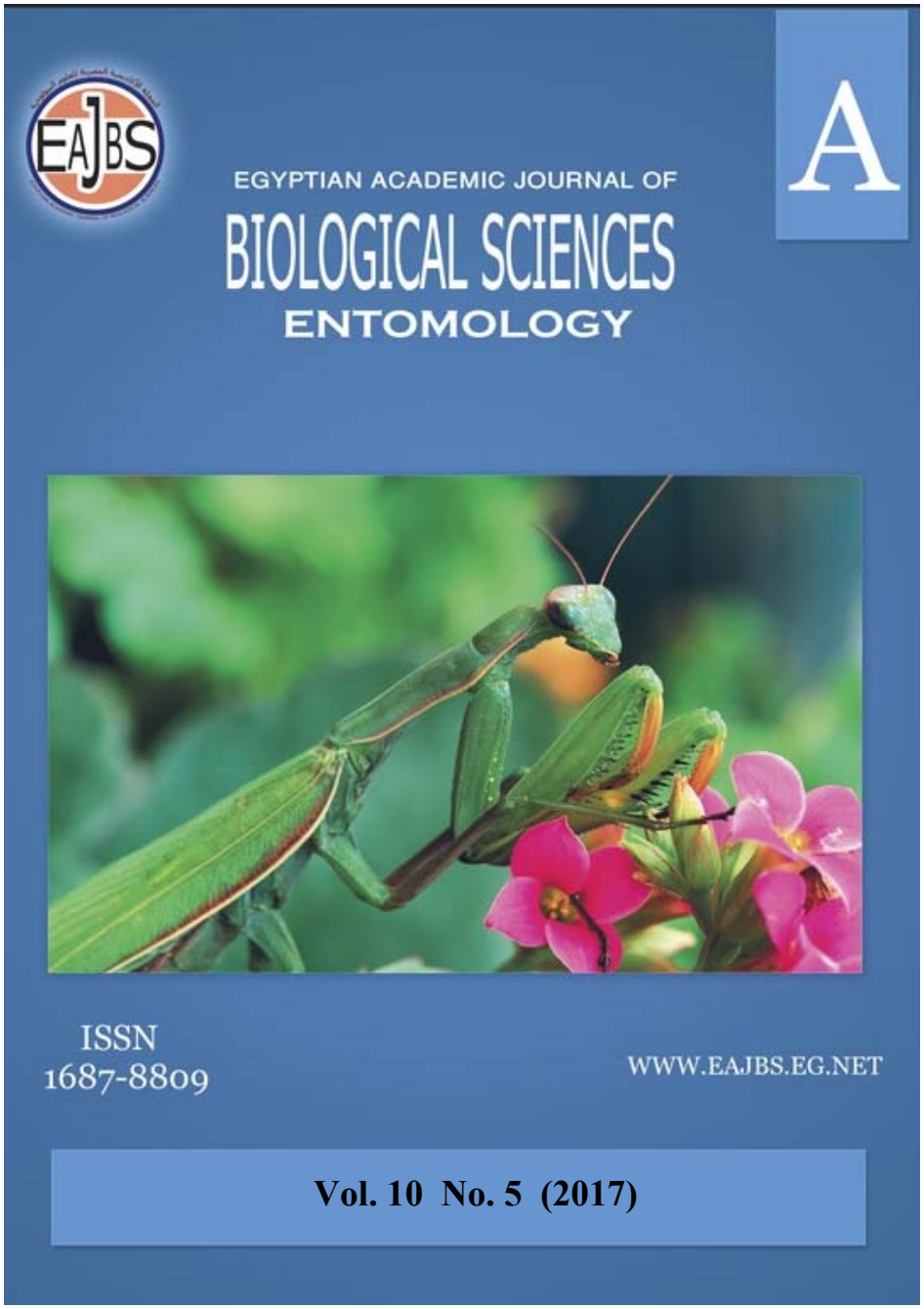


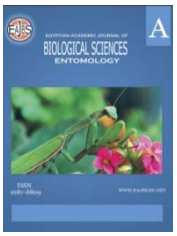
Egyptian Academic Journal of Biological Sciences is the official English language journal of the Egyptian Society for Biological Sciences, Department of Entomology, Faculty of Sciences Ain Shams University.
Entomology Journal publishes original research papers and reviews from any entomological discipline or from directly allied fields in ecology, behavioral biology, physiology, biochemistry, development, genetics, systematics, morphology, evolution, control of insects, arachnids, and general entomology.
www.eajbs.eg.net

