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Biological aspects and life table parameters of predator gamasid ascid mite, *Blattisocius dentriticus* (Berlese) (Acari:Gamasida: Ascidae)

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ABSTRACT

The gamasid ascid mite, *Blattisocius dentriticus* (Berlese) (Gamasida: Ascidae) was reared at 30 ± 2 °C and 80± 5 % R.H. on four different foods (the acarid astigmatid mite, *Rhizoglyphus robini* (Claparede), two different fungi (*Fusarium moniliforme*, *Botrytis allii*) and larvae of *Musca domesticate* Linnaeus.

The main objective in this study was to examine the possibilities of using gamasid predator mite, *B. dentriticus* to fed on different foods. Also the obtained result clear that the lowest incubation period of *B.dentreticus* was noticed for resulted females and males fed on immature of acarid bulb mite (1.3 & 0.95 days), but the longest period recorded when the female and male individuals fed on the fungus *F. moniliforme* (3.7 & 2.6 days). From the obtained data also, it could be observed that the duration of life cycle for both sexes was affected by the type of food employed. However, adult longevity of *B .dentriticus* was influenced by the kind of food employed for female, this period lasted (22.2, 36.8, 32.2 and 24.8) days when the individuals fed on aforementioned foods. These periods changed to (19.2, 30, 25.8 and 21.6 days) for males which fed on the tested foods, respectively. The current study indicated that immature of astigmatid mite, *R. robini* proved to be the most favorable food as it gave the highest reproduction rate (47.8 eggs). On the contrary, the fungus *F. moniliforme* resulted in the least number of deposited *B.dentritucus* eggs with an average of (26 eggs). During the total time (life span) of the predatory mite, *B.dentreticus,* the total number of the tested consumed prey was significantly differed. The number was (80.2 and119 prey) when the predatory mite males and females fed on amixtures of acarid mite *R. robini* , respectively. While the number of consumed preys was (77, 113.4 prey) when predatory mite fed on *M.domesticae* larvae, respectively. The calculated life table parameters were, Mean generation time (T) was (10.35, 26.81, 20.4 and14.85) days. The doubling time (DT) was (2.34, 0.0753, 5.23 and 3.483 times). Finite rate of increase (λ) $\mathbf{e^{rm}}$ was (1.34, 1.09, 1.14 and1.22) times/female/day. Gross reproductive rate (GRR) was (29.58, 12.45, 18.5 and 22.43) times/female/day. It could be generally concluded that immatures of bulb mite, *R.robini* was the most suitable food for the development and reproduction of predator gamasid mite,*B.dentriticus*.

Keywords: *Blattisocius dentriticus*, Biological aspects, Life table parameters, bicontrol, Prey species (bulb mite, *Rhizoglyphus robini* , *Fusarium moniliforme*, *Botrytis allii*, house fly)

INTRODUCTION

Mites of the family Ascidae constitute an important group of predator arthropods that live in soil, in plants, in stored products, and some species of which are in close association with humans and animals. Such being the case, Blattisocids are now receiving attention in the field of biological control of agricultural pests. Mites, insect and fungi infesting stored grains and other products are resbonsible for

causing both qualitative and quantitative losses especially when stored in moist and unhygienic conditions (Sinha *et al*., 1962).*Blattisocius dentriticus* has been found in avariety of habitats in many parts of the world (Haragsim *et al*., 1978, Basha and Yousef, 2001). This mite was previously recorded from Hokkaido and Kyushu (Ehara 1961, Bahattacharyya 1977) as *Melichares (Blattisocius) dentriticus)*, and is new to Honshu. In recent years many taxonomic papers on these mites have been published. Species of blattisocids (Berlese 1924, Deleon 1963, Hughes 1976, Karg 1993 Gilyarov and Bregetova (2004) and Krantz 2009) were known prior to this study. *Blattiscoius dentriticus* (Berlese) found in important food materials and associated with acarid mites, in U.S.A. and mites of family Blattisocidae seems very similar in its biology to those of family Phytoseiidae that have been studied and differs only in details and Blattisocids are partly predaceous though their feeding habits are not well known, (Chant, 1963). *Blattisocius dentriticus* (Berlese) was reported from stored cereals (Baggio *et al*., 1987) and stored garlic, cassava meal and an insect colony .Some *Blattisocius* species found in stored foods have been studied to determine their potential as predators of pest arthropods, Halliday *et al*., (1998), Haines (1981) & Thind and Ford (2006) and for *Blattisocius keegani* Fox in the control of some Coleoptera species (Thomas *et al*., 2011). *Blattisocius* mite species are found in several different habitats and often mentioned as predators of pests of stored food Erika *et al*., (2012). Therefore the scope of this work was to see biological aspects and life table parameters of mite species when fed on four different foods at constant temperature 30±2°C and 80±5%R.H.

