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Influence of Lablab Bean Varieties on The Nuclear Polyhedrosis Virus Mortality in Larvae of *Helicoverpa armigera* (Hbn.)*

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The nuclear polyhedrosis virus (NPV) has been found to be effective in the control of *Helicoverpa armigera* (Hbn.) on several crops (Jayaraj *et al.*, 1989) including lablab been (Jayaraj *et al.*, 1987). Studies on the influence of varieties of host plants on the activity of NPV are rather limited. Rabindra *et al.* (1992) studied the effect of different chickpea varieties on the NPV - control of *H.armigera*. The present study was carried out to find out the influence of lablab bean *Dolichos lab lab* (L.) varieties on the mortality caused by NPV in larvae of *H.armigera*.

Mass culturing of the larvae was carried out in the laboratory following standard methods (Shorey and Hale, 1965; Rabindra and Jayaraj, 1988). The NPV used in this study was obtained from the stock maintained in the Department of Agricultural Entomology. The virus was propagated by inoculating either late fourth or early fifth instar larvae with the NPV concentration of 10^8 POB/ml following the methods of Rabindra and Jayaraj (1986). Diseased larvae were homogenized in distilled water, filtered through a cheese cloth and semi-purified by differential centrifugation. The strength of polyhedral occlusion bodies (POB) was assessed using an improved Neubauer haemocytometer.

Varietal influence of seven lablab bean varieties on NPV mortality of *H.armigera* was studied under laboratory conditions. The virus was tested at a dose of 10^4 POB/ml either alone or in combination with cotton seed kernel extract 10% + crude sugar 10%. The lablab bean varieties (Co 2, Co 3, Co 5, Florika field, Panthal Avarai J No. 1, Pusa prolific and Kanusward) were raised in Pulses Breeding Station of TamilNadu Agricultural University, Coimbatore. From each variety, three shoots containing buds, flowers and young pods were treated by dipping in the virus suspensions. The shoot ends were kept immersed in water taken in 100 ml conical flasks. After shade drying of the treated shoots, 10-12 second instar larvae of *H.armigera* were released per shoot for each treatment. There were three replications. After 24 h of feeding, the larvae were transferred individually to vials containing semi- synthetic diet. Observations on mortality were recorded daily for ten days.

The mortality data showed that there were significant differences on NPV mortalities in the different varieties of lablab on all the three days of observation. NPV + adjuvants gave significantly higher mortality than NPV applied alone in all the three periods of observation (Table 1).

The 10th day data showed that the virus mortality was significantly highest in Co 5 and lowest in Co 3. This difference between Co 5 and Co 3 was seen in the 5th and 7th days also. The interaction between treatments and varieties was significant only in the 10th day. On all the varieties, addition of adjuvants significantly enhanced the mortality due to NPV.

The difference in moralities may largely be attributed to differences in feeding rates. Feeding preference of larvae may influence the NPV mortality in insects. Larvae feeding on host plants supporting better growth are more susceptible to virus. High food quality and good insect growth were positively correlated with increased mortality due to GmNPV in *Galleria mellonella* L. larvae (Schultz and Keating, 1991). Level of resistance in the crop varieties to the insect may also influence the mortality due to NPV. In chickpea, *H.armigera*

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Table 1. Varietal influence of lablab bean on the mortality caused by HaNPV in second instar larvae of *H.armigera* at a dose of 10^4 POB/ml

Varieties	% Larval mortality days after inoculation								
	5			7			10		
	NPV	NPV + adjuvant*	Mean	NPV	NPV + adjuvants	Mean	NPV	NPV + adjuvants	Mean
Co 2	3.33 (6.14)	26.67 (30.99)	15.00 (18.57)	13.33 (21.14)	40.00 (39.14)	26.67 (30.14)	20.00 (26.56)	60.00 (50.76)	40.00 (38.66)
Co 3	3.33 (6.14)	23.33 (28.78)	13.33 (17.46)	6.67 (12.29)	36.67 (37.22)	21.67 (24.75)	10.00 (18.43)	56.67 (48.84)	33.33 (33.64)
Co 5	16.67 (23.85)	36.67 (37.22)	26.67 (30.53)	33.33 (35.21)	56.67 (48.84)	45.00 (42.03)	40.00 (39.23)	66.67 (54.78)	53.33 (47.00)
Florika field	13.33 (21.14)	33.33 (35.21)	23.33 (28.78)	26.67 (30.99)	46.67 (43.07)	36.67 (37.03)	33.33 (35.21)	60.00 (50.76)	46.67 (42.99)
Panthal Avarai J No 1	13.33 (21.14)	33.33 (35.21)	23.33 (28.78)	23.33 (28.18)	50.00 (45.00)	36.67 (36.89)	30.00 (33.21)	56.67 (48.84)	43.33 (41.02)
Pusa Prolific	13.33 (21.14)	30.00 (33.21)	21.67 (27.17)	23.33 (28.78)	50.00 (45.00)	36.67 (36.89)	33.33 (35.21)	56.67 (48.84)	45.00 (42.03)
Kanusward	10.00 (15.00)	23.33 (28.78)	16.67 (21.89)	13.33 (21.14)	40.00 (39.14)	26.67 (30.14)	16.67 (23.85)	60.00 (50.76)	38.33 (37.31)
Mean	10.48 (16.36)	29.52 (32.77)		20.00 (25.47)	45.71 (42.49)		26.19 (30.24)	59.52 (50.51)	
C.D. for varieties		7.51**			5.62**			3.00**	
C.D. for treatments		4.01**			3.00**			1.60**	
C.D. for interaction		NS			NS			8.77**	

* Cotton seed kernel extract 10% + Crude sugar 10%
Figures in the parentheses indicate angles corresponding to percentages

larval mortality due to NPV was found to be significantly higher on *Heliothis*- susceptible varieties (Shoba and Annigeri) than on the resistant accessions (ICC 506 and ICC 10817) (Rabindra *et al.*, 1992).

KEYWORDS: Lablab bean, NPV, *Helicoverpa armigera*

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