Citation: *Egypt. Acad. J. Biolog. Sci. (A. Entomology) Vol. 10(5)pp: 45- 52(2017)*

Egypt. Acad. J. Biolog. Sci., 10(5): 45–52 (2017)

Egyptian Academic Journal of Biological Sciences
A. Entomology

ISSN 1687- 8809
www.eajbs.eg.net



Notes on the Biological Aspects of the Fungivorous Mites *Proctolaelaps pygmaeus* (Müller) (Mesostigmata: Ascidae) and *Glycyphagus ornatus* (Astigmata: Glycyphagidae) feeding on different fungi at Different Temperature Degrees

Adel M. Mostafa[1], Wafaa L.F. Ibrahim[2], Basma M. Abou El-Nour[2], E. M.A. Yassin[1] and Noura F. E. Abou El-Einien[1]

1- Plant Protection Research Institute, A.R.C., Dokki, Giza, Egypt.
2- Zoology Dept, Fac. Sci., (Girls), Al-Azhar Univ., Cairo, Egypt.

ARTICLE INFO
Article History
Received:22/6/2017
Accepted:28/8/2017

Keywords:
Fungivorous Mites *Proctolaelaps pygmaeus*, Different Temperature

ABSTRACT

This work was conducted to determine the effect of two different fungi i.e. *Aspergillus flavus* and *Fusarium oxysporum* as food sources on the biology of the mesostigmatid fungivorous mite *Proctolaelaps pygmaeus* (Ascidae) at different laboratory conditions (15, 25 and 35±2°C and 75±5% R.H.). Also, the effect of yeast and *Fusarium oxysporum* on the biological aspects of the astigmatid mite *Glycyphagus ornatus* (Glycyphagidae) was determined at different laboratory conditions (15, 25 and 35°C and 75% R.H.). The incubation period, life cycle, longevity and life span of both females and males and the fecundity (number of eggs) of the females of different tested fungivorous mites were significantly differed according to the different experiment conditions (diets and temperatures). The developmental periods of *P. pygmaeus* and *G. ornatus* were faster for the male members than females and 15°C increased these periods, than 35°C. The number of deposited eggs by females of the both *P. pygmaeus* and *G. ornatus* differed according to the kind of food source and used temperature, as the number of *P. pygmaeus* deposited eggs increased when the individuals fed on *F. oxysporum* at 35°C than on *A. flavus* at 15 and 25°C. Also, the number of deposited eggs by females of *G. ornatus* was obviously increased when females reared on yeast at 25°C than any other diets and temperatures.

INTRODUCTION

Direct feeding of animals on fungal hyphae reduces the fungal biomass, but it may also stimulate re-growth by removal of dead or senescent mycelia (Hanlon, 1981). Many hypogeous fungi have undetermined means of dispersal. Various authors had noted the presence of spores of soil fungi in the digestive tract of invertebrates, indicating that invertebrates might be an important agent of spore dispersal for these fungi (Malloch and Blackwell, 1992). There are some mites ingesting fungal material but unable to digest fungal cell walls (fungivorous browsers), others ingesting fungal hyphae and digesting the cell walls (fungivorous grazers) (Siepel, 1995). Fungivorous animals are also valuable for plants, since many animals have been shown to feed on and reduce fungal plant pathogens (Friberg *et al.*, 2005). The family Ascidae comprises large groups of free-living mites (Evans, 1961). Some species are