MATERIAL AND METHODS

Predator gamasid mite, *Blattisocius dentriticus* (Berlese) collected from stored (onion & garlic) products, from Zagazig at Sharkia Governorate, then mites extracted by using modified Tullgeren funnels. Cultures of the gamasid mite, were reared on four different foods (immature stages of acarid bulb mite, *Rhizoglyphus robini* ,(which extracted from the same samples and cultured on yeast granules) the two different fungi *Fusarium moniliforme* & *Botrytis allii* and larvae of house fly). The flies was obtained from Plant Protection Research Institute, A.R.C. Newly emerged larvae were confined singly to plastic rings 2.8 cm in diameter and 2 cm in depth. The rings were filled up to 0.5 cm with a mixture of (cement: clay: charcoal) (7: 2: 1). A 100 replicates were used in each test conditions, survival to adulthood was determined by counting the adult individuals that survived from samples of the first 80 larvae laid, just 40 replicates were used in determining adult survival. 10 replicates groups per each treatment kept at 30±2 °C. The pure cultures of fungi for this study *Fusarium moniliforme* and *Botrytis allii* were obtained from Plant Pathology Research Institute, A.R.C., Ministry of Agriculture. Each species of fungi was well grown on PDA medium in covered Petri-dish. The dishes were kept in incubator at 30±2 °C until a thick matrix of mycelia and spores had grown over the surface of the agar slants. The colony of fungi was never exhausted and was kept clean throughout the experiment. The two different fungi were used for feeding by introducing the hyphae and spores to gamasid predator mites. The substratum was daily moistened. The mites were reared singly. Observations were made daily, incubation period, life cycle, longevity of adults, fecundity and food consumption were determined under 30 ± 2 °C and 80 ± 5 % R.H. Observation was terminated when all females had died.

Statistical Anylsis:-

All presented data were subjected to one way analysis of variance (ANOVA) and means were separated by Duncan´ s multiple range test, Duncan (1955).

Life-table-parameters were calculated according to (Birch, 1948) using the GW-Basic computer program of **(**Abou-Setta *et al.*, 1986).

RESULT AND DISCUSSION

In this study, the trials were conducted under the laboratory conditions, to study the different biological aspects of the gamasid mite, *Blattosicus dentriticus*(Berlese) on different kinds of food,(mites, fungi and insect) at 30±2 °C and 85±2 % R. H.. The following is an account of the results obtained on this biology as affected by food variation. Both females and males of *B.dentriticus* were found to be pass through one larval and two nymphal stages (protonymph and deutonymph) before reaching adulthood.

Incubation period: As shown in Tables (1&2), the incubation period of the ascid mite, *B. dentriticus* was greatly affected in case of male and female on different tested foods. Also the obtained result clear that the lowest incubation period of *B.dentreticus* was noticed for resulted females and males fed on immatures of acarid bulb mite (1.3 & 0.95 days), but the longest period recorded when the female and male individuals fed on the fungus *F. moniliforme* (3.7 & 2.6 days). The statistical analysis of obtained data showed that L.S. D. at 0.05 level was 0.248 effect of foods and 0.175 for effect of sex (males and females).

Life cycle: From the tabulated data in Tables (1&2), it could be observed that the duration of life cycle for both sexes was highly affected by the type of food employed. This total period averaged (5.6, 16.6, 11, and 9.15 days) for males and (6.8, 19.95,14.15 and 10.35days) for females individuals when ascid mite ,*B.dentriticus* reared on bulb mite, *R.robini F.moniliforme*, *B. allii* and larvae of *M. domesticae*, respectively. L.S.D. at 0.05 level = 0.827 for effect of foods and 0.585 for effect of sex.

Table 1: Mean developmental times in days of predator mite , *B.dentriticus* females and males when reared on four different foods at constant temperatures 30±2◦C and 80± 5% RH.

