

BIOLOGY OF THE SPIDER *THERIDION EGYPTIUM* FAWZY & EL-ERKSOUSY FED ON *SPODOPTERA LITTORALIS* LARVAE

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INTRODUCTION

Spiders are one of the most important predators of insects and mites (Mansour and Whitecomb (1986), Cheng (1989), Young (1989), Berg *et al.* (1992).

Members of family Theridiidae are small to medium-size. They are usually found hanging upside down in an irregular web suspended on plants or hidden in rocks or fissures in soil. Many of them use very fine threads often hard to notice unless they occasionally glitter in the sun light or covered with dust. *Theridion* is one of the largest genera amongst all spiders, embraces several hundred species, (Leavy and Amitai 1981).

In Egypt, few studies concerning this group of predators were carried out. Salam (1996) collected *Theridion sp.* From Giza on apple, grapes, olive, citrus, cotton, maize and soybean. El-Erksousy (2000) recorded *Theridion egyptium* in Beni Swief, Fayoum, and Sharkia on broad bean, clover, sunflower, cotton, onion, maize, wheat eggplant and pepper as well as in soil. Thus, this study threw some lights on its biology.

MATERIAL AND METHODS

Egg masses of the cotton leaf worm, *S. littoralis* were maintained at 27±1°C and 70-75 % R.H. until hatching. Newly hatched larvae were reared on leaves of castor plant (*Ricinus communis*) and changed daily or when necessary in clean glass jars covered with muslin and secured with rubber bands. Successive cultures of 1st and 2nd instar larvae were used as prey.

Samples of the spider were obtained from cotton fields by means of sweeping with a net or collected from plants samples and *Theridion egyptium* adults were selected. An adult female and male were confined together in a test tube 20 cm long and 0.5 cm in diameter and closed with a cotton pad. The female was watched daily until laying the egg sac and hatch of immatures. Each spiderling was put separately in a test tube together with a surplus number of prey individuals.

Thirty predator individuals (spiderlings) were observed daily till reaching the adult stage. Number of preyed larvae was estimated daily during each stage of *Theridion egyptium*. Also the biology of this stage was studied.

RESULTS AND DISCUSSION

Feeding behaviour:

The spider catches the prey between its chelicerae by the help of its first pair of legs; hence it inserts the chelicerae in the prey body and sucks the body fluid leaving only its external cuticle.

Development of stages of *Theridion egyptium* when fed on *S. littoralis*:

Data in Table (1) show that the egg incubation period for both female and male averaged 10.5 days, at 26 ± 2 °C and 60-70 % R.H. The duration of female 1st and 2nd spiderlings lasted 14.0 and 17.4 days, respectively, while in case of male it averaged 13.5 and 16.7 days, respectively. Thus, the life cycle of the female and male dratted 41.9 and 40.7 days, respectively.

Food consumption of *Theridion egyptium* when fed on *S.littoralis*:

Female stages of the spider *T.egyptium* 1st and 2nd spiderlings consumed an average of 55.4 and 105.8 individuals of *S. littoralis*, respectively; while male spiderling consumed 51.5 and 104.9 *S. littoralis* larvae. Thus, during the whole life cycle, the female consumed 161.1 individuals and male consumed 156.4 individuals of *S. littoralis*.

This study is in agreement with that of El-Erksousy *et al.* (2002). They mentioned that female and male of *T. egyptium* spider passed through two stages of spiderlings before reaching maturity, when fed on nymphs of the cotton aphid, *Aphis gossypii* Glover at 26 °C. The life cycle required 40.2 and 39.1 days with food consumption of 156.3 and 147.6 aphid nymphs for males and females, respectively.

TABLE (I)

Duration and food consumption of the two spiderlings of *Theridion egyptium* fed on the larvae of cotton leaf worm, *Spodoptera littoralis*.

Developmental stage	Duration (days) + SD.		Food consumption	
	Female	Male	Female	Male
Egg	10.5 ± 0.5	10.5 ± 0.5	-	-
1 st spiderling	14.0 ± 0.7	13.5 ± 0.8	55.4 ± 6.6	51.5 ± 7.6
2 nd spiderling	17.4 ± 1.0	16.7 ± 0.9	105.8 ± 10.1	104.9 ± 10.0
Life cycle	41.9 ± 1.3	40.7 ± 1.1	161.1 ± 12.2	156.4 ± 11.7

TABLE (II)

Longevity of *Theridion Egyptium* female and male adults at 25 °C and 60 – 70% R. H.

Condition	Period in days			
	Pre-oviposition	oviposition	Post- oviposition	Longevity
Fed female	11.0 ± 2.1	12.5 ± 2.6	13.6 ± 1.5	37.1 ± 6.2
Fed male	-	-	-	35.0 ± 4.1
Unfed female	3.0±0.0	0.0	0.0	3.0±0.0
Unfed male	-	-	-	2.0±0.0

TABLE (III)

Number of consumed cotton leaf worm *S. littoralis* larvae per adult stage throughout longevity.

Period	No. of prey fed/ female predator stage	No. of prey fed/ male predator stage
Pre-oviposition	30.0 ± 6.2	-
Oviposition	38.0 ± 2.0	-
Post-oviposition	32.5 ± 5.2	-
Total	100.5 ± 13.4	89.0 ± 9

Adult longevity:

Adult longevity also differed according to sex. Generally, males live shorter than females. Adult male longevity was 35.0 days, while that of the female

37.1 days when fed on *S. littoralis* at 26 °C and 60-70% R. H. (Table, 2). During its longevity, adult male consumed about 89.0 individuals of *S. littoralis* larvae, while a female consumed about 100.5 individuals (Table, 3). However, the longevity of unfed adults was 3.0 and 2.0 days for a female and male, respectively.

SUMMARY

The spider *Theridion egyptium* (Theridiidae) was reared on 1st & 2nd instar larvae of the cotton leaf worm, *Spodoptera littoralis* (Boisd.). Duration of its life cycle (egg and 1st & 2nd spiderlings) averaged 41.9 and 40.7 days at 25 ± 2 °C and 60-70% R.H. for the female and male, respectively. The food consumption of the female and male spiderlings averaged 161.1 and 156.4 cotton leaf worm larvae respectively. Adult female and male longevity was 73.1 and 35.0 days respectively. Total consumption of *S. littoralis* larvae was 100.5, and 89.0 for the female and male, respectively. However the longevity of unfed adults was 3.0 and 2.0 days for the female and male, respectively.

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