



## Research Note

# *Allobaccha amphithoe* (Walker) (Diptera, Syrphidae) a potential egg predator of white-marked gum (Eucalyptus) hopper, *Platybrachys leucostigma* (Walker) (Hemiptera: Eurybrachyidae)

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**ABSTRACT:** Plant hopper, *Platybrachys leucostigma* (Walker) is one of the important sucking insects feeding on eucalyptus plants. The hoppers and nymphs suck the sap and devitalize the plant. Although several parasites were reported on the eggs, for the first time egg feeding predatory syrphid, *Allobaccha amphithoe* (Walker) was observed on the egg capsule of *P. leucostigma*. Eggs are inserted into the capsule by the adult female and the ensuing maggots fed on the eggs. The total life cycle of the syrphid fly is completed in 14-15 days. Egg parasitoid, *Proleurocerus litoralis* was also found to parasitize the eggs of *P. leucostigma*.

**KEY WORDS:** *Platybrachys leucostigma*, egg predator, *Allobaccha amphithoe*, *Proleurocerus litoralis*

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Among the several insects recorded feeding on eucalyptus plants, the sap feeding white-marked gum hopper, *Platybrachys leucostigma* (Walker) (Hemiptera: Eurybrachyidae) is important. The hoppers are medium in size (20mm) with broad body. They have broad frons, broader than its length, mottled forewings and brown coloured abdomen, feeding mainly on *Eucalyptus* or *Acacia* and many avenue trees. These plant hoppers exhibit sexual dimorphism with the females often having brightly coloured face and abdomen in contrast to dull brown males. Females lay eggs on tree trunks or leaves. The eggs are covered with a white waxy secretion produced by the ovipositing female. Nymphs are usually brown to dark brown. Several parasitoids parasitize the eggs of eurybrachyids, Hayat and Kazmi (1996) described *Proleurocerus litoralis* Hayat & Kazmi (Hymenoptera encyrtidae) from the sweep collected material from Kerala which was confirmed to be parasitoids on egg masses of *Eurybrachys tomentosa* (Fab.). Species of *Allobaccha* have been found feeding on Aphididae, Psyllidae, Chrysopa eggs (Neuroptera), Pseudococcidae, Lepidopteran larvae, Aleyrodidae, Cicadidae and Fulgoridae (Rojo *et al.*, 2003). There are no egg feeding syrphid predator recorded on eurybrachyidae so far. The present study reports the occurrence of *Allobaccha amphithoe* (Walker) to be an egg predator of the sap feeding pest of eucalyptus, *Platybrachys leucostigma* (Walker).

*Platybrachys leucostigma* usually laid eggs either on the leaves of eucalyptus or on the walls, cracks and

crevices of the bark of trees. They are located in a fingerprint sized patch of white waxy material, covered by a white capsule to protect them from insect predators. Each egg capsule contains 110-125 eggs. In the present study ten freshly laid egg masses on the walls and bark of trees were marked as samples for observation and activity of different parasitoids and predators were recorded.

It was observed that *A. amphithoe* flies were the first to visit the egg masses within a day or two of egg laying by *P. leucostigma*. The duration after egg laying by *P. leucostigma* and oviposition by *A. amphithoe* was found to be 1.5 – 2.0 days. Several eggs were inserted inside the egg mass singly at different points on the egg mass. Egg is light green coloured round with ridges all around. The emerging maggots completely fed on the eggs within the egg capsule and pupated (Figs. 1 & 2). Each maggot consumed 40-45 eggs during the course of development. The duration from egg laying to pupation and pupal period was found to be 5-6 days and 4-5 days, respectively. From each egg mass usually 2-5 adults of *A. amphithoe* emerged successfully.

On the third or fourth day of egg laying by *P. leucostigma* the egg parasitic wasps *Proleurocerus litoralis* laid eggs on the egg mass piercing the egg capsule. Egg parasitization up to 15-18 per cent was recorded. Emergence of egg parasitoids was observed after 6-7 days after egg deposition. It was observed that



**Fig. 1**



**Fig. 2**

*P. littoralis* oviposited on the egg capsules in which *A. amphithoe* had already laid the eggs. But none of the adult parasitoids emerged from such egg capsules indicating complete feeding by *A. amphithoe*. Radhakrishnan and Muraleedharan (1993), studied the life history and population dynamics of the syrphid predator, *Allobaccha nubilipennis* feeding on *Toxoptera aurantii*, the duration of development of from egg to adult emergence varied from 18 to 22 days, whereas in *A. amphithoe* the total duration was between 14 and 15 days. *A. amphithoe* is synonymous with *Baccha amphithoe* Walker, *B. pedicellata* Doleschall, *B. bicincta* Meijere, *B. fulvicostalis* Matsumura and *B. flavopuncata* Brunetti (Mengual, et al., 2008). *Proleurocerus fulgoridis* Ferriere, 1935 and *P. littoralis* were recorded in India by Manickavasagam and Rameshkumar (2012) in sweep net

from forest ecosystem. The species was found to feed on eggs of *E. tomentosa* (Ferriere, 1935) and eggs of cut worms on mulberry (Hayat and Kazmi, 1996). The species is distributed only in India (Noyes, 2012). Singh (1910) recorded *P. littoralis* from egg masses of *E. tomentosa*. In the present study, *P. leucostigma* is recorded as the new host of *P. littoralis* in addition to *E. tomentosa*.

Eurybrachids have the habit of laying eggs in groups away from the actual site of feeding to overcome attack by parasitoids and predators. But the predatory syrphid *A. amphithoe* is very active in finding the egg masses.

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## REFERENCE

- Ferriere C. 1935. The chalcidoid parasites of Lac insects. *Bull Ent Res.* **26**: 391–406.
- Hayat M, Kazmi SI. 1996. The species of *Proleurocerus* (Hymenoptera: Encyrtidae) from India. *Shashpa* **3(1)**: 19–20.
- Mengual X, Stahls G, Rojo S. 2008. First phylogeny of predatory flower flies (Diptera: Syrphidae: Syrphinae) using mitochondrial COI and nuclear 28S rRNA genes: conflict and congruence with the current tribal classification. *Cladistics* **24**: 543–562.
- Noyes JS. 2012. Universal Chalcidoidea Database. Electronic Database Accessible at <http://www.nhm.ac.uk/chalcidooids>.
- Radhakrishnan B, Muraleedharan N. 1993. Bio-ecology of six species of syrphid predators of the tea aphid, *Toxoptera aurantii* (Boyer de Fonscolombe) in southern India. *Entomon* **18(3,4)**: 175–180.
- Rojo S, Gilbert F, Marcos-Garcia MA, Nieto JM, Mier PM. 2003. *A world review of predatory hoverflies (Diptera: Syrphidae: Syrphinae) and their prey*. Alicante (Spain): CIBIO Ediciones. 319 pp.
- Manickavasagam S, Rameshkumar A. 2012. New distributional records of Encyrtidae (Hymenoptera: Chalcidoidea) from Puducherry, India. *Check List* **8(6)**: 1337–1343.
- Singh S. 2010. Host record, description of male and first record of *Proleurocerus littoralis* Hayat and Kazmi (Hymenoptera: Chalcidoidea: Encyrtidae) from Doon Valley, Uttarakhand, India. *Indian Forest.* **136(2)**: 257–261.