Biological aspects	sex	Food1	Food2	Food3	Food4
Incubation period	♀	1.3 ±0.21	3.7±0.33	2.5±0.39	2.0±0.29
	♂	0.95±0.21	2.6±0.28	2.15±0.28	1.9±0.01
Life cycle	♀	6.8±0.41	19.95±0.65	14.15±2.08	10.35±0.96
	♂	5.6±0.33	16.6±0.60	11.0±0.31	9.15±0.41
Longevity	♀	21.4±4.67	36.8±0.77	32.2±1.6	24.8±0.83
	♂	19.2±1.64	30.0±4.51	25.8±2.58	21.6±0.54
Life span	♀	28.2±5.0	56.75±0.81	46.35±3.32	33.95±1.61
	♂	24.6±1.5	46.4±4.29	36.8±2.43	29.95±4.31
Fecundity	♀	47.8±11.17	26.0±2.35	33.2±2.49	43.2±3.42
Preoviposition period [a]	♀	3.8 ±0.83	5.4±0.76	4.6±0.54	5.2±0.83
Oviposition period [a]	♀	10.4±3.36	17.8±0.99	18.0±2.0	13.8±0.84
Postoviposition period [a]	♀	8.0±1.87	13.6±1.51	9.6±1.67	5.8±0.83
Daily rate (egg/♀/day)		4.6	1.5	1.84	3.13
Generation time		10.6	25.35	18.75	15.55

Food1= immature stages of acarid bulb mite, *Rhizoglyphus robini* **Food2=**fungus, *Fusarium moniliforme*
Food3= fungus, *Botrytis allii* **Food4=** larvae of house fly

Adult longevity:

Adult longevity of *B.dentriticus* was highly influenced as observed in the present study by the kind of food employed, Tables (1&2) For female, this period lasted (21.4, 36.8, 32.2 and 24.8 days) when the individuals fed on immatures of acarid mite, *F. moniliforme*, *Botrytis allii* and larvae of house fly, respectively. These periods changed to (19.2, 30, 25.8 and 21.6 days) for males when they fed on the tested foods, respectively. L.S.D. =2.401 and 1.702 for effect of foods and sex, respectively. The pre-oviposition period of *B. dentriticus* was clearly affected with the different used feeding sources. This period averaged (3.8 ±0.83, 5.4±0.76, 4.6±0.54 and 5.2±0.83) days when the mites fed on aforementioned foods, respectively. However, the adult females of this mite lasted (10.4±3.36, 17.8±0.99, 18.0±2.0 and 13.8±0.84) days for eggs deposition, respectively. On the other hand, the adult females in their post-ovipoition period durated (8.0±1.87, 13.6±1.51, 9.6±1.67 and 5.8±0.83) days, respectively when fed on the same order of used foods, respectively. Similar results were obtained by Rivard (1962) the predaceous mite, *Blattisocius (Melichares) dentriticus* (Berlese) was reared individually on larvae and protonymphs of the stored food product mite, *Tyrophagus putrescentiae* (Schrank) at 68.0° F and 70, 80, 90, and 100% R.H. Survival and speed of development of the immature stages increased slightly with the humidity. Longevity of adult females was similar at different humidities, though the oviposition period was much shorter at 70% R.H. More eggs were laid at 100% R.H., but then the peak of laying occurred later in the oviposition period. The rate of increase of the predator population was altered very little by different humidities in comparison with that of the prey population and thus, assuming that these rates are an accurate guide to the outcome of the interaction, the population of the prey should be better controlled at lower humidities. Lorenzato (1984) found the predacious mite species, *Blattisocius dentriticus* and cheyletids are predators on species of injurious mites associated with stored garlic bulbs in Brazil, were identified as *Eriophyes tulipae*, *Tyrophagus putrescentiae* and *Rhizoglyphus* sp. Achek list of 56 species in three genera and two subfamilies is provided by, Zhang and Fan (2010), indicated that blattisociids mites are predators of pests in biological control.

Table 2: Effect of different foods on the biological aspects of predator ascid mite, *B.dentriticus* at constant temperatures 30±2 ◦C and 80± 5% RH.

Biological aspect	Source	F-Test	Propability	L.S.D. at 0.05	
				Food	Sex
Incubation period	Food	95.24	0.000***	0.248	0.175
	Sex	24.33	0.000***		
	Int.(Food & sex)	8.34	0.000***		
Life cycle	Food	316.343	0.000***	0.827	0.585
	Sex	31.57	0.000***		
	Int. (Food& sex)	13.912	0.000***		
Longevity	Food	49.26	0.000***	2.401	1.702
	Sex	30.96	0.000***		
	Int. (Food& sex)	1.88	0.1523 ns		
Life span	Food	116.59	0.000***	2.95	2.01
	Sex	44.91	0.000***		
	Int. (Food &sex)	3.03	0.0437 *		
Fecundity	Food	9.76	0.0015**	6.84	-

