

Outbreak of Mealybugs and Record of their Natural Enemies on Pomegranate

M.MANI and A.KRISHNAMOORTHY

Division of Entomology and Nematology

Indian Institute of Horticultural Research, Bangalore - 560 089

About 45 species of insects are known to attack pomegranate (*Punica granatum* L.) in India (Butani, 1976). While surveying for the natural enemies of pomegranate insects during 1986-1989, three mealybug species namely *Planococcus citri* (Risso), *Planococcus lilacinus* (Ckll.) and *Nipaecoccus viridis* (Newstead) were recorded around Bangalore as indicated in Table 1.

Among them, *N. viridis* was observed as a minor pest in one of the pomegranate orchards at Devanahalli in 1986. *P. lilacinus* and *P. citri* occurred together in severe form in Block No.2 of I.I.H.R. Farm in 1987 where 42.75 per cent of the plants were affected by the mealybugs. *P. citri* alone appeared in 1986 at P.N. Shetty Estate, Mysore Road (25% infestation) but the outbreak of the mealybug was observed in severe form at Block No.9 of I.I.H.R. Farm in February 1989 in which 78.60% of the plants

were severaly infested with the mealybug. Mealybugs occurred on the stem, leaves, flowers and fruits. Fruits covered with the mealybugs loose the market value. Mealybug infestations were more pronounced in summer months and less in winter months.

The activity of the natural enemies was observed only in Block No.2 (Table 1). Among the natural enemies, *S. epius* and *C. montrouzieri* fed voraceously and cleared the mealybugs on fruits.

Only two mealybug species Viz., *P. lilacinus* and *Ferrisia virgata* have been recorded on pomegranate so far in India (Nayar *et al.*, 1976). But the severity of the mealybugs especially *P. citri* has been reported for the first time in the present paper in India. However *P. citri* has been recorded as a pest in Iran (Bodenheimer, 1944), Palestine (Rivnay,

Table 1. Mealybugs and their natural enemies on pomegranate

Mealybug species	Natural enemies		Period of activity
	Species	Family & Order	
<i>Planococcus lilacinus</i> (Ckll.)	<i>Triommata coccidivora</i> (Felt.)	Cecidomyiidae Diptera	September, 1987
	<i>Spalgis epius</i> Westwood	Lycanidae, Lepidoptera	July to September, 1987
	<i>Cryptolaemus montrouzieri</i> Muls.	Coccinellidae, Coleoptera	August and September, 1987
	<i>Scymnus coccivora</i> Ayyar		
	<i>Cacoxenus perspicax</i> (Knab)	Drosophilidae, Diptera	July, 1987
<i>P. citri</i> (Risso)	<i>Leptomastix dacylopii</i> How.	Encyrtidae Hymenoptera	October, 1987
<i>Nipaecoccus viridis</i> (Newstead)	—	—	—

1945), Israel (Rivnay, 1960), USSR (Niyazov, 1972) and Egypt (EL-Rahn *et al.*, 1974). In France, *N. viridis* has been listed as *Pseudococcus filamentosus* Ckll. affecting the young pomegranate plants (Frappa, 1931).

The outbreak of the mealybugs in recent years could be attributed to certain agricultural practices, ecological factors and the use of chemical pesticides. The pesticides are not effective in controlling the mealybugs but are known to disturb their natural enemies as indicated by Manjunath (1986). The activity of the natural enemies was observed only in Block No. 2 where the insecticidal sprayings were suspended. In the other orchards particularly in Block No. 9, frequent application of insecticides like monocrotophos and methyl parathion eliminated the local parasitoids and predators resulting in the outbreak of *P. citri*.

Since the insecticides do not provide adequate mealybug control, it is suggested to try the natural enemies like *L. dactylopii* against *P. citri* and *C. montrouzieri* against all the mealybug species when they appear in the field. Besides, the natural enemies occurring under natural condition can also be exploited under conservation and augmentation programmes.

ACKNOWLEDGEMENTS

The authors are thankful to the Director, Indian Institute of Horticultural Research, Bangalore, for providing facilities and Mr. G.L.

Pattar, Technical Officer, for his help in conducting the studies.

Key Words : Mealybug, natural enemies, pomegranate

REFERENCES

- BODENHEIMER, F.S. 1944. Note on the coccoidea of Iran with descriptions of new species (Hemiptera, Homoptera). *Bull. Soc. Fouad, I^{er} Ent.*, 28, 85-100.
- BUTANI, D.K. 1976. Insect pests of fruit crops and their control. 21. Pomegranate. *Pesticides*, 10, (6) 23-26.
- EL-RAHN, W.A.A., SALAM, M.A., WAHAB, A.A. and KEDR, H. 1974. Evaluation of some insecticides for the control of pomegranate butterfly and citrus mealybug and their effects on physical and chemical characteristics. *Indian J. Agric. Sci.*, 44, 862-865.
- FRAPPA, C. 1931. Sur la prescence a Madagascar de *Pseudococcus filamentosus* Ckll. Cochenillenuisible aux Cafiers. *Rev. Path. Veg. Ent. Agric.*, 17, 305-311.
- MANJUNATH, T.M. 1986. Recent outbreaks of mealybugs and their biological control. In "Resurgence of sucking pests - Proc. Natnl. Symp." (S. Jayaraj ed.). Tamil Nadu Agric. Univ., Coimbatore, 1986, pp. 249-253.
- NAYAR, K.K. ANANTHAKRISHNAN, T.N. and DAVID, B.V. 1976. *General and Applied Entomology*, Tata McGRAW-Hill Publishing Company Limited, New Delhi, pp. 589.
- NIYAZOV, O.D. 1972. The food relationships of *P. citri* in Turkmenia. *Biologiches Kikh. Nauk*, 4, 68-71.
- RIVNAY, E. 1945. Notes on encyrtidae from Palestine with description of a new species. *J. Ent. Soc. Sthn. Agric.*, 8, 117-122.
- RIVNAY, E. 1960. Notes on the parasites of *Planococcus citri* in Israel. *Ktavim*, 10, 223-224.