J. Biol. Control, 12(2): 153-156, 1998 **Research Note**

Effect of *Corcyra cephalonica* (Stainton) density on the development *of Chrysoperla carnea* (Stephens)

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ABSTRACT: **An experiment was conducted in the laboratory on effect of *Corcyra cephalonica* (Stainton) density on six biological parameters of *Chrysoperla carnea* (Stephens). The result revealed that the maximum eggs (53.29 per day) were consumed in the density of 125 eggs/day, which also recorded minimum larval and pupal periods of 8.04 and 9.17 days, respectively. Whereas in the density of 100 eggs/day, maximum pupal weight (8.42 mg), highest fecundity (350.75 eggs/ female) and maximum adult longevity (46.5 days) was observed.**

KEY WORDS: *Chrysoperla carnea*, *Corcyra cephalonica*, host, predator

Green lacewing constitutes a prominent group of predators, due to their amenability to mass production and potential for use in varied ecosystems. In India, 67 species of the predator belonging to 21 genera have been recorded on various crops (Singh and Jalali, 1994). Out of these, the most common species, *Chrysoperla carnea* (Stephens), is used widely and studied for its host preference (Gerling *et al.*, 1997), and reproductive and predatory potential on different pest species (Balasubramanian and Swamiappan, 1994). However, the information on survival and predatory potential *vis-à-vis* the requirement of host eggs of *Corcyra cephalonica* (Stainton) for this species is lacking and hence the studies were undertaken.

An experiment with five treatments having four replications in completely randomized design was conducted in the Department of Entomology, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola during 1997-98. Twenty newly hatched larvae of *C. carnea* were taken individually in each plastic vial for every treatment. *Corcyra* eggs counted and transferred to vials in which *Chrysoperla* larvae were kept. On every next day, the number of

Corcyra eggs consumed was calculated. The observations were continued up to the pupal stage. The observations on larval and pupal period, pupal weight, fecundity and longevity were also recorded.

The data (Table 1) revealed the significant differences among the treatments. In the treatment having daily 125 host eggs density, the maximum consumption of eggs was observed (53.29eggs/day) by *C. carnea* as compared to other treatments. The larvae consumed only 22.75 eggs/day in the host density of 25 eggs/day. Feeding potential of 38.48, 46.29 and 45.35 eggs/day/larva was noticed in the treatment with 50, 75 and 100 eggs/day, respectively.

The maximum larval period of 10.99 days was observed in the host density of 25 eggs/day in which minimum egg consumption was noticed. It was found that with the increase in consumption, there was a gradual decrease in the larval period. The lowest larval period of 8.04 days was recorded in the density of 125eggs/day. The maximum pupal weight was observed in host density of 100eggs/day in which 45.35 eggs were consumed. Minimum pupal weight (5.24 mg) was observed in the density of 25 eggs/day in which minimum egg consumption was noticed. The densities of 50 and 75 eggs/day recorded 7.13 and 7.53mg pupal weight, respectively. There has been no significant difference in the pupal period due to different densities of host eggs. However, as in case of larval period, the pupal period was also found decreasing with the increase in the egg consumption. The maximum pupal period (11.42 days) was observed in the treatment 50 eggs per day and minimum pupal period of 9.17 days in the density of 125 eggs/day.

The density of 100 eggs/day was found to be significantly superior in respect of

Table 1. Daily consumption of *C. cephalonoca* eggs by *C. carnea* and its development

Host density (eggs / day)	No. of eggs consumed	Larval period (day)	Pupal period (day)	Pupal wt (mg)	Adult longevity (day)	Fecundity (eggs/ female)
25	22.75	10.99	10.14	5.24	43.0	253.8
50	38.48	10.41	11.42	7.13	46.5	282.0
75	46.29	9.14	10.34	7.53	42.0	332.0
100	45.35	10.20	9.50	8.42	46.5	350.8
125	53.29	8.04	9.17	7.22	39.0	254.0
SEM ±	2.08	0.55	1.65	0.22	1.62	4.44
CD (P= 0.05)	5.93	1.56	-	0.63	-	12.68

fecundity than other densities by recording 350.75 eggs/female. The minimum of 253.75 eggs/female was observed in the density of 25 eggs/day. The next better treatments were 125, 50 and 75 eggs/day, which recorded the fecundity 254.25, 282.0 and 332.0 eggs/female, respectively.

The longevity of the adults at different host densities did not differ significantly though the maximum longevity (46.5 days) was observed in the densities of 50 and 100 eggs/day and minimum longevity of 39 days due to the density of 125eggs/day in which high egg consumption was observed. Ganev (1977), Rana and Shrivastava (1998), and Singh and Hamid (1998) have observed similar differential responses with respect to larval period, pupal weight, adult longevity and fecundity with changing host densities.

Considering the higher fecundity and longevity obtained in the treatment with 100 eggs/day, it may be concluded that the optimum dosage for rearing *C. carnea* is 100eggs/larva/day. Rearing of the larvae on 100eggs/day also yielded heavier pupae and reduced duration of immature stages. However, Bakthavatsalam *et al.* (1995) suggested dosage of 85eggs/day/larvae. This could have been, because of the estimation of dosage done in their study was for mass rearing in grouping initially followed by individual rearing.

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