



# **Virulent HaNPV isolates for the management of *Helicoverpa armigera* (Hubner) in sunflower**

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**Abstract :** Under field condition, at 7 and 14 days, the pooled larval reduction during both spray revealed the superiority of Coimbatore and Gulbarga isolates with a average larval reduction of 51.97 and 51.82 at 7 days and 71.29 and 69.19 at 14 days, respectively. The pooled of head damage recorded during first and second spray revealed the superiority of Coimbatore, Gulbarga and Dharwad isolate which have recorded on average of 32.25, 32.88 and 35.56 per cent head damage, respectively. Gulbarga and Coimbatore HaNPV isolates also registered higher yield of 10.97 and 10.32 q/ha, respectively and also yielded highest benefit cost ratio of 3.37 and 3.43, respectively.

**Key Words :** HaNPV isolates, Sunflower head borer, Field evaluation

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## **INTRODUCTION**

Among the different species of *Helicoverpa* occurring in India, *H. armigera* is the most widely prevalent and devastating pest. It is known for its extensive host range and severe damage it causes to many food and fibre crops (Anonymous, 1977). Its economic importance as a pest is magnified due to its direct attack on fruiting structure, voracious feeding habit, high mobility, opportunist and multivoltine nature. NPV of *H. armigera* has a great potential for control of this pest and it has received a great deal of attention owing to several advantages. Considering the reliability and suitability of HaNPV in terms of economic and ecological reasons, its utilization in pest management has received a great deal of significance. However, vast differences exist in the pathogenecity and virulence of different geographic isolates of HaNPV against the local natural populations of the pest all over the world (Battu and Arora, 1996).

Sunflower is an important oilseed crop of India. The Production of this crop is seriously affected by the insect pests attacking at different stages of crop growth. Head borer is a polyphagous insect and a severe pest of sunflower responsible for causing 20-25 per cent loss in yield under normal conditions. However, some times the damage is so sever and loss goes up to 40-70 per cent. There is an immense

scope for utilization of bio-pesticides mainly the viral insecticide for the management of this notorious pest under field condition.

## **MATERIALS AND METHODS**

Field experiment was designed at the Regional Agricultural Research Station, Bijapur to evaluate the virulence of different HaNPV isolates collected from different parts of the country on sunflower. The experiment was designed with eight treatments replicated thrice with a plot size of 5m x 5 m. Two sprays were undertaken at an interval of 15 days based on the ETL of the pest. The observations were recorded on larval load per plants before the initiation of spray and 7 and 14 days after each spray. Further, head damage caused by the insect was recorded during each spray and the per cent head damage was calculated. The yield per plot was recorded and converted on per hectare basis. The data was converted to arc sin transformation before analysis.

## **RESULTS AND DISCUSSION**

The observations recorded before initiation of the spray revealed that the larval population was uniform in all the treatments and was statistically non significant (Table 1). The