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Influence of Catharanthus roseus, Ocimum sanctum and Lantana camara Extracts on Survival and Longevity of Dysdercus koenigii

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Abstract : The development of resistance among insects and pests, environmental contamination and adverse effects on non-target organisms is contributed by the indiscriminate use of chemical based insecticides. To overcome these environmental and other ecological issues that are need to replace these harmful toxic compounds. The present study was designed to evaluate the effect of Catharanthus roseus, Ocimum sanctum and Lantana camara plants volatiles on survival and longevity of Dysdercus koenigii. The hexane extract and ethanol extracts of these three plants were used. The fifth instars were exposed to hexane extract with concentrations of 10%, 5%, 2.5% 1.25%, 0.1%, 0.5% 0.25%, 0.125% and 0.0625% while, adults were treated with10%, 5%, 2.5% and 1.25%. 1-ml of each of these concentrations was used to make a thin film in sterilized glass jars of 500 ml capacity. Fifteen- newly emerged fifth instar nymphs and adult bugs were treated separately with the extracts for 24-hour exposure to the plant volatiles. For ethanol extracts cottonseed were treated with ethanol extracts of 10%, 5%, 2.5% and 1.25% concentrations. The treated seeds were provided to the Dysdercus for a period of 24 hours and their feeding behaviour was observed. The effect of hexane and ethanol extract of these plants was observed and readings were recorded for 15 days. Survival and longevity of both fifth instars and adults were in correlation with the concentrations of the plant extracts. Among three plant extracts, Ocimum hexane extract was most toxic and Catharanthus was moderate while Lantana was least toxic. The ethanol extracts of Lantana was highly antifeedent while Ocimum was moderate and Catharanthus was least antifeedent. Both Catharanthus and Ocimum appeared to have potential molecules, which possessed insecticidal activity while Ocimum and Lantana showed antifeedent activities. These insecticidal and antifeedent properties may be used in IPM.

Keywords : Catharanthus roseus, Ocimum sanctum, Lantana camara, Dysdercus koenigii
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