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**STUDY OF LIFE CYCLE OF *SENIORWHITEA RECIPROCA* (WALKER)  
(DIPTERA : SARCOPHAGIDAE) ON COASTAL FISH *PANNA  
MICRODON* (BLEEKER) IN LABORATORY CONDITIONS**

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**INTRODUCTION**

*Seniorwhitea reciproca* (Walker) is reported from the Oriental region and partly from the Palaearctic region. In India, it is well distributed. The life cycle of this species and larval stages were not studied before in India. Life cycle of this fly on coastal fish *Panna microdon* (Bleeker) along with the larval stages were studied.

**Key words :** Life cycle, *Seniorwhitea reciproca* (Walker), coastal fish *Panna microdon* (Bleeker)

**Observation :** Adult male and female fly was found to copulate from the 4<sup>th</sup> day of emergence to the 9<sup>th</sup> day. During copulation, the male fly suddenly attack the female individual and grasp the head of the female with its fore legs, as well as thoracic part of the female with its meso and metathoracic legs; then place the penis on the ovipositor of the female and copulate for 22-48 minutes.

A single female fly mated with several male individuals and a single male fly often mated with several female individuals. Mating may occur more than one time in a day. Duration of mating was variable.

On the 4<sup>th</sup> day of emergence, a male and a female fly mated for 48 minutes; on the 7<sup>th</sup> day of emergence, the same couple copulated for 22 minutes and on the 9<sup>th</sup> day of emergence, they mated for 33 minutes. On the 10<sup>th</sup> day of emergence, the gravid female fly started to deposit larvae. During its total deposition of 152 larvae from nine depositions, maximum of 38 larvae was deposited on the 3<sup>rd</sup> deposition and then the numbers were decreased gradually with days.

**Number of larvae deposited by a female fly--**

<b>Days of emergence</b>	<b>Number of larvae</b>
10	20
15	26
21	38
25	16
27	14
33	12
37	13
43	8
45	5
	<b>Total 152 larvae</b>

**Description of different stages : (Figs. 1-12)****Larvae :**

There were three larval instars; all the instars showed clearly defined 12 body segments and cephalopharyngeal sclerite in the first three thoracic segments.

**First instar larva : (Fig. 1)**

Larvae ranged in size from 3.5-5.5 mm. in length and 0.5-0.8 mm. in diameter at the widest region.

Segments 2-10 each bordered anteriorly with a complete band of spines on segment 11 and 12 restricted to dorsal and ventral surface; posterior band of spines on segment 6 and 7 restricted to ventral surface only, that of segment 8 interrupted on dorsal surface; segments 9-10 with complete posterior bands of spines.

**Cephalopharyngeal sclerite : (Fig. 2)**

Slightly pigmented except mouth-hook which is deeply pigmented; hook part strong and curved; antero-dorsal process extended; dorsal and ventral cornu comparatively wide and dorsal cornu slightly longer than ventral cornu.

*Spiracles* : There was no anterior spiracle.

Posterior spiracles (Fig. 3) not prominent, situated in a hollow cavity and each with 2 spiracular openings, elongated and lying side by side; peritreme absent.

1<sup>st</sup> instar larvae transformed into 2<sup>nd</sup> instar larvae after 9-11 hrs.

**Second instar larva :** (Fig. 4) 6-8 mm in length with diameter 1.4-1.7 mm.

Distribution of spines similar to that of 1<sup>st</sup> instar.

*Cephalopharyngeal Sclerite* : (Fig. 5) slightly pigmented, only the mouth-hook deeply pigmented; parastomal bar prominent; basal piece strong; dorsal and ventral cornu both with window; window of dorsal cornu wider and open.

Spiracles; Anterior spiracles (Fig. 6) each with 12-14 branches;

Posterior spiracles (Fig. 7) large, paired, higher than wide, each composed of 2 slit-like openings situated in a deep cavity; peretreme incomplete; inner projections of peretreme well developed; button absent; ventral arc short; inner arc ill-developed, curved and pointed.