fungivorous while others are probably pollen feeders or predators on young saprophytic mites, insects and nematodes. *Proctolaelaps pygmaeus* is versatile in its feeding habits (Hughes, 1976). It has been recorded many times from soil, leaf, mouldy wheat, barley and timber and also from rotting bulbs (Hughes, 1976). It may be predatory on small arthropods, but is also a fungivore, and unlike most ascid mites, it is able to ingest solid matter. In Egypt, Shereef *et al.* (1980) reared *P. pygmaeus* (Müller) on fungi *Pencillium virida*, *Fusarium oxysporium* and *Aspergillus flavus* and Afifi *et al*. (1984) reared *P. striatus* on fungi *F. oxysporium* and *A. flavus*. Also, Nasr *et al.* (1990) studied the different biological aspects of *P. bickleyi* Bram on three soil fungi in Egypt. On the other hand, the majority of members of the glycyphagid mites (Glycyphagidae) are cosmopolitan, commonly known as synanthropic mite species. Of them, the mite, *Glycyphagus ornatus* Kramer is one of the commonest species of stored product mites and is frequently found in association with other mites, i.e. *Acarus siro* and *Cheyletus eruditus* or *C. malaccensis* (Hughes, 1976). The present work aimed to throw some lights on the biological aspects of the mesostigmatid mite**,** *P. pygmaeus* on two different fungi *Aspergillus flavus* and *F. oxysporum* and the astigmatid mite, *G. ornatus* on yeast and *F. oxysporum* at different laboratory conditions (15, 25 and 35±2°C, and 75±5% R.H.)**.**

MATERIALS AND METHODS

Proctolaelaps pygmaeus: The mesostigmatid mite *P. pygmaeus* was extracted from onion bulbs at Meit Ghamr region by aiding of a Berlese funnel and reared on pure culture of *F. oxysporum* already obtained from Plant Pathology Research Institute, A.R.C. Giza, Egypt. For culturing *P. pygmaeus*, adult females and males were placed in separated plastic cells (5.5 cm. diam. x 1.5 cm high), which were filled up to 0.5 cm. with mix of plaster of Paris and activated charcoal in ratio of 8 : 2, respectively. One adult female and male were placed individually in the plastic cells (1.5 cm high x 2.5 cm diam), supplied with introduced fungus. The cultures were observed daily and kept in incubator at 25±2ºC and 70±5% R.H.

Glycyphagus ornatus: For preparing pure culture of *G. ornatus*, plastic cups of (1.5 cm high x 2.5 cm in diameter) were filled up to 0.5 cm with plaster of Paris and activated charcoal in the rate of 8 : 2, respectively. One adult female and male of *G. ornatus* were placed in the prepared cup, supplied with yeast and kept in an incubator at 25ºC and 70 % R.H. For individual rearing, ten newly deposited eggs were transferred from the mother culture singly one to every rearing plastic cell (1.5 cm high x 2.5 cm in diameter). Each newly hatched larva was supplied with food kept till reaching maturity. Mites were examined twice daily. Observations concerning all biological aspects of the two mites were recorded all over the life of mites at 20, 25 and 30ºC and 75% R.H.

Biological aspects. Newly deposited eggs of *P. pygmaeus* and *G. ornatus* were transferred singly using 0.3 mm camel hair brush to twenty plastic cells (1.5 cm high x 2.5 cm diam.). Newly hatched larvae were supplied with tested fungi and examined twice daily till reaching maturity. Daily observations were made to record the periods of incubation, life cycle, longevity of adult females and males. Also, fecundity (number off eggs) of *P. pygmaeus* and *G. ornatus* on introduced fungi were recorded. The experiments were conducted at 20, 25 and 35 ± 2ºC and 75±5% R.H.

Statistical analysis: All obtained data were subjected to one-way analysis of variance (ANOVA) and means were separated by Duncan's multiple range test (Duncan, 1955).

RESULTS AND DISCUSSION

The present study aimed to study the possible effects of different fungi diets *A. flavus* and *F. oxysporum* on the biological aspects of the ascid mite *P. pygmaeus* (Ascidae), and yeast and *F. oxysporum* on the biological aspects of the glycyphagid mite, *G. ornatus* at different laboratory conditions.

A- *Proctolaelaps pygmaeus*:

Habitat and behavior: *P. pygmaeus* is very active mite which moves here and there, searching for their prey individuals. Members of this species preferred moderate humidity and rearing cages had to be supplied frequently with water droplets and the females of these tested mites preferred to deposit there eggs singly into protected or unprotected places.

