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Influence of artificial diets on the development of *Mallada boninensis* Okamoto

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ABSTRACT

The present investigation was carried out at Entomology Section, College of Agriculture, Nagpur, during 2004-2005, with a view to standardize mass rearing technique of *Mallada boninensis*. Ten different types of diets were used and studies were made on the effect on biological parameters *viz*., larval period, pupation per cent, pupal period, premoting period, mating period, pre-oviposition period, oviposition period, fecundity, female longevity, incubation period and per cent of viable eggs of *Mallada boninensis*. Considering all diets together, eggs of *Corcyra cephalonica* performed best followed by Venkatesan's diet-2, proposed diet-3, Venkatesan's diet-1, proposed diet-1 and Pushpalathas's diet. The predator grows faster on eggs of *Corcyra* than artificial diets.

Key words : *Mallada boninensis,* Diets, Larval period, Pupal period, Fecundity.

Number of natural enemies of insect pests, which co-exist with them in different ecosystem. Amongst a very complex network of bioagents, the Chrysopid is known to be the most effective predator. *Mallada boninensis* Okamoto (Neuroptera: Chrysopidae) is the predominant species. It has a great potential to use as biocontrol agent against citrus aphids, whiteflies, citrus psylla and mealy bugs. The natural population of this bioagent in the field is not adequate to suppress the increased population of the prey. Therefore, it becomes necessary to mass produce them in laboratory for release in the field. Rearing in captivity needs good diet. In the efforts to mass rear them, the present investigation was carried out.

MATERIALS AND METHODS

The present laboratory experiment was carried out in Biocontrol laboratory of Entomology Section, College of Agriculture, Nagpur (M.S.) during the year 2004-2005. The experiment was laid in completely randomized block design in which ten different types of diets were used (Table 1) and each one was replicated thrice. The test bioagent was obtained from the laboratory reared culture and further reared on different artificial diets. A set of 10 larvae of *M. boninensis* was used for each treatment. Various biological parameters *viz*., larval, pupal, adult and egg stages were recorded. Economics of diets were also calculated. The obtained data were subjected to appropriate statistical analysis.

RESULTS AND DISCUSSION

It is inferred from the data given in Table 2, that the eggs of *Corcyra cephalonica* found superior as a laboratory host for *M. boninensis* in all the biological parameter studied in present experiment except pre-oviposition period, oviposition period and female longevity. Amongst the artificial diets, proposed diet 5, Venkatesan's diet-2, Pushpalathas's diet and Venkatesans diet-3

Table 1 : Ingredients required for the preparation of 100 g artificial diet for used rearing of *Mallada boninensis* larva (in g)

Sr.No.	Ingradients	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
1.	Hydrolysed soybean powder	1.3	-	-	-	-	2.00	-	-	-
2.	Soybean powder	-	1.3	-	-	-	-	2.50	-	3.70
3.	Multi vitamin	0.6	-	-	-	1.00	1.00	1.00	0.8	0.4
4.	Vitamin-E	0.6	-	-	-	1.00	1.00	1.00	0.8	0.4
5.	Egg yolk	31.9	32.3	32.3	42.01	41.9	25.00	25.00	25.00	26.00
6.	Honey	15.90	16.10	16.10	4.20	15.11	15.00	15.00	15.00	15.00
7.	Yeast extract	1.3	1.3	1.3	1.68	1.3	1.40	1.40	1.50	1.40
8.	Petroleum jelly	0.7	0.7	0.7	-	0.6	0.6	0.6	0.7	0.6
9.	Paraffin wax	9.5	9.6	9.6	-	9.5	9.5	9.5	9.6	9.5
10.	Wheat germ powder	-	-	1.3	-	-	-	-	2.10	-
11.	Wheat flour	-	-	-	-	1.3	-	-	-	-
12.	*C. cepholonica* abdomen powder	-	-	-	1.68	-	-	-	-	-
13.	Albumin (white of egg)	-	-	-	-	-	6.50	6.00	6.50	3.50
14.	Water (ml)	38.2	38.7	38.7	50.42	38.29	38.00	38.00	38.00	40.00