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## Host-Preference and Parasitic Capacity of Five *Trichogramma* Species (Hym.: Trichogrammatidae) against some Stored Product Moth Pests

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### Abstract

The host-preference and parasitic capacity of four local *Trichogramma* spp. towards four species of stored product moth eggs were investigated in laboratory experiments in order to select new candidate species for inundative releases against lepidopterous pests in storages. Experiments were carried out by offering a single parasitoid female to eggs of the Indianmeal moth *Plodia interpunctella* (Hubner), the Mediterranean flour moth *Ephesia kuehniella* Zeller, the warehouse moth *E. elutella* (Hubner), and the almond moth, *Cadra cautella* (Walker) in choice and no-choice assays. The *Trichogramma* species were collected from arid and semi-arid areas in Egypt. These were *T. bourarachae*, *T. cordubensis*, *T. euproctidis*, *T. cacociae*, and their efficacy was compared with the common wasp used commercially for biological control of stored product pests (*T. evanescens*). The bioassay for host-preference of *Trichogramma* was carried out by offering a single wasp female the choice between equal numbers of host eggs on square cards “Petri dish tests“ and /or strip cards “strip card tests”. In Petri dish tests, *E. kuehniella* was a highly acceptable host species for *T. bourarachae*, *euproctidis*, and *cacociae* wasps. While *elutella* and *cautella* eggs were more acceptable for *evanescens* and *cordubensis*, respectively. In strip card tests, *E. kuehniella* eggs were highly acceptable for *bourarachae*, *cacociae* and *evanescens*. Eggs of *elutella* and *cautella* were more acceptable for *euproctidis* and *cordubensis*, respectively. Also, the comparative study of parasitic capacity of the *Trichogramma* spp. was carried out under ‘no choice conditions’ by exposing a freshly emerged single wasp to an unlimited number of host eggs. Significant differences were found among the parasitic capacity of the tested *Trichogramma* spp.: *T. bourarachae* showed a good parasitic potential against *S. cerealella* and *E. kuehniella*; *T. evanescens* and *T. cacociae* against *S. cerealella*; *T. cordubensis* against *S. cerealella* and *P. interpunctella* and *T. euproctidis* against *P. interpunctella*. However, dissection of host eggs with wasp-emergence holes showed that all tested wasps had a propensity to superparasitize the host eggs. *T. cordubensis*, *T. euproctidis* and *T. bourarachae* showed promise for further investigation into selecting new biological control agents against stored product lepidopterous pests.

**Keywords:** Parasitisation capacity, superparasitism, host preference