Hatchin:. Eggs of this mite are whitish in color, then become creamy before hatching. Hatching occurs through a longitudinal median slit.

Molting: Immatures of this species when full grown entered a semiquiescent period during which individuals stopped feeding. This period lasted about (1-2 hours), after which individuals kept quiet, extended their chelicerae, palps and fore legs anteriorly and hind legs posteriorly. Before molting individual made some successive movement beginning from propodosoma and ending in opisthosoma. The mite tried to free itself from the old exuvium by twisting movement and subsequently withdrew the forelegs and anterior part of the body outside. Newly emerged individuals kept quiet near their old skin for a short period, then started to move actively searching for their preys.

Mating: Both males and females of *P. pygmaeus* accepted copulation immediately after emergence. Male approached female anteriorly and both vibrated their palps and touched them with forelegs. The male then moved around the female to reach her dorsum. Female could move carrying male over her back. This process lasted about 6-10 minutes. After this, male crawled underneath the female and clasped its body with the third and fourth legs, while male and female ventral surfaces were faced to each other, nearly half body of the male projected behind the female. After copulation process, both sexes separated, and female accepted mating more than once.

Biological aspects: As shown in Tables (1 and 2) the different biological aspects of the ascid mite, *P. pygmaeus* were obviously affected when fed on different tested fungi at different temperatures.

Incubation period: The influence of fungi and temperature on the incubation period of *P. pygmaeus* female and males are summarized in Table (1), which revealed that the highest mean period was recorded when the female fed on *Aspergillus flavus* (4.16 days) at 15ºC, but the lowest recorded incubation period was obtained when the male individuals fed on *F. oxysporum* at 35ºC (1.4 days), with L.S.D. at 0.05 level = 0.09 and 0.11 for females and male, respectively.

Life cycle: The development from egg to adult of *P. pygmaeus* was faster for the male members when fed on *Aspergillus flavus* at 35ºC, recording 8.06 days but this period was longed to the highest level (24.9 days) when the female individuals of the mite fed at 15ºC, during the feeding on the same fungus (Table 1).

Longevity: Statistical analysis of data presented in Table (1) indicated that the mean longevity period of adult female *P. pygmaeus* when fed on *F. oxysporum* at 15ºC took the longest time (23.8 days) before the death of the individuals. On the other hand, the rest of diets and temperature decreased this period, as the shortest longevity period lasted (7.8 days) for the mite males when fed on *A. flavus* at 35ºC. The statistical analysis of obtained data indicated that L.S.D. at 0.05 = 0.35 and 0.39 for females and males, respectively.

Table (1): Duration of the developmental stages of the mite, *Proctolaelaps pygmaeus* when fed on two different fungi at different temperatures

Biological aspect		15 ºC		25ºC		35ºC		L.S.D. at 0.05
		A	B	A	B	A	B	
Incubation period	♀	4.16±0.19	3.3±0.12	2.36±0.11	2.8±0.11	1.54±0.08	2.1±0.07	0.09
	♂	4.15±0.17	3.8±0.14	2.37±0.14	2.45±0.13	1.23±0.08	1.4++.05	0.11
Life cycle	♀	24.9±0.78	18.58±0.64	14.04±0.54	12.6±0.43	10.54±0.38	10.22±0.37	0.35
	♂	22.6±0.58	18.39±0.37	12.38±0.28	11.2±0.2	8.06±0.17	8.42+0.14	0.36
Longevity	♀	18.2±0.33	23.8±0.51	13.6±0.24	19.4±0.26	11.8±0.15	15.8±0.32	0.35
	♂	14.2±0.24	18.8±0.44	9.8±0.26	12.4±0.21	7.8±0.13	8.0±0.17	0.39
Life span	♀	42.1±1.14	42.38±1.19	27.64±0.98	32.0±1.45	22.34±1.1	25.02±0.45	0.43
	♂	36.8+0.88	37.1±1.2	22.18±1.0	23.6±1.11	15.26±0.6	17.42±0.42	0.52

A= *Aspergillus flavus* B= *Fusarium oxysporum* ± S.D.

