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SUMMARY

The aim of the present work is to throw some light on incidence of acarifoura that inhabit vegetable crops eggplant, (***Solanum melongena***), okra (***Hibiscus escluentus***), hot pepper (***Capcicum frutiscens***) and cucumber (***Cucmis sativas***) in different locates of Egypt. The population fluctuation of some tetranyched mites (***T. uticae, T. cucurbitaceaum***) and the eriophyid mites (***Aculops lycopessici***) which inhabiting eggplant and their predaceous mites (the phytoseiid mite ***Euseius sctalis*** sp. Stigmaeid mite ***Agistemus exertus*** and the tydeid mite ***Pronematus ubiquitus***) also the mite association with okra belonging to family Tetranychidae (***T. urtica, Eutetranychus orintales***) studied during two successive years, 2000 and 2001.

Beside the changes in the population density of these mites in relation to certain weather factors and predaceous mites. These field studies were carried out in El-khanka district at Qalyiobiya government.

The susceptibility of four unites of cucumber to the infestation of ***T. uricae*** and relation between their phytochemical components (total nitrogen, total sugar, carbohydrates, reduced sugar and phosphorus) and the population of the pest inhabiting it were tested during 2000 and 2001.

The biological aspects of the ascid mite ***Melichares orientalis*** n.sp when fed on free-living nematodes ***E. phlagellicaudatus*** and incubated at 20, 25 and 30°C under laboratory conditions.

The obtained studies revealed the following results:

I- Ecological studies

I-A -Incidence of the collected mites:

Studying the incidence of mites inhabiting the leaves and the soil of the obvious crop indicated that the occurrence of one hundred and fifty-

seven species of collected mites eighty-three genera, thirty-five families and four suborders.

The gamasid mites are represented by eleven families. These are Parasitidae (three species), Rhodacaridae (six species), Digmasellidae (one species), Ologamasidae (seven species), Ascidae (ten species), Phytoseiidae (ten species), Ameroseiidae (two species), Macrochelidae (six species), Pachylaelapidae (three species), Lailapidae (eleven species) and Uropodidae (two species).

Order Acariferms was represented by tthree ssuborders, tthe first one was suborder Actinedida which represented by eighty species belonging to fourty-four genera and seventeen families as follow: Nanorchestidae (one species), Eupodidae (seven species), Rhagididae (one species), Ereyntidae (one species) Tydeidae (three species), Cunaxidae (eight species) Phymotidae (three species) Pygmephoridae (thirteen species), Tarsonomidae (ten species), Rophignathidae (two species), Eupalospellidae (one species), Stigmaidae (one species), Cheyletidae (five species), Tetranychidae (nine species), Tenuipalpidae (one species), Eriophyidae (one species) and Anystidae (four species).

The acarid mites are represented by one family included five species. While the last suborder, Orbatida represented by six families, these families are Epilohmanniidae (one species),Lohmanniidae(two species), Oppidae (three species), Autognetidae (one species), Oribatulidae (three species) and the last family, Neotrichozetdae (one species).

I-B-Population dynamics of certain phytophagous and predaceous mites inhabiting eggplant and okra during seasons 2000 and 2001:

Eggplant:

Ecological studies of mites inhabiting leaves of eggplant indicated that, the phytophagous mites ***T. urticae, T. cucurbitacearum*** and the eriophyid mite ***A. lycopersici*** were observed during this study.

The two tetranychid mites observed from the end of the April and the population increased and vibrated until it reached to minimum number in the end of October. The peak of these tetranchid mites occurred during the end of May.

The eriophyid mite ***Aculops lycopersici*** was active between mid of May and end of August during the first year, of the study. While it was active between mid of June and the end of September during the second year of the study. In the first season the peak was observed in the end of May, while during the second season the only peak was observed in the mid of July.

The predaceous mites belonging to the families Phytoseiidae, Stigmaeidae and Tydeidae were associated with these phytophagous mites.

Okra:

The population fluctuation of phytophagaus mites inhibiting okra leaves was represented by ***T. urticae*** and ***E. orientalis*** which reached the maximum level in the beggaring of August during 2000, and in the mid of August during the second one. The predaceous mites belonging to family Phytoseiidae and Tydeidae were also observed during this study.

I-C- Effect of certain biotic factor (predaceous mites) and abiotic factors (weather conditions) on the abundance of phytophagous mites

infesting some vegetable crops (okra and eggplant) during seasons 2000 and 2001:

Eggplant:

The predaceous mites had variable positive effect in relation to the population of tetranychidae during the two years of studied (2000 and 2001). The relation was insignificant in the first year of studied (2000 and 2001). The relation was insignificant in the first year, while it was significant during (2001). The effect of maximum and the minimum temperature on these mites showed insignificant negative effect during the two years for the maximum temperature, while it was positive for minimum temperature during 2001. The relative humidity showed an insignificantly positive effect in (2000) and negative in (2001).

In case of the eriophyid mite, the predaceous mites expressed insignificant positive effect during (2000) but it had a significant positive role during (2001) for maximum, minimum temperature while for the relative humidity the relation was insignificant positive during the two studied seasons.

Okra:

The relation between the phytophagous mites and predaceous mites population was insignificant positive during (2000) while it was significant during (2001). Concerning the maximum temperature the relation between them was insignificant negative during (2000). While it was positive during (2001). However, the relation between the maximum temperature and the population of the phytohpagous mites was insignificant positive during the tow seasons. On the other hand, the relative humidity had an insignificant positive relation during the season 2000, while it was significant during the season 2001.

