Research Paper :

Effect of plant extracts on larval mortality of *Helicoverpa armigera*

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SUMMARY

The laboratory studies were conducted to determine efficacy of aqueous and methanol extracts of plant species against 3rd instar larvae of *H. armigera* at one, three and five days after treatment which revealed that all the plant extracts under test were found significantly effective in causing larval mortality except aqueous extract of 7.5 per cent ritha fruit (RFE) which was comparable with control. Considering the cumulative effect on larval mortality after five days of treatments in methanol extract, the treatment with 7.5 per cent undi fruit extract registered 73.33 per cent larval mortality which was maximum amongst the all other treatments. It was followed by the treatments with 5 per cent undi fruit extract (70.59 %), 7.5 per cent neem fruit extract (70.00%) and 7.5 per cent serni whole plant extract (57.14%) in order of efficacy. Whereas, methanol pod extract of acacia and fruit extract of ritha was found least effective which registered only 18.75 and 20.69 per cent larval mortality, respectively.

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The plants are rich source of bioactive organic chemicals. They are less deleterious to human being, non-phytotoxic and have no residual toxicity to parasites, predators and pollinators. Plants are known to produce a variety of secondary metabolites such as alkaloids, terpenoids, polyacetylenes, flavonoids, usual amino acids, sugars, etc. which have behavioural and physiological effects on the colonization, development, growth, survival and multiplication of insects. In view of their environmental safety, botanicals offer an attractive alternative to synthetic pesticides.

There is a great diversity in the plants species in the country and abroad. It is estimated that there are about 2,50,000 to 5,00,000 different plant species existed in the world (Dhaliwal and Arora, 2004). Only 10 per cent of these have been examined chemically indicating that there is enormous scope for further work (Benner, 1993).

The Konkan region of Maharashtra is blessed with greater diversity of plant species. Many of them are known to possess insecticidal and medicinal properties. However, very little information is available on the insecticidal activities of these plant species. An attempt has therefore been made during present investigation to study the relative efficacy of eight selected plant species *viz.*, Undi (*Calophyllum inophyllum*), Serini (*Homonoia riperia*), Cassava (*Manihot esculenta*), Shikakai (*Acacia concinna*), Yam bean (*Pachyrrizus erosus*), Acacia (*Acacia mangium*), Ritha (*Sapindus trifoliatus*) and Neem (*Azadirachta indica*) growing naturally and abundantly in the region against highly polyphagous and most destructive pest, tomato fruit borer, *Helicoverpa armigera* Hub. (Lepidoptera; Noctuidae).

MATERIALS AND METHODS

Assessment of larval mortality:

The uniform size fresh leaves of castor were collected from the field, cleaned with soft cloth and thoroughly sprayed with hand atomizer at desired concentration as per treatment details. The treated leaves were dried for 10 minutes under fan and then placed into Petriplates (9 cm diameter) having blotting paper at the bottom. A uniform size 3rd instar