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INFLUENCE OF NUCLEAR POLYHEDROSIS ON MOULTING IN THE LARVAE OF *PERICALLIA RICINI* F.

Jacob *et al.* (1972) recorded a nuclear polyhedrosis in the larvae of *Pericallia ricini* F, Nair and Jacob (1976) investigated the nature and properties of the pathogen and the host-pathogen relationships. The present paper reports the effect of infection by the virus on the moulting pattern in the larvae of *P. ricini,*

Fifty larvae each of the early third and early fourth instars were used in these experiments. Each larva was fed with 5 μl of virus suspension containing 33 x 10^7 PIBs/ml by the spot feeding technique (Jacob, 1972). Teepol (0.1 per cent) was used as a wetting agent. Another set of 50 larvae of each instar fed similarly with 5 μl distilled water containing 0.1 per cent teepol served as control. The treated and untreated larvae were kept individually in plastic containers and provided with fresh castor (*Ricinus communis* L.) leaves every day.

The results show that out of 50 third instar larvae inoculated with the virus 44 larvae underwent the subsequent moulting and entered the fourth instar. But all of them died of virus infection. before the subsequent moult. In the case of fourth instar larvae inoculated with virus, all had moulted to the fifth instar. But subsequently, only 14 larvae moulted to the sixth instar The remaining 36 larvae died of nuclear polyhedrosis in the fifth insirar itself, 19 of them succumbing before the normal period of the subsequent moulting and 17 beyond this period. Of the 14 larvae which had moulted to the sixth instar, only 7 could enter the pupal stage. The remaining seven larvae died due to virus infection, two of them having died beyond the normal period of pupation indicating inhibition of moulting in them.

These results show that virus infection did not interfere with the first moulting which occurred within four days after inoculation in the third and fourth instar larvae, but it inhibited the subsequent moultings in the later stages of infection. The third instar larvae being more susceptible to the virus, died soon after the first moult and no interference in the moulting process was manifested in them. But when the larvae were inoculated in the fourth instar, inhibition of moulting was evidenced in the later stages. These larvae which survived beyond the normal period of next moult in the fifth and sixth instars failed to moult again and finally succumbed to the virus Jacob and Subramoniam (1974) reported that the nuclear polyhedrosis inhibited moulting in *Spodoptera litura* F. in the later stages of infection. Rabindra and Subramaniam (1975} also made similar observations in the larvae of *Heliothis armigera* (Hbn) infected with NPV.

The hormonal control of moulting and metamorphosis is now well established. The neurosecretory cells of the brain regulate the activity of the endocrine glands. Morris (1970) observed an apparent reduction in the amount of neurosecretion in the brain after NPV infection in *Lambdina fisceltaria somniaria* and *Orgyia pseudatsugata*. It is possible that in the present instance also, the virus infection might have interfered with the neurosecretory activity leading to consequent moulting disturbances. Moreover the virus also infects the hypodermis and renders it inactive and non-responsive to activation by the prothoracic glands for the deposition of a new cuticle. Thus the inhibition of moulting observed in the present instance may either be due to interference in the hormonal balance or inactivation of hypodermis or both as suggested by Jacob and Subramoniam (1974).

സംഗ്രഹം

ന്യൂക്ലിയർ പോളിഹീഡ്രോസിസ് വിഷാണുബാധമൂലം *പെരിക്കാലിയ റിസിനി* പുഴുവിന്റെ നിർമോചന പ്രക്രിയ (പടം പൊഴിക്കൽ) തടസ്സപ്പെടുത്തുന്നതായി കണ്ടു. വിഷാണു ബാധയുടെ പ്രാരംഭദശയിൽ ഉണ്ടാകുന്ന നിർമോചനം തടസ്സപ്പെട്ടിരുന്നില്ല. എന്നാൽ രോഗമൂർഛ നിർമോചനത്തെ തടസ്സപ്പെടുത്തുകയുണ്ടായി.

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