

Gallfly, *Trioza fletcheri* minor Crawford and its management in Tasar food plants

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Trioza fletcheri is a subtropical plant louse, induces leaf galls on at least five species of *Terminalia* in the Indian subcontinent. Unlike a majority of gall-inducing psylloids that are generally host and site specific (Hodkinson, 1984), *T. fletcheri* is known not only from the leaf galls of *T. tomentosa* and *T. arjuna*, but also from those of *T. catappa* Linn., *T. paniculata* Roth, and *T. tomentosa* X *T. arjuna* hybrids (Mathur, 1975). Among these *T. tomentosa* and *T. arjuna* are important and commercially exploited host plants of tasar silkworm. On these host plants, *T. fletcheri* is considered as serious pest that causes about 40-50% foliage loss during its peak period of incidence (Thangavelu and Singh 1991). Apart from direct damage it also causes the stress to plant indirectly by reducing in photosynthesis rate, respiration rate and stomatal conductance (Kar *et al.*, 2013).

Life cycle:

Trioza fletcheri is a hemimetabolous insect with 3 developmental stages viz., egg, nymph and adult (Fig.1) The female generally lays 200-500 eggs singly on the leaf surface of tender and newly sprouted shoots. The eggs are slightly yellowish in colour at the time of oviposition and within 12 hours it turns to black. Further eggs will hatch after 3 days of oviposition and newly hatched nymphs starts feeding on plant sap and it continues its development and passes through five nymphal stages. The final instar

nymph after completing its development emerge from the enclosed gall through a slit like opening within 20-22 days of its entrance. It then takes some rest on the leaf surface and after shedding the final nymphal skin on the leaf, fly away as adult and the life cycle thus continues with 6-7 generations a year.

Period of occurrence:

The psyllid appears during the month March on fresh leaves of *T. arjuna* and *T. tomentosa*. Their population remains till last week of December or until the beginning of leaf fall, however, the peak infestation period is from July to September.

Nature of damage:

The insect induces galls by secreting a chemical substance called cecidogen which activates perturbation and also alters the differentiation processes in the host plants, modifying the plant architecture to its advantage. Ultimately infested leaves exhibits presence of gall like structures on leaf surface and these galls are initially greenish but later on turns to brownish or yellow gland like structure, looking like small pox on the surface of leaf (Fig. 2).

Integrated Pest Management of *Trioza fletcheri* minor:

Cultural

- Two times deep ploughing after silkworm rearing during November – December and February – March
- Delay in pruning by a month i. e. last week of April to minimize the gall infestation

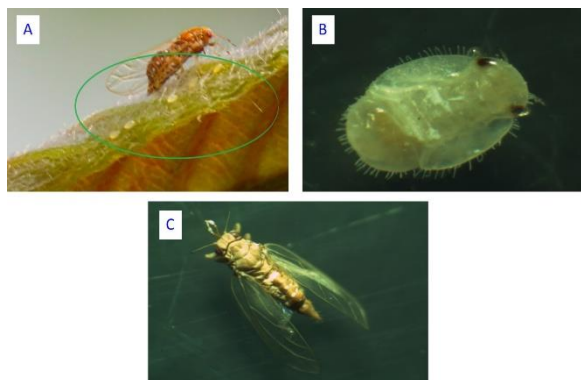


Fig. 1. Developmental stages of gall fly *Trioza fletcheri* A) Eggs B) Nymph C) Adult

Mechanical

- Collection and destruction of gall infested leaves and pruned twigs
- Installation of sticky traps during peak adult activity (July-August).



Fig. 2. Leaves showing gall fly damage symptoms

Biological

- Conservation of natural enemies such as *Trechinites aligharhnesis* (First record on association between *Trechinites aligharhnesis* and *Trioza fletcheri* reported by Thirupam Reddy *et al.*, 2021) and *Aprostocetus arjunae* (Kumar and Kumar, 2020) by avoiding the

spraying of synthetic chemicals at their peak activity (Aug-Sep) would greatly help to reduce the incidence of gall fly on tasar food plants.

Botanical/Chemical

- Soil application of neem cake @ 150 kg per hectare in two split doses before the onset of monsoon (15th May and 30th May)
- Three Consecutive foliar sprays of azadirachtin (Vanguard 1500 ppm) at an interval of 15 days after sprouting of leaves (10ml/lit) with a waiting period of 7 days
- Spray Acetamiprid 20 SP@ 0.2 g/liter of water thrice with a interval of 15 days

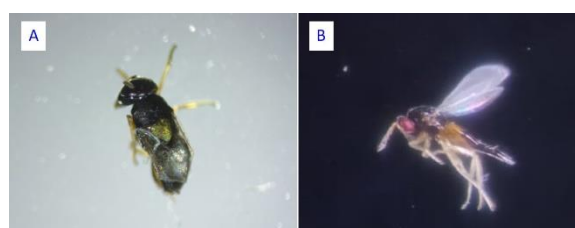


Fig. 3. Parasitoids of *Trioza fletcheri*; A. *Trechinites aligharhnesis* (Hayat, Alam and Agarwal), B. *Aprostocetus arjunae* (Kumar & Kumar)

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