Fecundity:

The immatures of acarid bulb mite, *R. robini* proved to be the most favorable food as it gave the highest reproduction rate 47.8 eggs. On the contrary, the fungus, *F. moniliforme* resulted in the least number of deposited *B. dentriticus* eggs with an average of 26.00 eggs. L.S.D. = 6.84 for effect of different foods on the fecundity (Tables 1&2). These results are similar with those obtained by Similar results were obtained by Mashaya (2002) studied the predation of the booklouse, *Liposcelis entomophila* (Enderlein) (Psocoptera; Liposcelidae) by the mite, *Blattisocius dentriticus* (Berlese) (Acari; Ascidae) in a series of laboratory experiments. Known numbers of mites and booklice were placed together in small tubes and counted after various durations. Fewer booklice were found in mite-infested tubes and it was possible to rear the mite on booklice, which supports the view that the mite is a natural predator of *L. entomophila.* However, Zaher (1986), most of the collected gamasid mites are predaceous on other microarthropodes. Mandeli and Almeida (1984) carried out a field survey in Brazil, to identify pest species and evaluate the damage caused to stored garlic. The following species were collected: the pyralids, *Plodia interpunctella* and *Ephestia cautella*, the blastobasid, *Auximobasis coffeaella* and the tineid, *Nemapogon granellus.* Of these, the two pyralids were the most common and the garlic variety was the most attacked. Acari encountered included the eriophyid, *Aceria tulipae*, the acarid, *Tyrophagus putrescentiae,* the ascid, *Blattisocius dentriticus, Chetelomorpha lepidopterorum* and *Cheyletus malaccensis.* Of these species, the first was the most important pest, while the 2nd fed on fungi and the remainder were predators of acari and small insects Burnett (1977) developed a biological model of predation using granular food held in closely packed screen trays to propagate the grain mite, *Acarus Siro* L., and two of its predators, *Blattisocius dentriticus* (Berl.) and *Cheyletus eruditus* (Schrank). Both predators limited prey abundance. Cannibalism among predators, particularly *C. eruditus*, was an important factor in ensuring the survival of the prey and predator populations. *Cheyletus eruditus* eliminated *B. dentriticus* when the two species were propagated in the same experimental universe. Cyclicity and dispersion of the interacting species appeared to result more from the initial age structure and from dispersion of the prey than from predator attack. A population model was used to assess the relative importance of the population components of *A. siro* and *C. eruditus* in the simplified predator–prey interactions.

Life table parameters

The calculated life table parameters were constructed using the survival data of aspecific age class and (LX) and the female offspring produced per female in each age class (mx). The net reproductive rate (Ro),the mean generation time (T), the intrinsic rate of increase (rm),and the finite rate of increase (λ) and Gross reproduction rate (GRR)**,** Table (3)

Table 3: Effect of different foods on the life table parameters of predator gamasid ascid mite, *B. dentreticus* (Berlese) at 30±2 °C and 85±5 % R.H

Parameters	Food 1	Food 2	Food 3	Food 4
Mean generation time (T_c) [a]	10.35	26.81	20.4	14.85
Doubling time (DT) [a]	2.34	0.0753	5.23	3.483
Net reproductive rate (R_o) [b]	21.42	11.79	14.95	19.17
Intrinsic rate of increase (r_m) [c]	0.296	0.092	0.13	0.19
Finite rate of increase (λ) $\mathbf{e^{rm}}$	1.34	1.09	1.14	1.22
Sex ratio (♀/total)	0.5	0.5	0.5	0.5
Gross reproduction rate (GRR)	29.58	12.45	18.5	22.43

