**Potential of Using Pesticidal Plant Extracts in Managing Termite Damage in Sugarcane Buds and Setts at Planting**

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**ABSTRACT**

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 determining 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 was identified by collecting soil samples randomly from sugarcane fields, preserving samples and observing head morphology and mandible shape of the soldiers. Preliminary choice test was conducted using eight plant species with 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 dried under room temperature and ethanol extractions were prepared. Soaked three-budded setts of SL 96 128 sugarcane variety were 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* treatedseed setts. All ethanolic plant extract 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 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.

**Key words:** *Damage, Effect, Pesticidal plants, Termites, Sugarcane*