RESEARCH PAPER

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Evaluation of indigenous products with insecticide against tobacco caterpillar (*Spodoptera litura*) infesting cabbage

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The evaluation of treatments in the control of *Spodoptera litura* (Fab.) was done under leaf dip method (poisoned food technique). All the treatments were found significantly superior over control. Among treatments the highest larval reduction of 90.00% to 100.00% was recorded with the treatment comprising of DDVP (0.05%) and DDVP (.025%)+NSKE+cow urine 2% and minimum larval reduction 20.00% to23.333 was recorded after 24, 48 and 72 hours, and mortality at 72 hours was highest over 48 hours and 24 hours.

Key words : Indigenous products, Inesticide, *Spodoptera litura*, Cabbage

INTRODUCTION

Tobacco caterpillar, *Spodoptera litura* (Fab.), is one of the important polyphagous crop pests of many crops including cotton, rice, tomato, citrus, cocoa, sweet potato, groundnut, maize, chillies, cabbage, cauliflower and many other vegetables, *Spodoptera litura* infesting 112 species of plant belonging to 44 families, of which 40 species are known from India. (Chari and Patel, 1983) Among the pest of cabbage, *Spodoptera litura* (Fab.) is the most destructive and dreaded pest. Farmers depend on intensive pesticides application to minimize the crop damage and chemical farming is resulting in environmental pollution toxicity and residual effects, at the same time pests become resistant to chemicals which are banned by the government. Increased consumer awareness towards indigenous products (Neem products, animal excreta etc.) is minimize the hazardous chemical usage in agro–eco–system and farmers should be awarded for the use biopesticides and Indigenous products usage. Indigenous or neem products are not only effective against the crop pests but also are ecologically safe and free from residual problems. Neem oil (1%), water extract of neem leaves (40%) and neem seed kernel extract (2%) have been found effective against budfly in linseed (Gupta *et al.*, 2000).

Keeping these facts in view, present study was conducted on the efficacy of indigenous products with insecticide against *Spodoptera litura* on cabbage. Indigenous products have emerged as an alternative to the chemicals pesticides in recent times. These are non pollutant, eco-friendly and cost – effective.

MATERIALS AND METHODS

The trial was carried out for the management on *Spodoptera litura* in the Department of Biological Sciences, Allahabad Agricultural Institute – Deemed University, Allahabad for determining efficacy of different indigenous product against 1st, 3rd and 5th instar larvae of *Spodoptera litura* on cabbage. There were nine treatments including control and each treatment ws replicated thrice and were done by dipping the green leaf of cauliflower (*i.e.* leaf dip method) at different durations. (24, 48 and 72 hours).

Details of treatments were as follows: T_1 - Neem leaf + Cow butter milk 4%, T_2 - NSKE + Cow butter milk 4%, T_3 - NSKE + Cow urine 4%, T_4 -Neem leaf + Buffalo butter milk 4%, T_5 - NSKE + Buffalo urine 4%, T_6 - DDVP 0.05%, T_7 - DDVP 0.025% + Neem leaf + Cow butter milk 2%, T_8 - DDVP 0.025% + NSKE + Cow urine 2%, T_9 - DDVP 0.025% + Neem leaf + Buffalo urine 2%, T_{10} -Control D.W.

In the experiment the green leaves were used. The green leaf was sterilized with 0.1% formaline and washed with sterilized water, then the sterilized leaf of cabbage was dipped into above given extract *i.e.* treatment T_1 to T_{10} prepared by the poison food technique, then 10 larvae were tranferred into a small beaker and treated leaves were provided to feed the larvae. The experiment was replicated 3 times along with untreated control in which only distilled water was used and each treatment had 10 larval applied for the 1st, 3rd and 5th instar of test insect. The post observations were made after 24 hrs, 48 hrs and 72 hours and efficacy was dependent on the basis of larval percentage mortality and larval percentage. Net mortality was recorded separately. The data thus obtained were transferred into angular values and subjected to statistical analysis. For the assessment of toxic effects, mortality counts were taken 24 hrs, 48 hrs and 72 hrs.