

**Occurrence of the Entomopathogenic Fungi *Nomuraea rileyi* (Farlow) Samson on *Acontia graellsii* F. (Noctuidae: Lepidoptera) and *Beauveria bassiana* (Balsamo) Vuill. on *Mylocerus subfaciatus* G. (Curculionidae: Coleoptera)**

M. GOPALAKRISHNAN AND K. NARAYANAN  
Division of Entomology and Nematology

Indian Institute of Horticultural Research, Hessaraġhatta Lake Post, Bangalore 560 089

The bhendi semilooper, *Acontia graellsii* F. though a minor pest, at times causes severe damage to the bhendi leaves, while *Mylocerus subfaciatus* G. the brinjal ash weevil, causes damage to the leaves. The damage caused by the larvae in soil to the roots often leads to wilting of the affected plants. During the course of our survey for entomopathogens on insect pests of horticultural crops at Indian Institute of Horticultural Research Farm, Hessaraġhatta, Bangalore, we isolated two fungal pathogens from the infected insects of *A. graellsii* on bhendi and *M. subfaciatus* on brinjal.

The fungus infected caterpillars of *A. graellsii* became hard and mummified and found adhering to the leaves with their prolegs fixed and the anterior head and abdominal region slightly raised (Fig. 1). The fungus showed white mycelial growth ramifying the entire body of the caterpillar. The infected caterpillars when kept on moist filter paper in a pair of petri dish at 25-27°C the fungus sporulated profusely. The spores were pale green in colour.

The fungus from *A. graellsii* was isolated into pure culture on Sabouraud maltose agar enriched with 1% yeast, where it grew well and sporulated profusely. The spores were pale green in colour and ellipsoidal in shape measuring 3.0-4.5  $\mu\text{m}$ . The fungus from *M. subfaciatus* was isolated into pure culture on Sabouraud dextrose agar where it grew well and sporulated profusely and the spores were muscardine in colour and globose in shape

measuring 1.7-2.5  $\mu\text{m}$ . Based on the detailed morphological characters, the fungal pathogens were identified as *Nomuraea rileyi* (Farlow) Samson on *A. graellsii* and *Beauveria bassiana* (Balsamo) Vuill. on *M. subfaciatus*. Our preliminary identification was later confirmed by Dr. Humber Boyce Thompson Institute, New York (Personal communication).

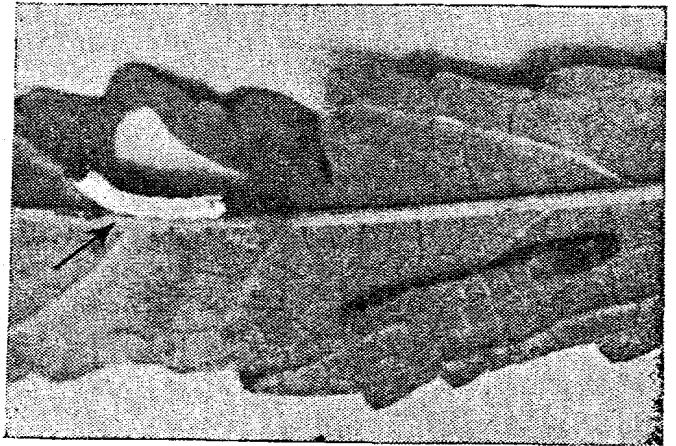


Fig. 1. *Nomuraea rileyi*-infected semilooper *A. graellsii*

The pathogenicity tests with the fungal pathogens have proved that they were highly virulent inflicting cent per cent mortality of their host insects in 5-8 days at 25-27°C and relative humidity 80-90%. Both the fungal pathogens were reisolated from such infected insects satisfying the Koch's postulates.

The occurrence of *N. rileyi* has been reported on *Diacrisia obliqua* (Singh and Gangrade, 1975) and on tobacco leaf eating caterpillar, *Spodoptera litura* (Rao and Padke, 1977) and *B. bassiana* on cabbage semilooper

*Trichoplusia ni* (Urs *et al.*, 1965), rice pests (Rao, 1975; Srivastava and Nair, 1978; Nayak and Srivastava, 1979; Israel and Padmanabhan, 1980), banana leaf beetle (Roy and Pujari, 1979) and sugarcane shoot borer *Chilo infuscatellus* Snell. (Easwaramoorthy and Santhalakshmi, 1988) from India. This communication is the first report of *N. rileyi* on *A. graellsii* and *B. bassiana* on *M. subfaciatus* from India.

