

Biology and Feeding Efficiency of the Predatory Mite *Amblyseius longispinosus* (Evans) on Chilli Mite, *Polyphagotarsonemus latus* (Banks)*

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Biology of *Amblyseius longispinosus* (Evans) and its feeding efficiency has been reported on tetranychid mites (Mallik, 1974; Mallik and ChannaBasavanna 1983). However, information on its biology and feeding potential on chilli mite, *Polyphagotarsonemus latus* (Banks) is not available, and so experiments were conducted under laboratory conditions to study these parameters.

Studies on the biology of *A. longispinosus* were conducted under laboratory conditions (temperature 23°C- 27°C; RH 65 - 70%). Four mated females were left on each of the thirty chilli leaves

kept upside down on wet cotton in Petri dishes (10 cm dia). As soon as an egg was laid by any one of the four females, all of them were removed and only one egg was left for studying the developmental stages. Subsequent observations were recorded once in 8 h till the predator completed its life cycle. The mid-point between two observations was considered as the time of moulting whenever development to the next instar was noticed.

For observing the durations of mating and pre-oviposition, fecundity and other biological informations, each female was placed with a male. Feeding

Table 1. Biology of *Amblyseius longispinosus* on chilli mite, *Polyphagotarsonemus latus*

Stage of the mite	Numbers observed	Duration of different stages		Measurements (μ)	
		Range	Mean \pm S.D.	Length	Width
Egg (h)				190.50	149.30
Female	11	41 - 50	46.45 \pm 4.69		
Male	9	40 - 47	45.67 \pm 3.24		
Larva (h)				298.80	175.00
Female	11	12 - 16	14.27 \pm 1.27		
Male	9	12 - 16	14.10 \pm 1.19		
Protonymph (h)				332.65	196.32
Female	11	22 - 25	23.18 \pm 2.98		
Male	9	21 - 25	22.78 \pm 1.09		
Deutonymph (h)				458.50	273.30
Female	11	23 - 26	24.41 \pm 2.49		
Male	9	20 - 25	22.71 \pm 3.41		
Developmental period (h)					
Female	-	98 - 117	108.31		
Male	-	93 - 113	105.26		
Pre-oviposition (h)	10	31 - 36	34.33 \pm 3.98		
Mating period (min)	10	50 - 120	93.46 \pm 15.42		
Oviposition (days)	9	12 - 18	16.11 \pm 2.37		
Fecundity	9	23 - 35	27.50 \pm 4.17		
Adult longevity (days)					
Female	9	10 - 21	17.11 \pm 5.88	588.76	307.36
Male	9	8 - 18	15.32 \pm 3.92	471.40	270.13
Total life period (days)					
Female	-	14 - 21	21.62 \pm 3.22		
Male	-	12 - 23	19.61 \pm 5.96		

efficiency of the predator was determined by exposing equal numbers of all the stages of *P. latus*. Measurements of different stages of *A. longispinosus* were recorded using an ocular micrometer.

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The egg period of *A. longispinosus* was completed in 46.45 and 45.67 h in male and female respectively. The female took 14.27, 23.18 and 24.41 h for completion of its larval, protonymphal and deutonymphal stages, respectively (Table 1), while the male took 14.10, 22.78, 22.71 h. These observations are more or less similar to those reported by Mallik (1974) and Burrell and McCormick (1964).

The female laid on an average 27.50 eggs during the ovipositional period of 16.11 days which is less compared to 45 eggs laid in 24.4 days as reported by Mallik (1974). *A. longispinosus* preferred larvae and nymphs of *P. latus*. The reason for the predator to prefer immature stages first followed by adults is attributed to the physical strength, or capacity of the older ones of the prey to escape (Mori, 1967). Though this is generally the case, it is not invariably so, since even the protonymph can attack an adult female prey when food is scarce.

The female during its ovipositional period consumed 11.72 larvae, 9.33 nymphs and 5.07 adults per day, and larva consumed 3.76, 1.38 and 0.00, respectively. The protonymph consumed 9.18, 7.87 and 3.18 larvae, nymphs and adults, respectively. This same species was reported to consume 3, 4 and 26 eggs of *Tetranychus ludeni*, during its pro-

tonymphal and deutonymphal and adult stages respectively (Mallik, 1974). In the present study, *A. longispinosus* was never observed to feed on eggs of *P. latus*. This may probably be due to the fact that the eggs are characteristically studded with reflective tubercles on the upper surface of the chorion.

KEY WORDS : *Amblyseius longispinosus*, Predatory mite, Biology, feeding potential, Polyphagotarsonemus latus.

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