The overall results revealed an effective toxicity against both pests in the order of *O. zeylanica* > *S. aromaticum* > *A. sativum*. Further studies would explore the repellence and synergistic effects of these plant products for pest management.

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