Preoviposition, oviposition and postoviposition periods: The tabulated data in Table (2) showed that there were significant differences occurred between preoviposition periods of *P. pygmaeus* on the different fungi at different temperatures, as the longest preoviposition period was recorded when the females were reared on the two tested fungi at 15°C, recoded 4.4 days, which sharply decreased to 1.4 days on both diets at 35°C (1.4 days) with L.S.D. at 0.05 level = 0.12. On the other hand, the oviposition periods varied according to the introduced fungi. It was noticed for these obtained data in the same table, the fungus *F. oxysporum* and 15°C increased this period with significantly differences on other diets at different temperatures and the shortest period was 8.0 days on *A. flavus* at 25°C.

Fecundity: The introduced food suitability clearly affects the number of eggs deposited by the adult female of *P. pygmaeus* (Table 2). The obtained results revealed that the highest number of deposited eggs (16.4 eggs) was observed for the female fed on *F. oxysporum* at 35ºC, while the lowest number was recorded on *A. flavus* at 15ºC (11.2 eggs), L..S.D. at 0.05 = 0.33.

Life span: Accordingly, the life span was also affected by feeding of the fungivorous mite, *P. pygmaeus* on different fungi as in Table (1). The female life span of *P. pygmaeus* resulted from feeding on *A. flavus* recorded the highest period (42.1 day), which remarkably decreased to its lowest level during the feeding of male individuals on the same fungus at 35ºC and recorded (15.26 days). The statistical analysis of obtained data showed that L.S.D. at 0.05 = 0.43 and 0.52 for females and males individuals, respectively.

The results obtained by Galvao *et al.* (2011) who studied the effect of different food sources included the mites *Aceria guerreronis*, *Steneotarsonemus concavuscutum* Lofego and Gondim Jr., and *T. putrescentiae*, the fungus *Rhizopus* aff. *stolonifer* (Ehrenb.) Vuill and coconut pollen and the mite *Tetranychus urticae* Koch for mass production and laboratory rearing of predatory mite, *Proctolaelaps bulbous* and they noticed that this ascid mite was able to develop up to adulthood when fed on *A. guerreronis, R.* aff. *stolonifer* and *T. putrescentiae* as predatory and fungivorous mite. Also, Nawar (1992) regarded the ascid mite, *Proctolaelaps deleoni* Nawar, Childers and Abou-Setta as fungivorous mite.

Table (2): Duration of the developmental stages and fecundity of the mite, *Proctolaelaps pygmaeus* female fed on two different fungi at different temperatures**.**

Biological aspect		15ºC		25ºC		35ºC		L.S.D. at 0.05
		A	B	A	B	A	B	
Preoviposition period		4.4 ±0.22	4.4 ±0.21	2.8±0.14	3.8±0.31	1.4±0.11	1.4±0.08	0.12
Oviposition period		10.0±1.2	15.4±0.12	8.0±0.78	12.2±1.1	9.2±0.88	13.2±0.98	0.27
Postoviposition period		3.8±0.18	4.0±0.27	2.8±0.16	3.4±0.19	12.2|±0.97	1.2±0.14	0.14
Fecundity	Eggs/female	11.2±1.4	14.2±1.6	2.2±1.4	15.8±01.5	4.2±1.2	16.4±0.83	0.330
	Daily rate	1.12±0.08	0.92±0.07	.52+0.11	1.29±0.08	.54±0.14	1.24±0.0	0.07
Sex ratio (% female/male)		60.0 %	40.40	3.33 %	33.33 %	3.33 %	60.%	

A= *Aspergillus flavus* B= *Fusarium oxysporum* ± S.D.

B- *Glycyphagus ornatus*:

Incubation period: The newly deposited eggs of *G. ornatus* were translucent when deposited, then changed to dark whitish color before hatching. During hatching, the egg rupture longitudinally and larva crawled out from the medium slit with its hind legs at first, then larva move outside to search for food. As shown in Table (3), the shortest incubation period of the mite *G. ornatus* was recorded when the mite fed on yeast (1.75 days) at 35ºC, while the longest period was observed when the mite individuals fed on *F. oxysporum* and durated (6.87 days) at 15ºC, with L.S.D. at 0.05 = 0.0145.

