

SUMMARY

Studies in the reclaimed sandy soil at the Experiment Research Center, El-Minia Univ., Shosha region, West Samalute, El-Minia Governorate on, incidence of phytophagous mite, *Tetranychus urticae* Koch on the common bean and cucumber varieties, relative susceptibility of common bean and cucumber varieties to infestation with *T. urticae*, incidence of mites inhabiting the soil under common bean and cucumber varieties, toxicity of eight tested compounds to *T. urticae* females and its predator, *Agistemus exsertus* Gonzalez at the laboratory in addition to biological studies on the relationship between *T. urticae* and its predator *A. exsertus* during 2001 and 2002 seasons.

The results obtained may be summarized as follows:

I- Incidence of the phytophagous mite, *Tetranychus urticae* Koch on the common bean and certain cucumber varieties :

- 1- All common bean varieties (Novax, Kentackey wonder and A Slin wonder) and cucumber varieties (Katia, Passandra, Nile and Asna) are suitable hosts for the phytophagous mite, *T. urticae* stages (egg, larvae, nymph and adult) with different degrees during 2001 and 2002 season.
- 2- The population of *T. urticae* stages were higher in 2001 season than in 2002 on the common bean and cucumber varieties.
- 3- The mites population increased irregularly from February till April and then decreased on the common bean and cucumber varieties during 2001 and 2002 seasons.
- 4- The mite peaks occurred on April for common bean and cucumber varieties in both seasons of 2001 and 2002.

II- Relative susceptibility of common bean and certain cucumber varieties to the infestation with *Tetranychus urticae* Koch :

1- All the tested common bean and cucumber varieties were infested by phytophagous mite, *T. urticae* during 2001 and 2002 seasons.

2- The common bean and cucumber varieties revealed a sharp differences in the susceptibility degrees as follows:

One- The Common bean variety, Novax was susceptible (s) during the two seasons of 2001 & 2002 with an average numbers of egg stage (47.27 & 44.12). The same results were also recorded for larvae, nymphs and adults during 2001 & 2002 season (8.96 & 8.50), (7.07 & 6.66) and (5.68 & 4.69) respectively.

Two- The common bean varieties, Kentackey wonder and A slin wonder exhibited low resistant (LR) during the 2001 & 2002 seasons with an average numbers of egg (28.79 & 33.11) and (27.30 & 31.25) respectively. While, in case of larvae, nymphs and adults through 2001 & 2002 seasons, their numbers were (5.34 & 6.52; 5.00 & 5.71), (4.00 & 4.95; 4.00 & 4.69) and (3.48 & 4.30; 3.05 & 3.71) respectively.

Three- The cucumber varieties, Katia and Nile were susceptible (s) during the two seasons 2001 & 2002 with an average numbers of (46.75 & 45.54) and (37.41 & 35.84) for eggs, (7.04 & 7.93; 6.39 & 6.66), for larvae, (5.21 & 5.96; 4.95 & 5.79) for nymphs and (4.52 & 4.89; 3.52 & 4.25) for adults.

Four- The cucumber variety, Passandra exhibited low resistant (LR) during both seasons of 2001 & 2002 with an average numbers of eggs of (33.64 & 27.30). The average numbers were (5.46 & 4.69); for larvae (4.00 & 3.86) for nymphs and (3.34 & 2.71) for adults.

Five- The cucumber variety, Asna had a moderately resistant (MR) during the two seasons 2001 & 2002, the average numbers of eggs, were (26.87 & 21.59). An average numbers of (4.37 & 3.91); (3.52 & 3.25) and (2.69 & 2.07) were recorded for larvae, nymphs and adults, respectively.

III- Incidence of mites inhabiting the soil under common bean and certain cucumber varieties:

- 1- The soil mites pertaining to the orders, Cryptostigmata, Mesostigmata, Prostigmata and Astigmata were abundant in all collected samples under common bean and cucumber plantations during 2001 & 2002 seasons.
- 2- The results indicated that, significantly differences between the previous orders. Mites of the Cryptostigmata order came first followed by Mesostigmata, Prostigmata and Astigmata orders on common bean and cucumber plantations during the two seasons of 2001 & 2002.
- 3- The population fluctuation of soil mites under common bean and cucumber plantations were found to be flourished on May, while January gave the lowest record, the numbers of mites collected during the other months (March & April) fluctuated in between those during the two seasons 2001 & 2002.

IV- Toxicity of some tested compounds to the *Tetranychus urticae* Koch females and its predator, *Agistemus exsertus* Gonzalez under laboratory conditions :

- 1- Aakofol, Aakomec and Dicomite compounds were the highest toxic effect to adult females of *T. urticae*.

- 2- Medamec, Oberon and Biosect compounds were the lowest toxic ones against *T. urticae* females.
- 3- Romectin and Flumite compounds were moderately toxic effect to adult females of *T. urticae*.
- 4- Romectin, Aakomec and Dicomite compounds were the highest toxic effect to adult females of predaceous mite, *A. exsertus*.
- 5- Oberon and Biosect compounds had the lowest toxic effect against *A. exsertus* females.
- 6- Aakofol, Medamec and Flumite compounds exhibited moderately toxic effect against *A. exsertus* females.
- 7- The most toxic effect were recorded after 1 day from treatment followed by 3, 5, 7 and 9 days.

V- Biological studies on the relationship between *Tetranychus urticae* and its predator *Agistemus exsertus*:

- 1- The total duration of the immature stages of the predaceous mite *A. exsertus* was 8.4 days, during this period the mite consumed an average of 38.50 eggs with a daily consumption of 4.58 eggs when feeding on the phytophagous mite, *T. urticae* eggs.
- 2- The total duration of the immature stages of the Predaceous mite, *A. exsertus* was 10.20 days, and during this period the mite consumed an average of 42.00 individuals with a daily consumption of 4.12 individuals when feeding on *T. urticae* immatures.
- 3- The duration period of the female of the predaceous mite, *A. exsertus* were 20.60 days, during this period the female consumed an average of 160.67 eggs with a daily consumption of 7.75 eggs

while, the duration period of the male of the *A. exsertus* was 15.40 days, and during this period the male consumed an average of 110.00 eggs with a daily consumption of 7.14 eggs, when feeding on the *T. urticae* eggs.

- 4- The duration period of the female of the *A. exsertus* were 24.80 days during this period consumed these male consumed an average of 125.50 individuals with a daily consumption a 5.06 individuals, while the duration period of the male of the *A. exsertus* were 19.00 days and consumed an average of 92.25 individuals with a daily consumption of 4.85 individuals, when feeding on the *T. urticae* immatures.
- 5- The previposition period of the predaceous mite, *A. exsertus* was shorter (1.80 and 2.00 days) and the oviposition period was longer (22.40 and 18.20 days) when feeding on the eggs of *T. urticae* than immatures, respectively.
- 6- The reproductive potential of the *A. exsertus* female which fed on eggs of *T. urticae* was more (87.35 egg/female) than when fed on immatures (41.65 egg/female).
- 7- The predaceous mite, *A. exsertus* generally prefers the eggs of *T. urticae* than immatures.
- 8- The duration period of *A. exsertus* was faster when fed on immatures of *T. urticae* than on eggs.