#### ACKNOWLEDGEMENTS

The authors are grateful to Mr. D.L. Shetty and Mr. N. Subbaiah for technical help, to the Director, Indian Institute of Horticultural Research, Bangalore for providing laboratory facilities and to Dr. R.A. Humber, Boyce Thompson Institute, Ithaca, New York, U.S.A. for confirming the identity of the fungal pathogens.

KEY WORDS : *Acontia graellsii*, *Nomuraea rileyi*, *Mylocerus subfaciatus*, *Beauveria bassiana*.

#### REFERENCES

- Easwaramoorthy, S. and Santhalakshmi, G. 1988. Occurrence of a fungal disease on sugarcane shoot borer, *Chilo infuscatellus* Snell. *Entomon*, **12**, 394.
- Israel, P. and Padmanabhan, S.Y. 1980. Biological control of stem borers of rice in India. *Final Tech. report (U.S.P.L. 480 Project)*, Cuttack, India, CRRI, ICAR. 155 pp.
- Nayak, P. and Srivastava, R.P. 1979. Occurrence of *Beauveria bassiana* (Bals.) Vuill. on certain rice pests. *Indian J. Ent.*, **41**, 99-100.
- Rao, P.S. 1975. Wide spread occurrence of *Beauveria bassiana* on Rice pests. *Curr. Sci.*, **44**, 441-442.
- Rao, V.G. and Padke, C.H. 1977. A muscardine disease of tobacco leaf-eating caterpillar. *Curr. Sci.*, **46**, 648-649.
- Roy, A.K. and Pujari, K.C. 1979. Infection of Banana leaf beetle by *Beauveria bassiana* (Bals.) Vuillemin. *Curr. Sci.*, **48**, 115-116.
- Singh, O.P. and Gangrade, G.A. 1975. Parasites, predators and diseases of larvae of *Diacrisia obliqua* Walker (Lepidoptera :Arctidae) on soybean. *Curr. Sci.*, **44**, 481-482.
- Srivastava, R.P. and Nayak, P. 1978. A white muscardine disease on BPH of rice. *Curr. Sci.*, **47**, 355-356.
- Urs, N.V.R.R., Govindu, H.C. and Shivasankara Sastry, K.S. 1965. A preliminary study of white muscardine fungus on cabbage semilooper from Mysore. *Curr. Sci.*, **34**, 382-383.

*J. Biol. Control*, 2(1),59-61, 1988

### Effect of Leaching on the movement of Nuclear polyhedrosis virus of *Heliothis armigera* in soil.

K. NARAYANAN\* and S. JAYARAJ  
Centre for Plant Protection Studies

Tamil Nadu Agricultural University, Coimbatore 641 003,

Studies on some insect polyhedral inclusion viruses have shown that inclusion viruses may persist for long periods in the soil (Jaques, 1964; David and Gardiner, 1976). Polyhedral occlusion bodies (POB) appear to be adsorbed quite firmly onto soil particles (Hukuhara and Namura, 1971; Hukuhara and Wada, 1972; Narayanan *et al.*, 1987). Leaching is one of the several factors which influence the persistence of an insect virus in soil. The present study reports the effect of leaching on

the persistence of nuclear polyhedrosis virus (NPV) of *Heliothis armigera* in a column of black soil in the laboratory, using polyhedra prelabelled with an isotope  $^{32}\text{P}$ .

The isotope was obtained from Bhabha Atomic Research Centre (BARC), Trombay, Bombay. A suitable technique of incorporating the labelled  $^{32}\text{P}$  into the larval semisynthetic diet (Narayanan, 1979) was developed as follows. "Carrier-free"  $^{32}\text{P}$  as orthophosphoric acid having a specific activity of 15-20  $\mu\text{Ci}$ , was applied @ 0.02 ml per diet disc of

\*Scientist S<sub>3</sub>, National Centre for IPM, Bellary Road, Bangalore 560 024