Uttar Pradesh J. Zool. 6 (1) : 36-39, 1986

BIOECOLOGY OF *RHINOCORIS FUSCIPES* FABR. (REDUVIIDAE) A POTENTIAL PREDATOR ON INSECT PESTS

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Rhinocoris fuscipes Fabr. starts laying maroon coloured elongate eggs in batches at the age of 28 ± 3 days. Eggs are glued to each other and to the substratum with cementing material. Eggs hatch in eight days. Nymphs are orange red with yellowish green legs bearing brown spots which simulate panther's skin. Stadial period from first instar to adult ranges from 38—50 days. Adult females live longer than the males. Out of two generations raised in the laboratory males and females emerge in the sex ratio 1 : 2. *R. fuscipes* is found to be predating on pests of cotton and maize both in the field and laboratory conditions.

INTRODUCTION

Rhinocoris fuscipes Fabr. a bright coloured, crepuscular entomosuccivorous, polyphagous, assassin bug predominantly found in the scrub jungles, semiarid zones and tropical rain forests. It is found to be predating on *Dysdercus cingulatus*, *Heliothis armigera*, *Earias fabia* and *E. insulana* all pests of cotton and sorghum ear head bug *Calocoris augustatus* (pest of maize). Rao (1974) and Hiremath & Thontadarya (1983) reproted that *R. fuscipes* predates on *H. armigera* and *C. augustatus*, respectively. Rao (1974) mentioned the breeding techniques and life period of this species but failed to give the details of its biology. So the authors are prompted to probe into the intricate mechanisms of bioeclogical aspects of *R. fuscipes* so as to mass rear and employ them as biological control agents against insect pests.

MATERIAL AND METHODS

Adults of *R. fuscipes* were collected from Pechiparai tropical rain forests in Kanyakumari district, Tamil Nadu. They were reared in plastic containers (12cm x 6cm x 4cm) on house flies, ants and caterpillars. The different batches of eggs laid by the females were allowed to hatch in separate plastic containers with cotton swabs for maintaining optimum humidity (80–85%). The cotton swabs were changed periodically in order to prevent fungus attack. The nymphs were reared in plastic containers. Thus two generations were raised in the laboratory conditions.

OBSERVATIONS AND DISCUSSION

Microhabitat

R. fuscipes is found in microhabitats such as underneath the stones and crevices of all types, only in solitary condition. Nymphal instars are also found underneath the stones but never alongwith the adults or in congregation. No co-habitants are found so far in any particular microhabitat. Nodding behaviour is exhibited by the adults as defensive mechanism.

Egg and oviposition pattern

R. fuscipes deposits first batch of eggs at the age of 28 ± 3 days after imaginal moult. Eggs are laid in batches, each attached to the other laterally and basally to the substratum firmly with brown cementing material in a vertical fashion. Eggs are maroon coloured, elongately cylindrical with pentagonal sculpturations. Operculum is white with fine hexagonal sculpturations and completely enveloped by transparent, highly reticulate chorionic collar that remains expanded apically.The total length of the egg is 0.845mm, its width 0.39mm, the opercular height 0.09mm and its width 0.254mm. *R. fuscipes* does not show any preference to glue its eggs to the fresh excreta as reported in *Acanthaspis pedestris* (Livingstone & Ambrose, 1978), *A. siva* (Ambrose, 1980) and *A. quinquespinosa* (Ambrose, 1983).

Incubation and hatching

Under laboratory condtions (Temp. 32°C, humidity 80-85% and photoperiod 11-13 hrs) the eggs hatch in eight days, Hatching invariably takes place in the afternoon (14-17 hrs). Two hours after ecolsion the nymphal instars start first feeding.

Stadial period

All the nymphal instars observed for two generations in the laboratory moult and emerge in the afternoon. Table I summarises the stadial period. A first instar takes 38-50 days (mean = 41.22±1.91) to beome an adult.

Table I. Incubation and stadial period in days in *R. fuscipes*. Number in parentheses indicate the individuals observed and parentheses* indicate the range.

Incubation	Stadial					
	I - II	II- III	III-IV	IV-V	V-Male	V-Female
8	8 22 ±0.55	6.89 ±0.56	7.00 ±0.29	8.11 ±0.31	11.00 ±1.15	12.67 ±0.61
(46)	(18) (7-11)*	(18) (5-10)*	(18) (6-8)*	(18) (7-10)*	(6) (9-13)*	(12) (11-15)*

Nymphal instars

Nymphal instars are orange red with black eyes, light yellowish green legs with brown spots which simulate panther' sskin and brown apices of tibiae and are appearing feroceous. Black lateral and median abdominal spots and wing rudiments are seen in older instars (I-III). Whole body is covered with straight and clubbed hairs. Postocular area is longer than anteocular area. Antenna is four segmented with ongest terminal flagellar segment. Rostrum is three segmented with shortest middle segment and longest terminal segment. Broader prothorax has conspicuous impression on pronotal lobe. Legs are devoid of tibial pads. Middle leg is the shortest and the hind leg the longest. In between 3rd and 4th, 4th and 5th and 5th and 6th abdominal segments orificies of median dorsal abdominal scent glands are visible.

Nymphal instars record mortality mainly due to pronounced cannibalistic tendency found among them. Abnormalities and natural hazards inhatching and moulting and combat against powerful preys are the some other common reasons

for nymphal and mortality. First instars record high percentage of mortality as they fall easy prey to their co-instars.

Adult longevity and sex ratio

The life spans of adult male is shorter than the female. Out of two generations raised in the laboratory males and females emerged in the sex ratio 1:2.

ACKNOWLEDGEMENTS

The authors are grateful to the authorities of University of Madras for facilities and encouragements. One of us (DPA) is grateful to CSIR for financial facilities. The technical assistance of Mr. P. Ramakrishnan is acknowledged.

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