GAU Res. J. 1989. 15 (1) : 89–90

Viral and Rickettsia-like-Organisms Associated with Castor Semi Looper, *Achaea janata* Linn.

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Achaea janata Linn. (Lepidoptera : Noctuidae) is the most important pest of castor. Greater attention has been paid in the recent years to control the pest with biological control agents. Arthropod natural enemies of the pest have been reported (Patel and Yadav, 1979; Thobbi *et al.*, 1976; Narasimharao, 1980). But very scanty information is available on the pathogens associated with this pest. (Pawar, 1980; Srivastava, 1985). The present note reports the occurrence of the pathogens causing disease in the larvae of *A. janata.*

Periodical field collections of *A. janata* larvae revealed the presence of Granulosis Virus (GV) which accounted for a maximum of 57.14 per cent mortality in the larvae (Table 1). The infected larvae showed symptoms like sluggishness, loss of appetite, loosening of intersegmental membrane and turning pale white ventrally. The cuticle did not rupture as in case of nuclear polyhedrosis virus. On puncturing a characteristic milky white haemolymph was observed in the diseased larvae. Microscopic examination showed large number of bright small ellipsoidal granules showing brownian movement.

TABLE 1
Incidence of granulosis virus of *Achaea janata* Linn. during 1985.

Date of collection	*Place of collection*	*No. of larvae collected*	*Per cent GV infection*
1st October to 30 th October	Antroli	239	43.51
7th October	Anand	20	10.00
10th October	Mohamadpura	43	23.25
10th October	Bhatera	7	57.14

Pathogenicity of the virus was proved with *A. janata* using Koch's postulates. This happens to be the first record of GV infection in *A. janata* from Gujarat. A few larvae also showed symptoms of nuclear polyhedrosis virus infection, which was confirmed microscopically. Apart from these (an unknown pathogen) was observed causing heavy mortality in the laboratory colonies of *A. janata* which was later on identified by Dr. Jean Adams of USDA, Beltsville, Maryland, USA as Rickettsia-like-organism (RLO). A few larvae showed presence of both RLO and GV.

The RLO infected larvae exhibit stunting, delayed development, develop tan-coloration, do not liquefy and become stiff after death. The electron microscopic examination conducted by Dr. Adams revealed the pointed narrow elementary body measuring 0.23 mu in diameter and 0.2 — 0.7 mu long and the reticulate round form (mother form) measuring 0.36—0.61 mu in diameter. This is the first report of Rickettsial infection in insects from India. The pathogen however, has been reported infecting larvae of *Trichoplusialni*, *Heliothis virescens* and other 15 lepidopterans. (Adams, Personal communication), a coleopteran *Harpalus rufipes*, (Carter & Luff, 1977) and in amphipod *Rivulogammarus pulex* (R. Larsson, 1982).

The authors are grateful to Indian Council of Agricultural Research for financing and Dr. Jean R. Adams, USDA, ARS, Beltsville, Maryland, USA for identifying the pathogens and their electron micrographs.

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