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First report of pupal parasitoids *Brachymeria lasus* (Walker) and *Xanthopimpla stemmator* (Thunberg) on *Glyphodes bivitalis*, Guenée (Crambidae: Lepidoptera) from Telangana, India

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The paper reports for the first time the presence of pupal parasitoids *Brachymeria lasus* and *Xanthopimpla stemmator* on the *Ficus* leafroller, *Glyphodes bivitalis* (Guenée), in the state of Telangana, India. *Ficus* is a large and diverse genus of approximately 850 species belonging to the Moraceae family. The different forms of *Ficus* (trees, vines, stranglers, epiphytes, and shrubs) are adapted to diverse climatic and geographic regions (Janzen 1979; Pierantoni *et al.*, 2018). The most popular *Ficus* species is *F. carica*, a deciduous tree that can reach a height of two–five meters and is frequently referred to as a fig tree. *Ficus carica* is thought to have originated from the Middle East and is considered one of the earliest cultivated fruit trees, but it can currently be found in numerous warm regions across the globe (Bonamonte *et al.*, 2010). Fig trees are attacked by many pests *viz.*, leaf webbers, psyllids, bark-eating caterpillars etc. The genus *Glyphodes* (Guenée, 1854) is a leaf webber/roller and has more than 300 species represented by 47 genera occurring in South-East Asia (Robinson *et al.*, 1994). The genus may contain about 120 species throughout the tropics (Robinson *et al.*, 1994) and about 25

and 17 species have been recorded in Southeast Asia and Australia, respectively (Shaffer *et al.*, 1996). *Glyphodes bivitalis* belongs to the Crambidae family of the order Lepidoptera. It is native to Southeast Asia, Queensland, and Hawaii. The larvae of leaf webbers feed on leaves by folding the leaf margin with silken thread and remains inside. The present study was undertaken to identify natural enemies of *G. bivitalis* in the *Ficus* ecosystem of Telangana.

This present observatory study was done at the campus of ICAR-Indian Institute of Rice Research in Hyderabad, Telangana (17°19'13.6"N 78°23'40.4" E), where the leaves of fig tree were seen rolled up from October 2022 to December 2022. About 5 trees were observed with similar symptoms, from each tree 10 symptomatic leaves were collected and larvae were cultured in plastic covers with holes by changing the leaves on every alternate day. After 7 to 10 days, the larvae transformed into pupae and parasitoids were observed from the pupae.

Out of 10 rolled leaves collected from each fig tree, 3-4 pupal parasitoids of *X. stemmator* (Ichneumonidae: Hymenoptera) and 4-5 pupal parasitoids of *B. lasus* (Chalcididae: Hymenoptera) emerged from *G. bivitalis* (Crambidae: Lepidoptera) and were recorded for the first time at the ICAR-Indian Institute of Rice Research in Hyderabad, Telangana (Fig. 1 to Fig. 4). Mittal *et al.* (2011) also reported the incidence of five Hymenopteran parasitoids, three braconids (*Apanteles obliquae* Wilkinson, *Bracon hebetor* Say and *Chelonus carbonator* Marshall) and two ichneumonids (*Pristomerus sulci* Mahdihassan and Kolubajiv and *Xanthopimpla* sp.) which were found parasitizing the larvae of the mulberry pyralid, *Glyphodes pyloalis* Walker (Lepidoptera: Pyralidae) infesting mulberry foliage from

Kashmir. *Glyphodes bivitalis* belongs to the Crambidae family of the order Lepidoptera. The larvae are green with black spots on the middle of the thorax and also on the middle of the last abdominal segment. The last instar larvae become brown with similar black marks. Adult moths' wing spans about 26-30 mm. The forewings are light brown with white patches, and the hind wings are white with a broad brown margin (Fig. 2).

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Fig. 1. *G. bivitalis*



Fig 2. *X. stemmator*



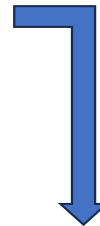
Fig 3. *B. lasus*



Fig. 4. Emerged parasitoids from pupa of *G. bivitalis*



Larvae



Adults



Pupae



Fig.2. Life cycle of leaf Webber, *Glyphodes bivitalis*

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