



Recent Advances in Mass Multiplication of *Trichogramma* sp. Production

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ABSTRACT

Egg parasitoid (*Trichogramma* sp.) broadly used in the biological control of various lepidopteran pests. The great diversity of *Trichogramma* have been stated worldwide over 230 species parasitizing the different eggs of over 200 insect species belonging to 70 different families. Among, *Trichogramma* and *Trichogrammatoidea* are amenable for laboratory mass production on factitious hosts. Though genetic improvement considered as very useful, which improve tolerant strains survival and performance in different stress condition in order to manage the insect-pests in the field Information pertaining to the most utilized species of trichogrammatids and their utilization have been discussed in this present studies.

Keywords: *Trichogramma*, lepidopteran, *Corcyra cephalonica*

Trichogrammatids (Chalcidoidea: Trichogrammatidae) represent a huge group of minute parasitic wasp which parasitizing the eggs of holometabolous order mainly lepidoptera (Goulet and Huber, 1993). It includes small to minute insects, ranging in size from 0.2 - 1.0 mm. The members of this family are easily recognized by the three segmented tarsi. A few trichogrammatids parasitize the eggs of aquatic hosts, such as Dytiscidae, Notonectidae or Odonata, whilst the egg is beneath the surface of the water (Noyes J, 2003; Matheson R and Crosby CR, 1912; Lubbock J. 1864). Over 230 species and subspecies of *Trichogramma* known worldwide parasitizing the eggs of over 200 insect species belonging to 70 different families (Jalali, 2016). Among the *Trichogramma*, in India most dominant and common species is *Trichogramma chilonis* Ishii. Other species also observed commonly are *Trichogramma japonicum* Ashmead, *Trichogramma achaeae* Nagaraja and Nagarkatti and *Trichogramma pretiosum* Riley (Lalitha,

2017). Apart from *Trichogramma*, the other genus used in biological control is *Trichogrammatoidea*. The species belonging to these genera are amenable for laboratory mass production on factitious hosts like a rice moth (*Corcyra cephalonica* Stn.), paddy moth (*Sitotroga cerealella*), and the flour moth (*Ephestia* spp.) and are being used for biological control of noxious lepidopterous pests of crops worldwide (Nagaraj, 2013). Though they are very small in size but their size did not prevent to exploit them in biological control insects- pests because of (Goulet and Huber, 1993) Their short life-cycle, 8 - 10 days from egg laying to adult emergence; having high breeding potential able to lay eggs for 6 - 7 days actively; they

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