J. Biol. Control, 19(1): 77-80, 2005

Research Note

Preliminary study on the performance of *Mallada boninensis* (Okamoto) against *Aleurocanthus woglumi* Ashby on citrus

D. A. INGOLE, V. Y. DEOTALE, R. O. DEOTALE and J. RAMKUMAR
Entomology Section, College of Agriculture
Nagpur 440 001, Maharashtra, India

ABSTRACT: ***Mallada boninensis*** **(Okamoto) eggs and first instar larvae were released thrice against *Aleurocanthus woglumi* Ashby at an interval of 15 days. Cumulative per cent reduction in the population of *A. woglumi* at the end of third release was recorded and the comparison was made between the treatments. The highest cumulative per cent reduction of 70.24 was recorded in malathion sprayed trees. Amongst various dosages/ stages of *M. boninensis*, release of eggs @ 6 and 4 number/ shoot recorded 36.72 and 34.65 per cent cumulative reduction in *A. woglumi* population and was found to be more effective than other dosages.**

KEY WORDS: *Aleurocanthus woglumi*, field releases, *Mallada boninensis*

Chrysopids are important natural enemies of several insect pests and constitute a prominent group of predators due to their amenability to mass production and use in different ecosystems. The green lacewing, *Mallada boninensis* (Okamoto) has been reported as a predator on nymph of citrus blackfly, *Aleurocanthus woglumi* Ashby from Nagpur region (Satpute, 1992). It has a great potential for use as a biocontrol agent against other soft bodied insect pests like citrus aphids, whiteflies, citrus psylla and mealybugs (Anonymous, 1997). Larvae of *Chrysoperla* spp. have been reported occasionally predating on all developing stages of *A. woglumi* (Dietz and Zetek, 1920). Keeping in view the above information, the studies were undertaken at College of Agriculture, Nagpur by releasing eggs and first instar larvae of *M. boninensis* at different doses against *A. woglumi* on citrus.

An experiment was conducted on Nagpur mandrin with eight treatments having having four replications in a randomized block design at the Entomology Section, College of Agriculture, and Nagpur during 2001-02. For the field release study, culture of *M. boninensis* was maintained on *Corcyra cephalonica* in the Biocontrol Laboratory of Entomology Section, College of Agriculture during the entire period of experimentation. The releases were made at 15 days interval and observations were taken at 7 days interval and continued up to 15 days after third release/ second spraying.

The treatments imposed were as detailed below:

1. Two eggs of *M. boninensis*/ shoot
2. Four eggs of *M. boninensis*/ shoot
3. Six eggs of *M. boninensis*/ shoot

4. Two first instar larvae of *M. boninensis*/ shoot
5. Three first instar larvae of *M. boninensis*/ shoot
6. Four first instar larvae of *M. boninensis*/ shoot
7. Malathion (0.05%) spray
8. Control (water spray)

The cages were designed locally in the laboratory for the release of *M. boninensis*. For the construction of release cage two metallic bangles (6-7cm diam) were tied with the help of metal wire at a distance of 15-20cm, resulting in to a small round cylinder, which was covered with muslin cloth. For eggs and larvae release, the infested shoots from new foliage were selected. After taking the population counts of *A. woglumi*, the leaves were labeled and eggs and larvae of *M. boninensis* were released on shoots placed in the cages. The open ends of each cage were secured with the help of thread at the posterior end and with the rubber band at the anterior end.

The results indicated that all the treatments were significantly superior over control in reducing the population of *A. woglumi* (Table 1). Among the different treatments, malathion (0.15%) was found most effective recording the maximum cumulative per cent reduction of the pest population (70.24%).

The treatment - 6 eggs of *M. boninensis*/ shoot was found to be next best recording 36.72 per cent cumulative reduction in *A. woglumi* population and was significantly superior over rest of the treatments.

Three treatments, *viz.* release of two and three eggs/ shoot, and three larvae/ shoot of *M. boninensis* were found on par with each other registering 27.45, 27.14 and 28.01 per cent reduction in the pest population, respectively. None of the doses of *M. boninensis* proved as effective as malathion (0.15%) spray. However, release of *M. bonenensis* eggs @ 6 eggs and 4 eggs/ shoot were promising. Bavanthade (1997) and Wadhai (2001) observed similar trend in respect of population reduction of the pest.

Table 1. Mean per cent reduction of *A. woglumi* by *M. boninensis* 15 days after third release

Sl. no.	Treatment	Mean cumulative population reduction (%)
1.	Two eggs of *M. boninensis*/ shoot	27.45 (31.58)
2.	Four eggs of *M. boninensis*/ shoot	34.65 (36.04)
3.	Six eggs of *M. boninensis*/ shoot	36.72 (37.27)
4.	Two first instar larvae of *M. boninensis*/ shoot	27.14 (31.38)
5.	Three first instar larvae of *M. boninensis*/ shoot	28.01 (31.93)
6.	Four first instar larvae of *M. boninensis*/ shoot	31.41 (34.06)
7.	Malathion (0.15%)	70.24 (56.92)
8.	Control (water spray)	6.85 (15.14)
	SEM± CD (p=0.5) CV (%)	0.27 0.79 1.57

Figures in parentheses are arcsine-transformed values.

REFERENCES

Anonymous. 1997. Multiplication of chrysopid predator, *Mallada boninensis* (Okamoto). National Research Centre of Citrus, Nagpur. Extension Folder, No. 3: 1-2.

Bavanthade. 1997. Biology, predation and field release of *Mallada boninensis* (Okamoto) on citrus blackfly. M. Sc. (Agri.) thesis, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, Maharashtra State, India.

Dietz, H. F. and Zetek, J. 1920. The blackfly of citrus and other sub-tropical plants. *United States Department of Agriculture Bulletin*, **885**: 55.

Satpute, P. P. 1992. Studies on bionomics of citrus blackfly, *Aleurocanthus woglumi* Ashby, its biotic agents and population management. Ph. D. thesis, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, Maharashtra State, India.

Wadhai, P. B. 2001. Biology and field release of *Mallada boninensis* (Okamoto) against citrus blackfly. M. Sc. (Agri.) thesis, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, Maharashtra State, India.