The results of the obtained that data revealed that, there were other combined factors effecting the activity of these phytophagus mites were inhabiting both of eggplant and okra.

I-D- Evaluation of the susceptibility of different cucumber varieties to mite infestation under field conditions:

This study was made to study the relative susceptibility of four cucumber varieties (Bablyion, Brinse, Super Delila and Thamine) to ***T. urticae*** infestation in Qaliyobiya Government during seasons (2001 and 2002).

Results indicated that, during 2001, the highest population of ***T. urticae*** 15.98 individuals/sq.inch occurred on Thamine variety, while the lowest population 3.37 individual/sq.inch was on Bablyion variety. During 2002, the highest population 10.21 mites/sq.inch was on Thamine variety and the lowest population 2.87 mite/sq.inch was on Bablyion variety.

These results also revealed that these were a significant difference between these varieties in their infestation with ***T. urticae*** and the phytochemical analysis of some elements (N, C, T.s., R.s., and P) in leaves of this varieties during the three vegetation periods seedling, flowering and yielding.

As for (N) during the seedling stage the variety Bablyion was the lowest and Thamine was the highest one in its (N) content, while in flowering the variety Super Delila was the highest and variety Brinse was the lowest. In yielding stage, variety Thamine was the highest one.

For (C), the varieties Bablyion recorded the highest (C) content while Brinse has the lowest (C) content during seedling period. While in

the flowering and yielding periods Thamine and Bablyion varieties showed the highest (C) content, respectively.

Considering (T.s.), the varieties Bablyion was the lowest during the seedling and yielding stages and the highest during flowering period, while the variety Tthamine was opposite to Bablyion variety in its (T.s.) content.

In the case of (R.s.) the variety Bablyion was the highest during seedling and flowering and was the lowest during yielding stage while super Dalila was the highest during the last stage.

At last for (P) content the variety Bablyion was the highest during the three vegetation periods while Brinse was the lowest during the two last stags.

***Relation between phytochemical components of cucumber varietes leaves and *T. urticae* infestation:**

From the obtained data, negative correlation was detected between (N) content and the infestation of ***T. urticae*** in all the tested varieties, while the relation between (C) and the infestation was negative in case of Bablyion, Brinse and Thamine varieties and positive in case of the fourth one, Super Delila. On the other hand, for (T.s.), the relation was positive in case of Bablyion,Brinse and Super Delila varieties and negative in Thtamine variety, while in case of (R.s.), the correlation was negative in Bablyion variety and positive in the other three varieties.

At last, the relation between the infestation and (P) leaf content was positive in case of Super Dalila, Bablyion and Thamine varieties and negative in Brinse variety.

II-Biological studies:

When the predatory mite ***Melichares orientalis*** n.sp. fed on the free living nematodes ***E. phlagellicaudatus*** and incubated at (20, 25, 30°C) and 70 is % R.H, the results revealed the following :

The incubation period of female was (2.97, 2.15 and 1.8) days when reared at (20, 25, 30°C) respectively. While it was (3.32, 2.12 and 1.88) days in case of male.

The larval stages duarted 2.25, 2.02 and 1.1 days for female and 2.1, 2.11and 0.88 days for male at the same previously mentioned temperature, respectively.

The protonemphal stages durated 3.11, 2.83, 2.05 days at 20, 25, and 30°C for female, respectively. While the male protonemphal stages took 2.9, 2.53 and 1.1 days, respectively.

Concerning the dutonemph, it took 2.04, 1.44 and 0.85 days for the ascid mite female, while it durated 1.76,1.15and 0.79 days for male when they reared on the last mentioned temperature, respectively.

The duration of the total immature and life cycle of the female predator durated, 7.46, 6.47 and 4.00 days and 10.34, 8.52 and 5.87 days, respectively however it was for the male of 6.73, 5.79 and 2.74 days and 11.25, 7.91 and 4.61 at the same degrees of temperature, respectively.

The female and male longevity was affected by temperature, as it was 44.11, 43.61and 23.35 days for female and 42.57, 40.32 and 19.69 days for male at 20, 25, 30°C, respectively.

Also the life span was 53.38, 48.23 and 26.59 for female where it affected with temperature, while in case of male it took 52.97, 48.23 and 23.81 days.

When individuals incubated at 20, 25, 30°C the female pre-oviposition period durated 0.91, 0.86 and 0.79 day at the same previously mentioned temperature.

The oviposition and postoviposition period affected when female incubated at 20, 25, 30°C, as it took 21.2, 10.76 and 9.21 for the oviposition period and 21.5, 32.26 and 10.79 for the postoviposition period.

Fecundity of this ascid mite when incubated at the same degree of temperature was 57.06, 72.71 and 77.29 egg / female, respectively, while the daily rate of depositing eggs / female was 1.33, 1.62 and 3.66 egg/day for 20, 25 and 30°C.

Life table parameters indicated that, the multiplication per generation was 19.48, 32.83 and 33.63 times in a generation time 16.96, 13.77 and 9.81 when predator incubated at 20, 25 and 30°C, respectively.

The intrinsic rate of increase was 0.36 when it was fed on the free-living nematodes and incubated at 30°C and 0.18 at 20°C.