Indian Journal of Applied Entomology **21**(2) : 114-115 (2007)

COMPARATIVE FEEDING BEHAVIOUR OF COCCINELLID BEETLES

The mustard aphid, *Liaphis erysimi* (Kalt.) is the most serious pest of mustard (Rai, 1976 and Bakhetia, 1986), causing 9.0 - 95.0 per cent losses to the seed yield in different states of India (Rohilla *et al.*, 1987 and Singh and Sachan, 1994). The coccinellids, *Coccinella septempunctata* L. and *Menochilus sexmaculatus* Fab. play a significant role in natural reduction of the aphid population (Saharia, 1984, Kalra, 1988 and Rana *et al.*, 1995). The present investigation was carried out to evaluate the feeding behaviour of these two more common ladybird beetles.

It is evident from Table 1 that IV instar grub of *C. septempunctata* and *M. sexmaculatus* consumed more individuals of aphid than the unstarved adults. The 24 h starved adults of *C. septempunctata* and *M. sexmaculatus* consumed more aphids as compared to unstarved adults. Similar results were also observed by Ali *et al.* (1994), Sun and Wan (2000) and Lekha and Jat (2002). The I, II and III instar grubs of *C. septempunctata* happened to feed relatively lesser number of aphids.

Table 1. Feeding potential of coccinellid beetles on mustard aphid, *L. erysimi* under laboratory conditions

Predators	No. of aphid eaten during 24 hrs. (mean of 10 replicates ± SD)							
Ist	IInd Instar	IIIrd Instar	IVth Instar	Adult Instar	Adult Male	Adult Female	Adult Male*	Female*
C. septempunctata	18.70 ± 1.89	24.10 ± 5.17	44.30 ± 4.54	64.40 ± 4.62	50.00 ± 3.20	55.50 ± 3.89	71.70 ± 3.13	75.00 ± 4.40
M. sexmaculatus	14.30 ± 2.75	20.60 ± 4.88	40.60 ± 4.88	60.30 ± 3.59	48.70 ± 3.68	52.80 ± 3.08	68.30 ± 3.33	72.60 ± 2.50

* Adults starved for 24 h

Initial culture was raised by rearing the coccinellids (*Coccinella septempunctata* Linn. and *Menochilus sexmaculatus* Fab.) collected from a mustard field at the college farm. Glass jars (2.8 lit. capacity) were used for rearing the insects. Mustard aphid (*Lipaphis erysimy* Kalt.) was provided as food. The adults after emergence were sexed by observing the abdominal slit with the aid of a stereoscopic binocular. The first, second, third and fourth instar grubs of *C. septempunctata* and *M. sexmaculatus* were released separately in glass jars (6.5 × 4.5 cm) and provided 100 aphids along with young mustard shoots in each jar as food. Similarly, adults of *C. septempunctata* and *M. sexmaculatus* were released separately in other jars and provided 100 aphids per beetle. The experiment was laid out as a complete randomized design (CRD) in the laboratory with two treatments replicated ten times. The observations 100 aphids wihtout predator was kept as control. Since, the number of aphids provided as food to the predator was always in excess, the actual number of aphids consumed in 24 h was calculated by counting the number of remaining aphids and substracting them from the total number of aphids provided. The data obtained were converted into the actual number of aphids consumed by predator, by using the formula.

$$X = R - (T + C)$$

Where,

X = Actual number of aphids consumed by predator
R = Total number of aphids released in treatment
T = Number of live aphids in treatment
C = Number of aphids dead in control

The authors are grateful to the Head, Department of Entomology and Dean, S.K.N. College of Agriculture, Jobner for providing necessary facilities for investigation.

REFERENCES

Ali, S.S., Rizvi, N.H., Hussain, T., Naqvi, S.S.H., Ahmad, M. and Shakoori, A.R. 1994. Searching a predatory efficiency of *Coccinella septempunctata* Linn. under laboratory conditions on safflower aphid. *Proceeding of Pakistan Zoological Congress* **12**: 305-308.

Baketia, D.R.C. 1986. Pest management in rapeseed and mustard. *Pesticides*, **20**: 32-38.

Kalra, V.K. 1988. Population dyamics of various predators associated with mustard aphid, *Lipaphis erysimi* (Kalt.). *Journal of Biological*, **2**: 77-79.

Lekha and Jat, B.L. 2002. Feeding propensity of different coccinellid predators on *Hyadaphis coriander*i (Das). *Indian Journal of Plant Protection*, **30**: 84-85.

Rai, B.K. 1976. *Pest of oilseed crop in India and their control.* pp 121. Indian Council of Agricultural Research (ICAR), New Delhi.

Rana, J.S., Khakhar, K.S. and Dahiya, K.K. 1995. Pattern of predation of mustard aphid, *Lipaphis erysimi* (Kalt.) by lady bird beetle, *Coccinella septempunctata* Linn. on mustard crop. *Crop Research*, **10**: 85-89.

Rohilla, H.R., Singh, H., Kalra, V.K. and Kharub, S.S. 1987. Losses caused by mustard aphid, *Lipaphis erysimi* (Kalt.) in different *Brassica* genotypes. *Proceedings of 7th International Rapeseed Congress*, **5**: 1077-1083.