[a] Days [b] per generation [c] Individuals/female/ day

The mean generation time (T) of predator mite, *B. dentriticus* (Berlese) was significantly affected by the type of food. The longest time needed for one generation (26.81days) was recorded when the mite fed on fungus, *F. moniliforme*, whereas, the shorter period was (10.35 days) on immatures of bulb mite, *R.robini*. The population of *B. dentriticus* had the capacity to double (DT) every (2.34, 0.0753, 5.23 and 3.483 times) within asingle generation when fed on four mentioned diets, respectively. It was clear that population of predator mite reared on immatures of bulb, *R.robini* could increase two times in the course of one generation as compared with feeding on *F. moniliforme*, net reproductive rate (R_o) was (21.42, 11.79, 14.95 and 19.17) per generation. The values of intrinsic rate of increase (r_m) on immature of bulb mite, *R.robini* was about two times higher than on fungus, *F. moniliforme*. Thus immatures of bulb mite, *R. robini* proved to be the optimum food compared with those tested as it had the highest value of (r_m) 0.296.On the other hand, when the values of (r_m) was converted to the finite rate of increase **(e^{rm})** or (λ), it was clear that population of predator had capacity to multiply about (1.34, 1.09, 1.14, 1.22) times/female/day when it fed on four mentioned foods ,respectively. Gross reproductive rate (GRR) was (29.58, 12.45, 18.5 and 22.43) times/female/day when reared on the same four mentioned foods, respectively. It could be generally concluded that immatures of bulb mite, *R.robini* was the most suitable food for the development and reproduction of predator gamasid mite, *B. dentriticus*. These results are similar with those obtained by Zheng, (2011) who noticed that ,clamp cockroach mites, *Blattisocius dentriticus* (Berlese), Arachnida, Acari, sac mites Branch, stored product mite scavengers of important natural enemies of the the casein mites, *Tyrophagus putrescentiae* (Schrank), also occasionally found in citrus trees, tea tree, is a common type of predatory mites. Its biological and ecological characteristics, pollen mass rearing and mite control role of the study, clamp cockroach mites only camp sexual reproduction, a temperature of 29°C their offspring sex ratio of 13:7. Strong ability to reproduce, spawning up to 70 / female spawning date up to 4, the intrinsic rate of increase (rm) 0.22, population growth doubled the time required (t) for 3.15d . Etc. clamp cockroach mite predator behavior, including search, capture, smoking, cleaning, resting five parts. When food is scarce, the mites have to kill each other phenomenon; adult mites and nymphs have a strong resistance to hunger, in the case of water, the average adult mites resistant to hunger the 7.17d, longest 12d. 2 and other ecological characteristics of the clamp cockroach mites in the range of 20°C ~ 29°C to putrescentiae feed, etc. pliers cockroach mite mite state developmental duration shortened with increasing temperature, developmental rate with temperature elevated the accelerated developmental duration of more than 29°C prolonged developmental rate has slowed. Preoviposition under 29°C shortest 1.57d, the longest in the 35°C 5.17d. Etc. pliers cockroach mites generations obtained by direct optimum developmental threshold temperature and effective accumulated temperature of 12.87°C and 147.19 day-degrees. In the range of 23°C ~ 32°C, etc. pliers cockroach mites generation survival rates were 100%, 20°C, 35°C, 90%, 85%. The best of benefit and harm than predatory mite cost considerations. Also,Rudziska (1998) who constructed the phoretic predatory mite, *Arctoseius semiscissus* when it was offered sciarid eggs as food. The entire development from egg to adult lasted 7.9 days on average for both sexes with a survival rate of 68% and a sex ratio of 0.62. Parameters relating to oviposition were total fecundity (58.5 eggs per female), egg hatchability (79%) and oviposition (maximally 35 days). The net reproductive rate (Ro) was 24.49, the generation time (T) 13.85, the intrinsic rate of increase (rm) 0.23 and the finite rate of increase (λ) 1.26.Walter and Lindquist (1995) collected fifteen species of

ascid mites and found that parthenogentic ascid mites were present in ten out of 11 habitats sampled, but were not superior colonists. Furthermore, a habitat requiring strong dispersal abilities (decaying fungal sporocarps) lacked parthenogenetic species and a review of literature and collections indicated that all-female ascid species rarely form the phoretic associations with insects necessary to exploit patchy and ephemeral resources.

Food consumption

To investigate the suitability of various foods for ascid mite, *B. dentrticus*, the previously mentioned foods were used. As shown in Table (1), ascid mite *B. dentriticus* fed successfully on the tested foods. the number of devoured preys of housefly larvae significantly lower than immatures of bulb mite ,*Rhizoglyphus robini* for the predator, the consumed numbers were 17.8 and 23.8 prey, respectively for the predator males changed to 30.8 and 51.2 prey for females, respectively. However, the number of consumed preys during adult female longevity of predator was (82.6and 67.8 preys) changed to (59.2 and 56.4preys) during adult male longevity when fed on house fly larvae & immature of bulb mite, respectively, Table (4) During the total time (life span) of the predatory mite, *B.dentreticus,* the total number of the tested consumed preys was significantly differed. The number was (80.2 and119 prey) when the predatory mite males and females fed on amixtures of acarid mite, *R. robini* respectively. While the number of consumed preys was (77, 113.4 prey) when predatory mite fed on house fly, *M. domesticae* larvae, respectively.

