

Efficacy of botanicals in the control of Cowpea pests

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Abstract

Indiscriminate use of synthetic insecticides for insect pest management has resulted in many harmful effects like, insect resistance, effects on the beneficial organisms etc. There is a need to use alternative methods for insect pest control to reduce the frequency of insecticides utilized for pest management. In this context, the present study was designed to determine the efficacy of different botanical pesticides against major cowpea pests; leaf miner, pod borer and aphids. Four plant-derived products viz. neem seed extract 5%, neem oil 3%, garlic and green chilli paste 2% and garlic extract 1% were tested along with a synthetic insecticide, dimethoate 400 g/l EC to examine their bioefficacy in order to control the cowpea pests successfully. Population of aphids and percentage of damage by leaf miner and pod borer were assessed for each treatment. Antifeedant index of the synthetic and botanical pesticides against leaf miner and pod borer was estimated. The results revealed that neem seed extract 5% showed a significant reduction ($P < 0.05$) in aphid population and the least damage percentage of leaf miner (1.1%) and pod borer (13.0%) among the botanicals tested. A significantly higher antifeedant index was also recorded for the treatment of the neem seed extract against leaf miner (83.0%) and pod borer (81.8%). The synthetic insecticide dimethoate registered the highest antifeedant activity. Hence, this study elucidates that use of neem seed extract 5% could be suggested to manage the cowpea pests as it has been found to have very promising bioefficacy against these pests.

Keywords: Antifeedant index, aphids, cowpea, leaf miner, pod borer