Life cycle: From the tabulated data in Table (3), it could be observed that the duration of life cycle for both sexes of *G. ornatus* was obviously affected by the type of food employed at different temperature. This period lasted (34.72 and 34.93 days) for females fed on y*east* and *F. oxysporum* at 15ºC, respectively, changed to lasted 18.6, 23.69 days and 11.3, 14.59 days for the same individuals when fed on the same prey types but at 25 and 35ºC, respectively. However, the males of this astigmatid mite took 31.5, 34.0; 15.83, 21.57; 10.2, 13.15 days at the same conditions, respectively. L.S.D. at 0.05 recorded 0.358 and 0.311 for females and males, respectively.

Longevity: The tested temperatures and food sources were obviously affected the longevity of the adult female and male of *G. ornatus* (Table 3). Adult longevity decreased when temperature increased from 15 to 35ºC. It lived for 38.0 days (the longest period) at 15ºC when the adult mite females reared on yeast and decreased to record 15.0. days (the shortest period) when the mite males fed on *F. oxysporum* at 35ºC. The statistical analysis of obtained data indicated that L.S.D. at 0.05 level = 0.412 and 0.441 for females and males longevity, respectively.

a- Preoviposition period: Statistical analysis of data tabulated in Table (4) proved that this period was affected by the type of food. Accordingly, this period was 4.8, 5.4; 2.8, 3.6; 1.8, 2.6 days when the female of *G. ornatus* fed on yeast and *F. oxysporum* at 15, 25 and 35ºC respectively with L.S.D. at 0.05 level = 0.134.

b- Oviposition period: The introduced food suitability clearly affects the oviposition period of *G. ornatus* (Table 4). However, feeding of mite female at 15ºC on yeast obviously prolonged the oviposition period (27.4 days) than any diets and temperatures. This period took the shortest period (12.2 days) when the individuals fed on *F. oxysporum* at 35ºC. The significant differences occurred between all feeding diets at different temperature (L.S.D. at 0.05 = 0.261).

c- Postoviposition period: Data concerning the response of the postoviposition period of *G. ornatus* female to different feeding diets are tabulated in Table (4). The mean period of postoviposition was high when the female mites fed at 15 than 35°C. The longest postoviposition period was recorded for females fed on yeast at 15ºC (5.8 das) as the shortest period was noticed for the individuals reared on yeast at 35ºC (1.4 days), L.S.D. at 0.05 level = 0.114**.**

Life span: Accordingly, the life span of the astigmatid mite, *G. ornatus* females and males was also affected by feeding on different introduced diets as shown in Table (3). The female life span of mites resulted from feeding on yeast was high at 15ºC., recorded 72.72 days which remarkably decreased to 27.0 days when the mite males fed on the same diet at 35ºC. (L.S.D. at 0.05 level = 0.842 and 0.452 in case of females and males, respectively).

Fecundity: The adult female of *G. ornatus* as shown in Table (4) laid the highest number of eggs (371.2) when the individuals fed on yeast at 35ºC, while the lowest number of eggs was observed when this fungivorous astigmatid mite fed on *F. oxysporum* (85.2 eggs) at 15ºC. The statistical analysis of obtained data indicated that L.S.D. at 0.05 level = 0.648.

Similar results were obtained by Chmielewski (1998) when reared the astigmatid mite, *G. domesticus* using baker's yeast and wheat germ as food at 15-20ºC and 85-95% R.H. A female laid an average 118 eggs and the life span lasted about one month. Also, Chmielewski (2002**)** noticed that at 20ºC, the glycyphagid mite, *G. domesticus* completed the development on bee-bread and lasted 24.4 days longer than on pollen loads (22.1 days) and baker's yeast (21.2 days) as the oviposition period took 36.9, 25.1 and 27.5 days respectively. Also, the total female fecundity (number of eggs) was affected by the kind of introduced food, as it deposited 190.4, 63.5 and 58.2 eggs on the previously mentioned diets, respectively.