2<sup>nd</sup> instar larvae transformed into 3<sup>rd</sup> instar after 24-27 hrs.

**Third instar larva :** (Fig. 8) Length of 3<sup>rd</sup> instar larva 16-18 mm with diameter 3-3.8 mm.

Segments 2-12 each bordered anteriorly with a complete band of spines. Segments 6-11 with complete posterior band of spines.

Inner pair of tubercles on upper border of anal segment separated by a distance equal to the distance between inner and outer tubercles.

*Cephalopharyngeal sclerite* : (Fig. 9) Heavily pigmented; incision between cornu very deep; both dorsal and ventral cornu long and same in length; dorsal cornu with open window.

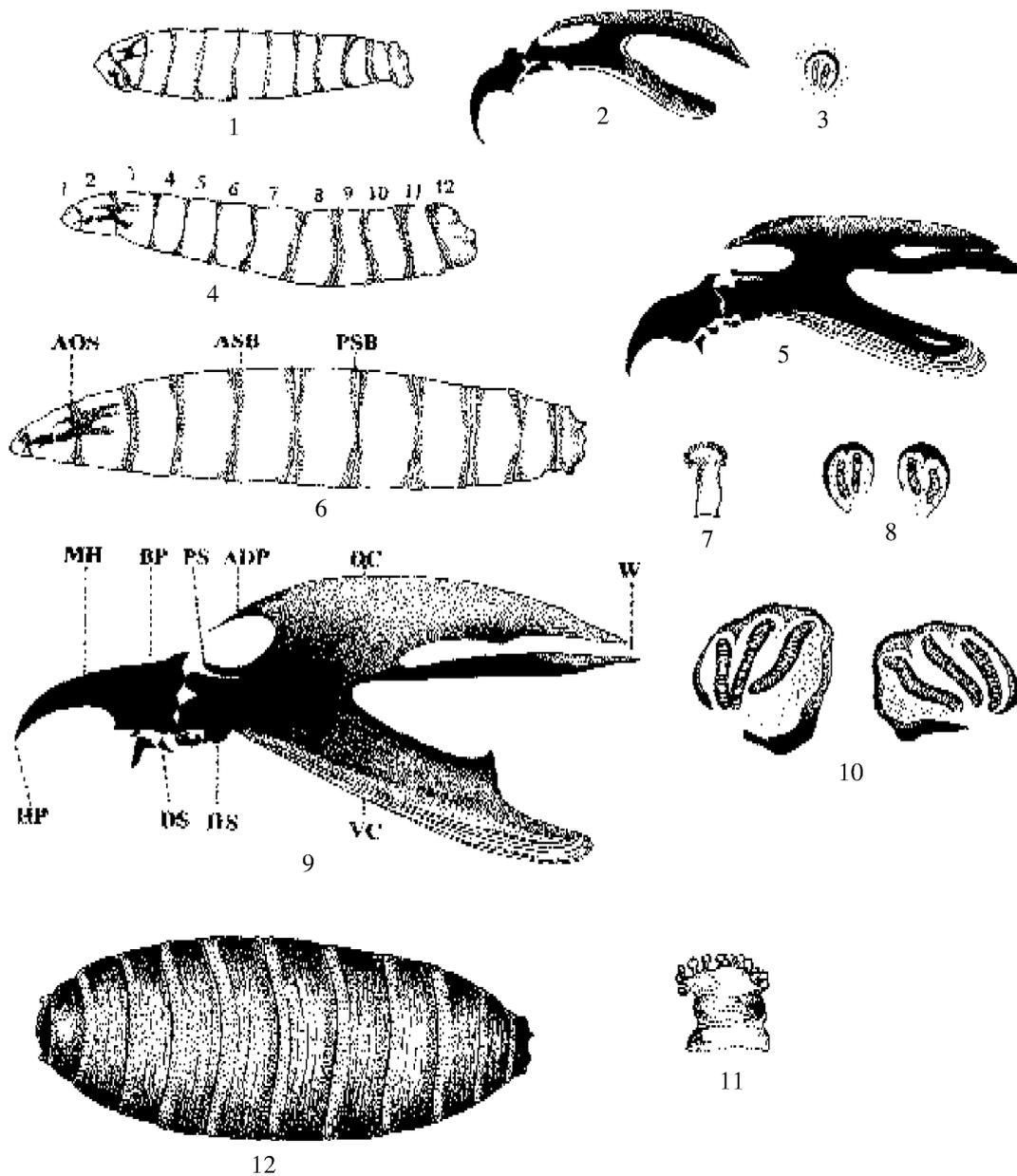
*Spiracles* : Anterior spiracle (Fig. 11) broad with 12-14 branches; openings of anterior spiracle arranged in a single row.

