Improvement in the culturing technique for *Cyrtorhinus lividipennis* Reuter (Hemiptera: Miridae)

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ABSTRACT: **Experiments were carried out to improve the culturing technique of the mirid bug *Cyrtorhinus lividipennis* for the biological control of hoppers in rice. *Corcyra cephalonica* eggs pasted on the rice pseudostem and the rice seedlings served as food and oviposition substrate, respectively, for the mirid. The results indicated an increase in the culturing efficiency to a tune of about 10 to 25 per cent over Bentur and Kalode's method.**

KEY WORDS: *Corcyra cephalonica*, culturing technique, *Cyrtorhinus lividipennis*, mirid

The predacious mirid, *Cyrtorhinus lividipennis* Reuter preys on eggs of the plant and leafhopper pest complex of rice in Asia and Pacific (Liquido and Nishida, 1983). Until 1985, the predator could only be multiplied on its natural prey species intern had to be reared on pot cultured rice plants. It was laborious to maintain host plant and host insect cultures continuously in greenhouses. Hence the present study was taken up to improve the culturing technique of the predator easily and cheaply under laboratory conditions.

A standard culturing technique was attempted at the Department of Entomology, Faculty of Agriculture, Annamalai University during 1995–96 with slight modification in the culturing procedure adopted by Bentur and Kalode (1985). They used Petri-dishes and triacetate sheet for rearing in which the area of container was very less and condensation of water occurred. We used a transparent plastic container (15x15cm) which was split into two compartments using a thermocol. The upper bigger one (10cm) was used for rearing insects and the lower smaller one was filled with water. The thermocol was covered with muslin cloth over which a filter paper was placed and the water in lower compartment kept the muslin cloth always moist by means of wick. The mouth of the container was covered with a nylon-meshed lid for free circulation of air and to avoid condensation. A provision was made in the lid for the release of test insect and also for providing oviposition substrate.

Ten pairs of mirids were released inside the plastic container. *Corcyra cephalonica* eggs were pasted on the rice stem, which served as food for mirids. Paddy seedlings were provided as oviposition substrate for them. After an oviposition period of 24 hours, the mirid adults were removed. The paddy seedlings were taken from the plastic container and kept in sterile test tubes, till nymphal emergence. Then the freshly

hatched nymphs were transferred to plastic containers and *C. cephalonica* eggs pasted on rice stem were provided for feeding.

reaching adulthood was 97 per cent in both the generations, whereas the per cent nymphal survival namely first instar reaching adulthood

Table 1. Culturing of *Cyrtorhinus lividipennis* on *Corcyra cephalonica* eggs

Generation		* No. of eggs laid	Incubation period	No. of nymphs emerged	Nymphal survival in different instars (days)					No. of adults emerged	Mean nymphal survival (%)
					I	II	III	IV	V		
I	Mean	41.77	7.31	39.88	28.97	24.79	22.13	19.99	19.41	18.89	50.32
	SD±	13.22	0.29	12.54	7.29	6.88	6.38	4.23	3.60	3.26	10.89
II	Mean	12.54	7.25	10.70	9.21	8.46	7.98	7.60	7.40	7.19	64.95
	SD±	1.40	0.28	0.82	3.54	3.10	2.97	2.94	2.96	2.96	7.92

* Eggs laid by 10 pairs of mirids on its first day only

Daily observations on the incubation period, number of nymphs emerged, number of eggs unhatched (by dissection), number of nymphs survived in different instars and number of adults emerged were recorded and per cent mortality during different instars was also calculated. The same procedure mentioned above was followed for culturing the second generation of *C. lividipennis*. During culturing the mean incubation period did not differ significantly in both generations (7.31 and 7.25) (Table 1). On an average 41.77 and 12.54 eggs were laid on the first day in first and second generation, respectively. The number of nymphs survived in different instars widely varied. Out of 39.88 nymphs emerged (first generation), only 19.41 reached fifth instar, whereas in second generation out of 10.70 nymphs emerged, only 7.40 reached fifth instar.

Maximum per cent mortality of 24.45 and 14.93 in first and second generation, respectively was observed in first instar. The per cent mortality decreased from second to fifth instar in both generations. The number of fifth instar nymphs in first and second generation was 50.32 and 64.95, respectively.

Our study showed an increase of 10 – 25 per cent over the technique followed by Bentur and Kalode (1985). They reported that only 40 per cent of nymphs reached adult stage. The per cent increase may be due to the designing of the rearing jars, which not only provided larger area for free movement, but also provided a conducive environment for large scale multiplication of predators in laboratory.

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