Table (3): Duration of the developmental stages of the mite, *Glycyphagus ornatus* when fed on yeast and *Fusarium oxysporum* at different temperature

Biological aspect		15ºC		25ºC		35ºC		L.S.D. at 0.05
		A	B	A	B	A	B	
Incubation period	♀	6.5±0.31	6.87±0.45	4.0±0.21	4.25±0.31	1.75±0.07	1.89±0.08	0.145
Life cycle	♀	34.72±0.58	34.93±0.68	18.6±0.65	23.69±0.48	11.3±0.32	14.59±0.31	0.358
	♂	31.5±0.54	34.0±0.47	15.83±0.46	21.57±0.51	10.2±0.28	13.15±0.29	0.311
Longevity	♀	38.0±0.54	36.2±0.43	25.4±0.62	27.6±0.49	18.8±0.42	17.0±0.38	0.412
	♂	33.2±0.58	30.6±0.35	24.4v0.43	21.6±0.34	16.8±0.38	15.0±0.34	0.441
Life span	♀	72.72±1.6	71.13±2.4	44.0±0.71	51.29±1.1	30.1±0.42	31.59±0.33	0.842
	♂	64.7±1.24	64.6±2.2	40.23±0.48	43.17±0.87	27.0±0.37	28.15±0.30	0.452

A= Yeast B= *Fusarium oxysporum* ± S.D.

Table (4): Duration of the developmental stages and fecundity of the mite, *Glycyphagus ornatus* when fed on yeast and *Fusarium oxysporum* at different temperatures

Biological aspect		15ºC		25ºC		35ºC		L.S.D.
		A	B	A	B	A	B	at 0.05
Preoviposition period		4.8±0.28	5.4±0.31	2.8±0.17	3.6±0.24	1.8±0.08	2.6±0.09	0.134
Oviposition period		27.4±0.61	26.2±0.64	18.4±0.61	18.2±0.47	15.6±0.44	12.2±0.42	0.261
Postoviposition period		5.8±0.37	4.6±0.32	4.2±0.35	5.8±0.35	1.4±0.07	2.2±0.07	0.114
Fecundity	Eggs/female	122.6±2.5	85.2±1.8	385.4±0.68	111.4±1.4	371.2±3.47	126.0±0.87	0.648
	Daily rate	4.47±0.21	3.25±0.24	18.79±0.61	6.12±0.28	23.79±0.34	10.32±0.41	0.127
Sex ratio (% female/male)		60.0±0.69	53.33±0.71	60.0±0.87	53.33±0.78	66.67±0.72	56.67±0.62	0.678

A= Yeast B= *Fusarium oxysporum* ± S.D.

REFERENCES

Afifi, A.M., M.F. Hassan and S.M. El-Bishlawy 1984. *Proctolaelaps striatus* a new species from Egypt, with notes on its biology (Acari: Gamasida: Ascidae). Bull. Fac. Agric. University of Cairo, 35(2): 1215-1226.

Chmielewski, W. 1998. Biology of house dust mite, *Glycyphagus domesticus* a pest of pollen and based-bread. Pszezelnicze Zeszyty Naukowe, 32(1): 169-180.

Chmielewski, W. 2002. Life parameters of *Glycyphagus domesticus* (De Geer) (Acarina: Glycyphagidae) infesting stored apples – Results of laboratory culture on bee bread. J. of Fruit and Ornamental Plant Researchs, 10: 155-163.

Duncan, D. B. 1955. Multiple range and multiple F. test. Biometrics, 11: 1-42.

Evans, G.O. 1961. Observation on the chaetotaxy of the legs in the free living Gamasina (Acari: Mesostigmata). Bul. Brit. Mus. (Nat. Hist.) Zool., 10: 275-303.

Friberg, H., J. Lagerlof and B. Ramert 2005. Influence of soil fauna on fungal plant pathogens in agricultural and horticultural systems.Biocontrol Science and Technology, 15(7), 641-658.

Galvao, A.S., M. G. C. Gondim and G. J. Moraes 2011. Life history of *Proctolaelaps bulbosus* feeding on the coconut mite *Aceria guerreronis* and other possible food types occurring on coconut fruits. Experimental and Applied Acarology, 53(3): 245–252.

