Egyptian Journal of Biological Pest Control, 15(2), 2005, 157-158

Effect of Different Prey Species and Non-prey Food on the Development of the Predaceous Mite *Proprioseipsis lindquisti* (Schuster & Pritchard) (Acari -Phytoseidae)

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(Received, October 30, 2005; Accepted, November 28, 2005)

ABSTRACT

The predaceous mite, *Proprioseipsis lindquisti* (Schuster & Pritchard) was fed on the two spotted spider mite *Tetranychus urticae* and *Oligonichus mangifra* as prey and also two type of non- prey food, mainly pollens, these pollens are date palm (*Phoenix dactylifera*) and mango tree (*Mangifera indica* . L). A comparative acceptance of the two different pollens comparing with the two different prey mites (*T. urticae* and *O. mangifra*) was carried out. Efficiency of food was measured against time required for development between egg deposition and adult. The number of deposited eggs increased when fed on *T. urticae* and *O. mangifra.*

Key Words: Predacious mite, *Proprioseipsis lindquisti,* Prey species, Development.

INTRODUCTION

The predatory mites of the family Phytoseiidae received a great attention by several acarologists. The vast majority of research workers have measured the biological aspects of mites at different type of diet (Mc Murtry & scriven, 1964; Oatman & Mc Murtry, 1966: Swirski & Dorzia, 1969; Zaher & Shehata, 1970; Amano & Chant, 1978; Afifi. *et al.,* 1988 and El-Hady & Mabrouk, 1997.

Therefore, the present study aims to give some information on the relationship between the diet (two phytophagus mite and two types of pollens).

MATERIALS AND METHODS

Experiments were performed under the laboratory conditions at a temperature of 26±2°C.

A pure culture of the predatory mite *Propriosepsis lindquisti* (Schuster & Pritchard) was maintained on mango tree associated with the two phytophagus mite. Discs of mango leaves (1.0cm in diameter) were placed on cotton pad, soaked in water, in plastic rings 2.8 cm in diameter and 2 cm in height. Some drops of water were added daily.

For individuals rearing, newly eggs were transferred singly to one of rearing disc. Each newly larva was supplied with known number of prey and devoured individuals were replaced daily by fresh ones till reaching maturity. Mites were examined twice daily; emerging females were copulated and kept for oviposition. Observation concerning all biological aspects was recorded during the predator, life span. Each rearing experiment was started with 70 newly hatched larvae.

RESULTS AND DISCUSSION

P. lindquisti developed readily and reproduced on the mite *Tetranychus urticae* and *Oligonichus mangifra* as prey and on the two type of pollens; date palm (*Phoenix dactylifera*) and mango tree (*Mangifera indica* L.) which were tested as diets for the predatory mite.

Both females and males of the predatory mite *P. lindquisti* were found to pass through a larval and two nymphal stages before reaching adult stage.

Larval stages were not affected by the type of food (Table 1). At 26°C, this period averaged 1.48, 1.63, 1.84 and 2.24 days for female when it was fed on *T .urtica, O. mangifra,* pollens of date palm and mango, respectively.

Protonymphal and deutonymphal stages were affected by the type of food (Table 1). Female protonymph and deutonymph were fed on immature stages of *T .urtica,* immature stages of *O. mangifra,* pollen grains of date palm and mango gave (1.64 & 1.89), (1.97& 1.98), (2.18 & 2.78) and (2.36 & 3.14) days, respectively.

It is apparent that developmental periods were almost equal in both sexes throughout the predator immature stages. However, a marked difference in the rate of development was observed between individuals developing on different tetranychid prey and also on different types of pollens. Developmental period was shorter for individuals developing on *T. urtica* and *O. mangifra* (5.85 & 6.11) days respectively than for predators developing on pollens.

From the mentioned results it could be observed that the duration of life cycle was affected by type of food. This total period averaged 7.12, 7.85, 8.69 & 9.46 days, respectively when fed on immature stages of *T .urtica,* immature stages of *O. mangifra,* pollen grains of date palm and mango respectively (Table 1).

Adult longevity was influenced by the type of food. Females preovipostion, ovipostion and postovipostion periods (Table 2) averaged 2.48, 14.95 &9.25 days when fed on Immature stages of *T .urtica;* 2.77, 13.44 & 8.64 days on immature stages of *O. mangifra;* 2.69, 10.16 & 7.18 days when was fed on pollen grains of date palm and 3.32, 15.11 &10.58 days when was fed on pollen grains of mango.

