Research Paper :

Efficacy of *Acremonium zeylanicum* on sugarcane woolly aphid under laboratory conditions

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SUMMARY

The fungus caused differential mortality of sugarcane wooly aphid on different instars, at varied concentrations. The results on the efficacy of the entomopathogenic fungus at varying concentrations revealed that the mortality of aphids increased with the increase in concentration and time of application. Of the four different instars, first instar nymphs showed highest mortality (92.50%) at 1 x 10^{10} conidia/l concentration of the fungus. As the stage of the instar advanced, the mortality rate declined (88.50, 84.00 and 83.30% in II, III and IV instar, respectively). On the contrary, lower mortality of aphids was recorded at 1 x 10^{4} conidia/l concentration after 10 days of application (69.00, 65.00, 56.00 and 48.00% in I, II, III and IV instar nymphs of SWA, respectively).

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Sugarcane is one of the important commercial crops in the tropical region. Sugarcane and sugar beet are the two main sources of white crystal sugar in the world. Sugarcane contributes about 70 per cent of worlds total white crystal sugar production. India ranks second among the sugarcane growing countries in the world both in area and production. In the country, sugar industry is the second largest agro-based industry next only to cotton textile industry with more than 450 sugar factories spread over the country (Anonymous, 2005).

Due to monoculture in sugarcane, availability of food throughout the year, staggered planting, soft cane and high sugar varieties and favourable climatic conditions, some of the minor pests like whitefly, scale insects and sugarcane woolly aphid have attained the status of major pests. Though, synthetic insecticides are effective against the woolly aphid, they do not find place in sugarcane ecosystem for reasons like difficulty in spraying, operational hazards, improper coverage of crop canopy, high investment for pesticide application and destruction of natural enemies treasure in the sugarcane ecosystem (Lingappa *et al*., 2004).

MATERIALS AND METHODS

A laboratory experiment was conducted in the Department of Agricultural Entomology, College of Agriculture, Dharwad to evaluate *A. zeylanicum* against SWA with varying concentrations of fungal suspension. Four concentrations (1x10^{10}, 1x10^{8}, 1x10^{6} and 1x10^{4} conidia/g) along with an untreated check were compared using CRD design with four replications. Sugarcane leaf bits (15 cm long) carrying 50 aphids were taken and one end of the leaf bit was immersed in glass vial containing water to maintain turgidity of leaves. Different concentrations of the conidial suspension required for spray were prepared by serial dilution and sprayed using hand atomizer such that all aphids were uniformly treated. High relative humidity was maintained inside laboratory using humidifier so as to encourage fungal growth. Treated leaves were kept in plastic jars and daily observation was made on the mortality of aphids upto 10 days. Mean of the four replications were calculated