Hanlon, R.D.G. 1981. Influence of grazing by Collembola on the activity of senescent fungal colonies grown on media of different nutrient concentration. Oikos, 36: 362-367.

Hughes, A.M. 1976. The mites of stored food products and houses. Tech. Bull., Min. Agric. and Fisheries in London, 63: 105–110.

Malloch, D. and M. Blackwell 1992. Dispersal of fungal diaspores. *In*: Carroll GC, Wicklow DT, eds. The fungal community: its organization and role in the ecosystem. New York: Marcel Dekker Inc. pp 147–171.

Nasr, A.K., M.S. Nawar and M.H. Mowafi 1990. Biological studies on *Proctolaelaps bickleyi* (Acari: Gamasida: Ascidae). Bull. Zool. Soc. Egypt., 39: 89-100.

Nawar M.S. 1992. Life table of *Proctolaelaps deleoni* Nawar, Childers and Abou-Setta (Gamasida: Ascidae) at different temperatures. Exp. Appl. Acarol., 13: 281–285.

Shereef, G.M., M.A. Zaher and A.M. Afifi 1980. Biological studies and feeding habits of *Proctolaelaps pygmaeus* (Muller) (Mesostigmata: Ascidae) in Egypt. Proc. of 1st Conference, Plant Protection Research Institute, Cairo, Egypt.

Siepel, H. 1995. Are some mites more ecologically exposed to pollution with lead than others ?. Exp. & Appl. Acarol., 19(7): 391-398.

ARABIC SUMMARY

ملاحظات على المظاهر البيولوجية للأكاروسات فطرية التغذية *Proctolaelaps pygmaeus* المنتمى لعائلة Ascidae و *Glycyphagus ornatus* المنتمى لعائلة Glycyphagidae عند التغذية على فطريات ودرجات حرارة مختلفة

عادل محمود مصطفى[1] – وفاء لبيب فكرى ابراهيم[2]- بسمة محمد ابو النور[2] – عصام محمد عبدالسلام ياسين[1] – نورا فرح السيد ابو العينين[1]

1- معهد بحوث وقاية النباتات – مركز البحوث الزراعية – الدقى – الجيزة – مصر
2- قسم علم الحيوان – كلية العلوم (بنات) – جامعة الازهر- القاهرة – مصر

أجريت الدراسة لمعرفة تاثير اثنين من الفطريات *Aspergillus flavus* و *Fusarium oxysporum* كأغذية على بيولوجية الأكاروس الفطرى التغذية *Proctolaelaps pygmaeus* المنتمى لعائلة Ascidae ومعرفة تأثير الخميرة والفطر *Fusarium oxysporum* على الأكاروس الفطرى التغذية *Glycyphagus ornatus* عند درجات حرارة مختلفة (15 و 25 و 35 م°) ورطوبة نسبية 75 %. حيث وجد أن فترة حضانة البيض incubation period و دورة الحياة Life cycle وفترة حياة الأفراد البالغة longevity و الحياة الكلية life span لهذه الأكاروسات تأثرت بصورة معنوية باختلاف نوع الغذاء المقدم ودرجة الحرارة ولقد لوحظ أن طول هذه الفترات كان أسرع بشكل واضح فى الأفراد الذكور أكثر منها فى الإناث ووجد أن درجة الحرارة 15 م° قد أطالت الفترات المختلفة لحياة الأكاروس. كما لوحظ أن عدد البيض الموضوع بواسطة إناث كلا الأكاروسين قد تأثر أيضا بنوع الغذاء المقدم ودرجة الحرارة حيث زاد هذا العدد بصورة واضحة للأكاروس *P. pygmaeus* وذلك عند التغذية على الفطر *F. oxysporum* عند 35 م° أكثر منها على الفطر *A. flavus* عند درجات الحرارة 15 و 25 م° وأيضاً بالنسبة للأكاروس *G. ornatus* لوحظ زيادة عدد البيض الموضوع بواسطة الأفراد الإناث عند التغذية على الخميرة عند درجة الحرارة 25 م° أكثر منها عند التغذية على الفطر *F. oxysporum* عند 15 و 35م°.