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| Potential of Using Pesticidal Plant Extracts in Managing Termite Damage in Sugarcane Buds and Setts at Planting |
| Abstract Body | An experiment was conducted in the entomology laboratory and the research farm of the Sugarcane Research Institute (SRI), Uda Walawe, Sri Lanka with the objective of screening potential plant extracts that have insecticide properties and the lethal dosage (LC₅₀) ~~of each plant extracts~~ to manage termite damage during germination and early plant growth phases of sugarcane. Termite species available in sugarcane ecosystem were identified by collecting soil samples randomly from sugarcane fields and smples were preserved for further study. ~~samples and observing~~ The head morphology and mandible shape of the soldiers were studied for identified different species. Preliminary choice test was conducted using eight plant species with an insecticidal effect. Three plant species were selected for the field study according to the results of choice test, i.e., *Leucaena leucocephala* (Ipil- Ipil) pods and leaves, *Gliricidia sepium* (Gliricidia), and *Lantana camera* (Gandapana). Mature leaves and pods of the selected insecticidal plants were collected, cleaned and dried under room temperature and ethanol extractions were prepared. Soaked three-budded setts of SL 96 128 sugarcane variety was planted in 3 plots with 18 rows, 5 m length and 1.37 m spaced. In each raw, 20 setts were planted and maintained according to the standard management practices. Data on number of buds germinated, damage and growth parameters were collected. Five spp of termites were identified i.e., *Coptotermes ceylonicus, Heterotermes ceylonicus, Odontotermes colonics, Odontotermes redimani and Odontotermes horni*. Lowest sett damage (10.33 ± 2.85) was recorded from L. camara treated seed setts. All ethanolic plant extracts induced concentration and time - dependent mortality in termites. The highest (LC₅₀) value was recorded in L. camara leaf extract (3.97 ± 0.70 – 6 h, 0.48 ± 0.53 – 24 h, 0.084 ± 0.45 – 48 h, 0.00033 ± 0.0004 – 72 h). There is no significant effect of ethanolic extract of tested plant parts on sugarcane sett germination and plant growth parameters except L. camara leaf extract (p < 0.001) on the average root mass of sugarcane. Therefore, out of these plant extracts, ethanolic leaf extract of *Lantana camera* is the best extraction for sugarcane sett treatment over termites. |