As duration of the predatory mite *P. lindquisti* immature and adult stages differed according to variation of type of food (Table 2), the resulting life span was also affected by the type of food; this period averaged 34.92, 31.48, 28.90 &39.03 days, respectively when fed on immature stages of *T .urtica,* immature stages of *O. mangifra,* pollen grains of date palm and of mango respectively (Table 2).

Total number of the deposited eggs / female averaged 43.88, 30.26, 22.33 and 26.87 days, respectively when female fed on immature stages of *T . urtica,* immature stages of *O. mangifra,* pollen grains of date palm and of

Table (1): Duration of developmental stages and generation period of *Propriosepsis lindquisti* fed on four types of food at average temperature of 26±2°C.

Stages	Sex	*T. urticae*	*O. mangifra*	*P. dactylifera**	*M. indica**
Egg	female	1.48 ± 0.26	1.63±0.38	1.84±0.28	2.24±0.25
	male	1.50 ± 0.35	1.50±0.29	1.75±0.31	2.00±0.25
Larva	female	1.49 ± 0.44	1.50±0.34	1.48±0.33	1.58±0.48
	male	1.50 ± 0.50	1.50±0.50	1.50±0.50	1.50±0.50
Protonymph	female	1.64 ± 0.38	1.97±0.40	2.18±0.44	2.36±0.48
	male	1.44 ± 0.49	1.68±0.48	2.00±0.50	2.30±0.68
Deutonymph	female	1.89 ± 0.54	1.98±0.60	2.78±0.66	3.14±0.71
	male	1,50 ± 0.50	1,50±0.50	2.25±1.00	3.00±1.00
Total immature	female	5.85 ± 0.87	6.11±0.83	6.80±1.04	7.33±0.88
	male	4.69 ± 1,02	4.96±0.94	5.70±1.15	6.88±1.22
Life cycle	female	7.12 ± 0.98	7.85±0.88	8.69±1.11	9.46±1.02
	male	6.34 ± 1.00	6.60±1.00	7.65±1.25	8.93±1.25
Generation period	female	9.55 ± 1.12	10.52±1.20	11.43±1.48	12.84±2.06

*pollen grains

Table (2): Life span of females of the predatory mite *Propriosepsis lindquisti* fed on four type of food at average temperature of 26±2°C.

Period	*T. urticae*	*O. mangifra*	*P. dactylifera**	*M. indica**
Pre oviposition	2.48±0.45	2.77±0.44	2.69±0.55	3.32±0.48
Oviposition	14.95±1.88	13.44±0.98	10.16±0.48	15.11±1.94
Postoviposition	9.25±0.76	8.64±1.67	7.18±2.48	10.58±1.72
Longevity	26,95±2.41	25.02± 2.04	20.08±3.62	29.43±3.47
Life span	34.92±4.48	31.48±3.55	28.90±4.10	39.03±5.11

*pollen grains

Table (3): Fecundity of the predatory mite *Propriosepsis lindquisti* fed on four types of food at average temperature of 26±2°C.

Period	*T. urticae*	*O. mangifra*	*P. dactylifera**	*M. indica**
No. of eggs / female	43.88±4.75	30.26±3.98	22.33±3.26	26.87±4.45
Daily rate	1.63	1.21	1.11	0.93

*pollen grains

mango, respectively (Table 3).

The daily rate of deposited eggs was 1.63, 1.21, 1.11 and 0.93 eggs/female on the respective previously mentioned prey types (Table 3).

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SCIENTIFIC NOTE

The Holotype Deposition of *Aphytis sinaii* Abd-Rabou (Hymenoptera: Aphelinidae), an External Parasitoid of the California Red Scale, *Aonidiella aurantii* (Maskell)

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(Received, October 30, 2005; Accepted, November 6. 2005)

Aphytis sinaii Abd-Rabou (Hymenoptera: Aphelinidae), a new recorded species from the California red scale, *Aonidiella aurantii* (Maskell), infesting *Ficus nitida* in Sinai Peninsula, Egypt was described for the first time by Abd-Rabou (2004). However, the name and location of the holotype depository was not designated. According to the Article 16.4 of the International Code of Zoological Nomenclature (2000), every new specific or sub-specific name published after 1999, except a new replaced name (a nomen novum), for which the name-bearing type of the nominal taxon, denotes is automatically fixed. This name must be accompanied in the original publication with the explicit fixation of the holotype or the syntypes for the nominal taxon, where the holotype or the syntypes are extant specimens. A statement intending specimens deposition in a collection and another statement indicating the name and location of that collection must be recorded. Therefore, the depository for the holotype of *A. sinaii* is hereby designated as the Plant Protection Research Institute, Agricultural Research Center, Dokki, Giza, Egypt.

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