Table 4: Food consumption of predator ascid mite, *Blattiocius dentriticus*(Berlese) when fed on immatures of acarid bulb mite, *Rhizoglyphus robine* and larvae of house fly, *Musca domesticate* at 30±2°C and 80±5% R.H

Predatory stage		No of devoured preys	
		Immatures of bulb mite, *Rhizoglyphus robini*	Larvae of house fly
Larvae	♂	11.0±1.58	8.4±1.1
	♀	21.8±2.38	12.8±2.86
Protonymph	♂	7.2±0.83	5.2±0.83
	♀	16.4±2.07	11.0±1.58
Deutonymph	♂	5.6±1.1	4.2±0.83
	♀	13.0±2.0	7.0±1.0
Immatures	♂	23.8±1.7	17.8±2.58
	♀	51.2±2.16	30.8±1.92
Longevity	♂	56.4±3.03	59.2±3.05
	♀	67.8±3.11	82.6±2.38
Life span	♂	80.2±4.43	77.0±3.46
	♀	119.0±3.24	113.4±5.1

However, Evans (1958) reported *Blattisocius dentriticus* (Berlese) from the thorax of anoctuid moth, *Caradina morpheus* (Hufn) but he gave no details regarding its relationship to the host.

Flechtmann, (1968) found eight females of *Blattisocius dentriticus* mites are predators on acarid mite, *Tyrophagus putrescentiae* which were found associated together in hives of honeybee. Pan (1985) found *Blattisocius dentriticus in associations with Tyrophagus putrescentiae* (Schrak) in dried pork in stored houses Shanghai and noted that this mite often fed on acarid mites and also, two adult female predators consumed 20 prey from *T.putrescentiae* within 18 hours.

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ARABIC ABSTRACT

تأثير الأغذية المختلفة على بيولوجية الاكاروس *Blattiosicus dentriticus* (Berlese) (Mesostigmata: ascidae)

أميرة الدسوقي مصباح محمد
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تم تربية المفترس الاكاروسى *Blattiosicus dentriticus* (Berlese) على عدة أنواع من التغذية وهى الأطوار الغير كاملة لحلم الأبصال عديم الثغر *Rhizoglyphus robini* Claparède والفطريات Sheldon *Fusarium moniliforme* و *Botrytis alli* ويرقات الذبابة المنزلية *Musca domesticae* Linnaeus وذلك تحت ظروف المعمل (30 ±2 م° & 80 ± 5 % رطوبة نسبية). وذلك لدراسة مدى قدرة المفترس الاكاروسى على القضاء على تعداد الذباب المنزلي والفطريات وكذلك الأطوار الغير كاملة لحلم الأبصال ولقد لوحظ أن اقل فترة حضانة للبيض للمفترس كانت عند تغذيته على الأطوار الغير كاملة للحلم الاكاريدى *R. robini* (3و1 & 95و. يوم) وأطولها كانت عند تغذية المفترس على فطر *F. moniliforme* (7و3 &6و2يوم) للأنثى والذكر على التوالى .ولقد تأثرت دورة الحياة Life cycle لكل من الإناث والذكور تأثيرا معنويا بتغير نوع الغذاء المستخدم. من ناحية أخرى كانت أطول فترات حياة الأفراد البالغة Longevity هي (8و36&30 يوما) عند التغذية على فطر *F. moniliforme* واقلها طولا (2و 22 &2و19يوم) عند التغذية على الاطوار الغير كاملة لحلم الابصال *R. robini* *للاناث* و الذكور على التوالى. أيضا تأثر عدد البيض التي وضعته إناث الاكاروس *B. dentriticus* باختلاف نوع الغذاء المقدم حيث سجلت الاطوار الغير كاملة لحلم الابصال *R. robini* أعلى عددا للبيض حيث وضعت إناث الاكاروس 8و47 بيضة بينما كان اقل عدد للبيض الموضوع عند تغذية إناث الاكاروس المفترس على الفطر *F. moniliforme* مسجلة 26 بيضة.وأتضح من النتائج أن الاطوار الغير كاملة لحلم الابصال أفضل عند تغذية المفترس الاكاروسى من حيث تأثيرة على التطور والخصوبة وأن المفترس الاكاروسى لة دور فى برنامج المكافحة البيولوجية حيث يعتبر وسيلة للتغلب على تعداد الذبابة المنزلية وحلم الابصال الاكاريدى وكذلك الفطريات المختلفة.