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**STUDY OF THE EFFICACY OF CHILLI AND ONION AQUEOUS
EXTRACTS AS NATURAL PESTICIDES FOR THE CONTROL OF INSECT
PESTS OF TOMATO WITH EMPHASIS ON AFRICAN BOLLWORM
HELICOVERPA ARMIGERA (HB) (LEPIDOPTERA: NOCTUIDAE)**

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Abstract

African Bollworm *Helicoverpa armigera* (HB) is one of the major insect pests of a agricultural importance. The larval stage of this insect causes direct reduction and quality losses of tomato yields, and also through the high cost of insecticides that must be used against it.

Two field experiments i.e (September 1999-January 2000 and January 2000-June 2000) were carried out. The field experiments were of randomised complete block design. On the other hand, two experiments were conducted in the laboratory .These investigations were initiated to determine the efficacy of the extract solutions from chilli and onion plants as control strategies against this notorious pest. The population of *H. armigera* in the tomato field plots was determined by weekly sampling during the two experiments of 1999 and 2000 respectively. The pest intensity values were used in conjunction with yield data to estimate crop loss with respect to the reduction in market value of the tomato fruits due to the lowering of their quality by damage caused by *H. armigera* larval borers.

To determine effects of chilli aqueous extract, leaf-dipping experiment on which the larvae were allowed to feed assessed the optimum dose of the solution. The second experiment involved dipping or immersing the larvae into solution to evaluate mortality rates resulting from chilli, onion, soap and a mixture of chilli and soap solutions and the control. Soap solution was used both as solvent or carrier and independent treatment.

The mean larval intensity during Sep. 1999-Jan. 2000 was not significantly different ($P>0.5$) between treatments and did not greatly affect the yield of marketable tomatoes that were harvested over a period of eight weeks. On the other hand, field experiment carried out during January-June 2000 revealed that larval intensity was highly significant ($P<0.001$) between treatments.

Comparison of the effect of field sprayed chilli and soap solutions revealed that the difference between them was not significant. This was in contrast with the effect of chilli when leaves were dipped into it and fed on the larvae. The difference between treated and untreated leaves was significantly high at $P<0.001$. This indicated that the chilli solution contained insecticidal repellents that prevented the larvae from feeding freely. The mortality rates of larvae among the treatments in which they were totally immersed in chilli, onion, mixture of chilli and soap and soap solutions as compared to the control treatment were highly significant ($P<0.001$). This tended to confirm that there were insecticidal activity in soap solution but there were not insecticidal properties in the solutions of chilli and onion. Therefore, the use of plant materials particularly chilli can contribute to the enhancement of IPM implementation.