



# Field evaluation of HaNPV isolates against *Helicoverpa armigera* (Hubner) under tomato crop ecosystem

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**Abstract :** Field evaluation of virulent isolates of *Helicoverpa armigera* (Hubner) nuclear polyhedrosis virus (HaNPV) isolates was carried out under field condition on tomato at Regional Agricultural Research Station, UAS Campus, Bijapur. Under field condition, at 7 and 14 days after spray, the pooled larval reduction during both spray was highest with Combatore and Gulbarga isolates (47.86 and 46.78 % at 7 days and 68.71 and 68.50% at 14 days, respectively). Coimbatore and Gulbarga isolates recorded lower fruit damage of 9.52 and 9.56 per cent, respectively. Both Gulbarga (190.42 q/ha) and Coimbatore (193.78 q/ha) isolates recorded statistically at par yield with RPP.

**Key Words :** HaNPV, *Helicoverpa armigera*, Tomato

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## INTRODUCTION

Four viruses were reported from *Helicoverpa* species comprising three inclusion viruses and one non-inclusion virus (Teakle and Bryne, 1989). In India, occurrence of NPV in *H. armigera* was first reported during 1968 (Patel *et al.*, 1968) from Gujarat and later Rabindra and Subramanian (1974) described the symptoms of disease, susceptibility of different instars of *H. armigera* and host pathogen relationship. Of the several insect viruses tested against *H. armigera*, the nuclear polyhedrosis virus (NPV) holds great promise in the management of *H. armigera* on a number of crops due to its high efficacy and safety to the natural enemies (Rabindra and Jayaraj, 1990).

Tomato is a profitable vegetable, cultivated widely in Karnataka both under rainfed and irrigated conditions. Among the various insect pests responsible for lowering the yield of tomato crop, fruit borer, *H. armigera* is highly destructive pest causing serious damage. The spray of persistent insecticides over the foliage and fruiting bodies so far was the only practical method to manage this pest. Recently, bio-pesticides have widely been exploited to combat the pest under field condition. The present study was undertaken to explore the possibilities of HaNPV isolates against *H. armigera* under tomato field condition.

## MATERIALS AND METHODS

The experiment was laid out in a CRBD with eight treatments comprising of six HaNPV isolates collected from different place replicated thrice with 4m x 4m plot size having 0.60m and 0.45 m row to row and plant to plant distance, respectively. Recommended package of practices were followed to raise the crop except plant protection. However, there was a treatment with recommended package of practices which received chemical insecticides.

The crop was sprayed at two intervals 15 days apart and observations on larval reduction were recorded at an interval of 7 and 14 days after each spray. Further, the fruit damage was recorded at each picking and the average per cent fruit damage was calculated. The data was subject to arc sin transformation before analysis. The yield was recorded at each picking and total yield per hectare was calculated.

## RESULTS AND DISCUSSION

The results of the experiment revealed that before spraying, the larval count was uniform in all the treatments and was statistically non-significant (Table 1). At seven days after first spray, there was a significant difference between the treatments. The larval mortality was between 13.46 to