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Relative toxicity of certain neem based formulations against red cotton bug, *Dysdercus koenigii* Fabr.

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ABSTRACT

Six neem based formulations *viz*., Achook, Neemazal, Neemarin, Bioneem, Econeem and Pure neem oil along with most common and extensively used insecticides, Endosulfan and Malathion were tested against last instar of red cotton bug (*D. koenigii*). Endosulfan and Malathion were found more effective and toxic than neem formulations, followed by Bioneem against red cotton bug. The neem formulations i.e. Pure neem oil, Neemazal, Achook and Econeem were also intermediary effective in response when tested for insecticidal values while Neemarin was least effective.

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Key words : Neem formulations, Red cotton bug, *Dysdercus koenigii*

INTRODUCTION

Cotton is one of the important commercial crops grown in India. It plays a dominant role in agrarian and industrial economy. About 60 million peoples depend on its cultivation, processing and export etc. for their livelihood. Among several factors which are responsible for low productivity and quality deterioration of cotton, the sole factor is the attack of various insect pests on it. Severities of pest damage cause a great loss to the growers of cotton. An aggregate losses about 50-60 per cent of cotton has happened by insect pests. For control of insect pests of cotton, huge quantities of synthetic insecticides have been recommended. Indiscriminate application of synthetic insecticides has resulted in build up of pests resistance, degradation of environmental and residual toxicity on cotton seed production. Looking to harmful adverse effects of these chemical pesticides Govt. of India has imposed restriction on the use of some common insecticides especially chlorinated hydrocarbon (Rajak,1992). The present investigation has therefore been undertaken to evaluate the insecticidal efficacy on certain Neem based formulations available in the market along with two conventional insecticides *i.e.* Endosulfan and Malathion against the damage of red cotton bug attacking cotton, under laboratory conditions by bioassay method.

MATERIALS AND METHODS

The present investigation was carried out in laboratory to evaluate the relative toxicity of Neem based formulations against red cotton bug (*Dysdercus koenigii*) by bioassay method. The adults of test insect were collected from the cotton field in the insectry of Department of Entomology, C.S.A.U.A. &T., Kanpur. The adults were transferred to a glass globe, the mouth of which covered with a piece of muslin cloth and tied with a rubber band. Some amounts of sand were also kept in the bottom of the glass globe to facilitate the egg laying of the test insect. Different concentration were prepared from the stock solutions using Acetone as solvent and Triton as emulsifier. The level of solvent and emulsifier were kept constant at 5 and 0.5 per cent respectively, in final spray. The calculated amount of various ingredients required to make different concentrations from their stock solutions i.e. 0.5 per cent of synthetic insecticides, 2.0 per cent Neem oil and neem formulations. All the neem based products, Neem oil and insecticides used in present investigation were tested for their contact toxicity against the adults of red cotton bug (*D. koenigii*) to determine the final concentration, which gave 20 to 85 per cent mortality in bioassay test by Potter's tower using film technique. After testing the preliminary trial of mortality against adult of red cotton bug, six concentrations of Endosulfan and Malathion were selected including one

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