*Posterior spiracle* (Fig. 10) medium sized; peretreme fairly narrow. Inner projections of peretreme well developed; slits not so long; button absent; inner arc long with loop-shaped tail touching the inner slits; ventral arc well developed; posterior spiracles separated by a distance about 1/3<sup>rd</sup> the width of one spiracle.

3<sup>rd</sup> instar larvae pupated after 32-41 hrs. (65-67 hrs. of hatching)

*Puparium* : (Fig. 12) Puparia ranged in length from 9-10.8 mm and diameter in widest part ranged from 4-4.5 mm. Cylindrical in shape, tapering on both ends; colour deep-brown; anterior spiracles with short-stalks; posterior spiracles situated in a deep cavity, spine bands on segments prominent, numerous transverse striations are found between segments. Pupal stage lasted for an average of 186-188 hrs.

Total time required for completion of the life cycle of this species from first instar larvae to adult is about 293-301 hrs.



**Figs. 1-12.** Larval body parts of *Seniorwhitea reciproca* (Walker)

1-1st instar larva; 2-Cephalopharyngeal sclerite of 1st instar larva; 3-Posterior spiracle of 1st instar larva; 4-2nd instar larva; 5-Cephalopharyngeal sclerite of 2nd instar larva; 6-Anterior spiracles of 2nd instar larva; 7-Posterior spiracles of 2nd instar larva; 8-3rd instar larva; 9-Cephalopharyngeal sclerite of 3rd instar larva; 10-Posterior spiracles of 3rd instar larva; 11-Anterior spiracles of 3rd instar larva; 12-Puparium.

### DISCUSSION

This is a common species which is found on dead fishes, animals and other decaying organic matters. This species is attracted to *Aristolochia ridicula* flowers (Aristolochiaceae), human excrement and dead *Achatina* sp (Gastropoda). The larvae of this species breed in dead *Achatina fulica*, grasshoppers, sphingid and other lepidopterous larvae. the larvae feeding on the waxy secretion of fulgorid (Hemiptrea) and on a Noctuid (Lepidoptera).

### SUMMARY

This paper describes the life cycle of the sarcophagid fly *Seniorwhitea reciproca* (Walker) along with the larval stages and puparium on coastal fish *Panna microdon* (Bleeker).

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### REFERENCES

- Kano, R., Fidd, G. and Shinonaga, S. 1967. Sarcophagidae (Insecta : Diptera) *Fauna Japonica*. 7 : 1-168.
- Nandi, B. C. 2002. Diptera : Sarcophagidae. *Fauna of India and the adjacent countries*, 10 : 1-608, *Zoological Survey of India, Calcutta*.
- Nandi, B. C. 1980. Studies on the larvae of flesh flies from India (Diptera : Sarcophagidae). *Orient. Insects*, 14(3) : 303-323.

### TERMINOLOGY

aos = anterior spiracle, asb = anterior spine band, psb = posterior spine band. adp = antero dorsal process, bp = basal plate, dc = dorsal cornu, ds = dental sclerite, hp = hook part, hs = hypostomal sclerite, mh = mouth hook, ps = parastomal sclerite, vc = ventral cornu, w = window, ia = inner arc. Va = ventral arc.