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A Note on Feeding Potentiality of *Stethorus pauperculus* Weise an Impredator of *Tatranychus macfarlanei* Baker and Pritchard (Acarina : Tetranychidae)

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The spider mite, *Tetranychus macfarlanei* Baker and Pritchard is a little known species (Gupta, 1985). Recently, it has been recorded in serious proportion on summer okra *(Abelmoschus esculentus* Moench)(Sejalia, 1989) as well as on number of other crops and weed plants in the area (Jose, 1983). Besides several reasons for outbreaks, large scale depletion of natural enemies seems to be one of the major factors. Now, in recent years, looking to deleterious side effects of indiscreminate and illconceived application of pesticides, the research is on way to control the pests by exploring the effective natural enemies particularly existing in the area. Information on several natural enemies of phytophagous mites have been extensively reviewed (Mc Murthy *et al.*, 1970). The phytoseiid mites, thrips and coccinellid beetles were observed to be important predators of spider mites in India (Dhooria, 1980; Singh and Ray, 1977; Puttaswamy and Channabasavanna, 1977 and Jose, 1983). Although, biological control is safe and economical, this approach has not been fully exploited.

A preliminary survey on predators of *T. macfarlanei* infesting summer okra was made in and around Agricultural Research Farm, Gujarat Agricultural University, Navsari during 1989. Amongst natural enemies surveyed, *Stethorus pauperculus* Weise was an important predator voraciously feeding on all stages of this mite and observed in appreciable numbers during June coinciding almost with pesk period of okra mits. These predators were brought to the laboratory and maintained on *T. macfarlanei* (all stages) held on excised okra leaves. In the present investigations, the rate of per day feeding efficiency of single adult predator against different densities levels of *T. macfarlanei* was determined in the laboratory.

This experiment was conducted in especially designed micro-cages. A layer of wet cotton wool (2-3 mm thick) was spread over the cavity glass (6 cm^2 and 1.5 cm depth) and excised okra leaf (3 cm^2) was held in the middle(abaxial surface facing top). A thin layer of lanolin was applied along the periphery of the leaf so as to confine the mites on leaf surface provided, 60 mesh wire gauge was used for covering cavity glass and it was tied along the periphery of cavity glass from all side by rubber band so as to avoid escape of predators. Just emerged single adult beetle

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was released for a day against 5, 15, 25, 50 and 100 adult mites maintained in micro-cages. All experiments were replicated thrice. The data obtained on per day consumption by predator in relation to different denstities of mites were worked out and analysed statistically.

The studies indicated that *S. pauperculus* is largely responsible for the declining trend of tetranychid population. This coccinellid is a specialised predator of spider mites, typical of *Stethorus* species, it is highly voracious. Larvae were seen feeding on eggs and all post-embryonic stages by way of alternative sucking and regurgitation while adult beetle devoured the prey completely. As high as on an average 50.67 mites were completely devoured by single predator (irrespective of sexes) in one day at maximum density level of prey (100 mites) (Table 1). As the density of prey increased, number of prey attacked by single predator also increased considerably (Table 1). This was further confirmed by regression equation which followed straigh-line equation.

$$Y=4.09 + 0.49 x$$

The value of simple correlation coefficient (r) between different density levels of prey and number of prey attacked/devoured by single predator in a day was positively correlated and highly significant (r=0.9833). Hence, as the densities of prey increases than there is every likelyhood for the predator to fuid its prey easily and this has occured in present investigation. Putman and Herne (1966) also found *Stethorus* being more effective on *Penonychus ulmi* (Koch.)when mite was more aggregated and locally abundant than when population was more disperse. There are reports on the rate of consumption of *T. urticae* by *S. punctilum* being 20 to 40 mites per day; 40 to 60 mites (*p. ulmi*) per day by S. bifidus and 38.7 to 18.5 mites *(T. cinnabarinus)* per day of *S. gilvifrons* (Mc Morthy *et al.*, 1970).

TABLE 1

Per day rate of consumption of *T. macfarlanei* by single adult predator, *S. pauperculus*.

Sr. No.	*No. of prey density*	*No. of prey* consumed*
1.	5	2.00
2.	10	9.00
3.	15	12.67
4.	25	17.00
5.	50	33.67
6.	100	50.67

* Average of three replications.

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