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STUDIES ON THE TOXICITY AND RELATIVE TOXICITY OF DIFFERENT PLANT EXTRACTS TO DIFFERENT LEAF FEEDING INSECTS OF TELANGANA FOREST

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ABSTRACT: Relative toxicity of (07) seven plant extracts (*Azima tetracantha, Chloroxylon sweietenia, Clerodendrum viscosum, Cleistanthus collinus, Lippia javanica, Ocimum americanum* and *Sphearanthus indicus)* to (04) four test insects (*Hyblea purea Tinolius eburneigutta, Eutectona machearalis,* and *Atteva fabricella)* at different concentrations of was done and toxicity was observed in all the plant extracts based on the feeding behavior of the test insect and arranged in the descending order is 1.0%>0.8%>0.6%>0.4%>0.2%>0.1% concentrations and uncontrol. All insect cultures were maintained in a growth chamber in the laboratory at a temperature of 27 ± 2° C, 12: 12 L:D and with 70 ± 5 % RH during the experiments. Among all plant extracts *O. americanum* (LC_{50}-0.3169 and LC_{50}-0.3115 aganist *H. purea* and *E. machaeralis*) followed by *C. viscosum* (LC_{50}-0.4316 and LC_{50}-0.5253 aganist *T. eburguneita and A. fabricella) were* found to be effective and more toxic against selected major insect pests that tested.

Keywords: *Ethnobotany, insect, leaf feeders, plant extracts, toxicity*

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INTRODUCTION

Insect pests are one of the major limiting factors in crop production. Synthetic organic insecticides have emerged as major tools of pest management. However, due to indiscriminate use of synthetic chemicals, insect pests have developed resistance to insecticides. Resurgence of secondary pests, reduction in the population of natural enemies and harmful residues in food, feed and fodder are some of the aftermaths of the use of pesticides. These concerns have led to the surge of alternative pest control technologies by which relatively environmentally safe pesticides/insecticides solely of biological origin are intended to develop. The pesticide formulations based on extractives from organisms have attracted particular attention because of their specificity to insect pests, biodegradable nature and a potential for commercialization.

The plant world comprises of a rich array of biochemicals that could be tapped for use as insecticides. The toxic constituents present in plants represent the secondary metabolite groups. Their particular role in many of the plant species are not completely known to the science. However, it is assumed that they have only insignificant role in the primary physiological processes in plants that synthesize them. Some of the secondary metabolites are merely end products of aberrant biosynthetic pathways and others excretory products.

Knowledge of the toxic plants, and the toxic principles and their biological activity is important not only to utilize them as natural insect control agents and replace the toxic commercial chemical insecticides but also to understand the nature of their toxicity in non-targeted species. Over 2000 plant species out of about 2,50,000 have been reported to possess insecticidal activity in which only a fraction of them are analyzed for biocidal properties and many more insecticidal plants awaits discovery.

MATERIALS AND METHODS

The extraction was carried out in the Soxhlet extraction apparatus. The samples containing leaves of the selected plant materials were air-dried for 6-7 days.