

Biological Studies on the Larval Parasitoid Species *Bracon brevicornis* Wesm. (Hymenoptera: Braconidae), Reared on Different Insect Hosts

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ABSTRACT

The ecto-larval parasitoid species, *Bracon brevicornis* Wesm. (Hymenoptera: Braconidae) was reared in the laboratory on three different insect host species; the corn borers, *Ostrinia nubilalis* Hb., *Sesamia cretica* Led. and the black cut worm, *Agrotis ipsilon*. Full grown larvae of each host were exposed individually to the parasitoid females for one or two days until death of the parasitoids. Mean numbers of parasitoid's progeny per host larva were 9.6 (on *O. nubilalis*), 9.3 (on *S. cretica*) and 7.3 (on *A. ipsilon*) when host larvae were exposed daily to the parasitoid female. Respective figures when host larvae were exposed every two days reached 17.1, 11.4 and 6.4 individuals. Sex ratio (male: female) was found to be 1: 0.9, 1: 0.3 and 1: 0.6, when the parasitoid was reared on *O. nubilalis*, *S. cretica* and *A. ipsilon*, respectively at one day exposure period. The respective sex ratios at the 2-day exposure period were 1: 0.4, 1: 0.5 and 1: 0.3. Among the studied three insect hosts, *O. nubilalis* seemed to be the recommended host for mass rearing of *B. brevicornis*.

Key words: *Bracon brevicornis*, biology, *Ostrinia nubilalis*, *Sesamia cretica*, *Agrotis ipsilon*.

INTRODUCTION

The parasitoid, *Bracon brevicornis* Wesm. is an indigenous, primary gregarious ectoparasitoid on *Sesamia cretica* Led.; *Ostrinia nubilalis* Hb.; *Chilo agamemnon* Bles.; *Earias insulana* Boised.; *Helicoverpa armigera* (Hubner) and *Pectinophora gossypiella* Saunders. The parasitoid is widely distributed over lower and upper Egypt and has 24 generations in the laboratory per year (Megahed *et al.*, 1981).

In addition, several authors over the world have recorded the parasitoid on different hosts; In Turkey, Yasarakinci and Kornosor, (1990) recorded percentages of parasitism by *B. brevicornis* on 5th and 6th instar larvae of *Heliothis virescens* (Hufn) by 47.6 and 38.8%, respectively. In India and Srylanka, the parasitoid was recorded parasitizing *Opisina arenosella* Walker (Pillai and Nair 1995) and cashew leaf and blossom Webber, *Lamida monocusalis* Walker (Mohapatra and Mohapatra 2003). In South Africa, the parasitoid was reared from *Plutella xylostella* (Kfir, 1997) and from *Busseola fusca* Fuller (Ebenebe *et al.*, 2001). In China (He *et al.*, 2002) considered the parasitoid as one of the main natural enemies of tobacco storage pests. In Iran, (Habibpour *et al.*, 2002) surveyed insects and a mite associated with stored products and their parasitoids, *B. brevicornis* was among the natural enemies of these pests. In Germany (Politz *et al.*, 2007) detected parasitism of *O. nubilalis* by *B. brevicornis*.

Several authors studied the biology of this parasitoid (Abbas, 1977; Temerak 1984 a & b;

Fayad *et al.*, 1984 and Lutfallah and Kares 1989).

Aim of this investigation is to study the effect of the insect host on some biological parameters of the parasitoid species, *B. brevicornis* under laboratory conditions.

MATERIALS AND METHODS

In December 2008, full grown hibernated larvae of *S. cretica* and *O. nubilalis* were collected from stored corn stalks, while larvae of *A. ipsilon* were collected from infested clover fields at the Experimental Farm of the Faculty of Agriculture at Moshtohor, Qalubia Governorate, Egypt.

1- Rearing of Insect Hosts

A- *S. cretica*

Groups of 10 larvae, each were confined in glass jars 15×20 cm. and provided with pieces of soft tissue papers to serve as pupation sites. Jars were covered on the top by muslin cloth and were kept until pupation of larvae. The obtained pupae were differentiated into males and females groups. Each group was kept in a glass jar, 20 × 25 cm. provided at the bottom by moistened soft tissue papers and kept in position by rubber bands for moths emergence. Ovipositional cage consisted of a lamp chimney, 18 cm. long and 8 cm. diameters, set on a maize seedling, planted in a plastic pot. *S. cretica* moths (1 female: 2 males) were placed in the ovipositional cage and covered with muslin. Within each cage, the moths were provided with a piece of cotton wool moistened with 10% honey solution for feeding. Deposited eggs were collected and placed