Mites

M 1

PRELIMINARY STUDY OF TOMATO SPIDER MITES IN TUNISIA. J. Mediouni, R. Souissi and H. Yazid, Laboratoire de Protection des Végétaux, Institut National de la Recherche Agronomique de Tunisie, Rue Hédi Karray, 2049 Ariana, Tunis, Tunisia.

In Tunisia, spider mites cause serious damages on tomato both in greenhouses and in the open field. Nevertheless, basic information about these mite species, their biology, their host-plants and the losses they cause to production is lacking. A fundamental study on tomato spider mites was carried out in the main agricultural areas where tomato is grown. Preliminary results showed the presence of two phytophagous species: *Tetranychus urticae* (Koch) and *Aculops lycopersici* (Massee). The predatory species *Phytoseiulus* persimilis (Athias-Henriot) was also found.

M 2

POPULATION DYNAMICS OF MITES AND COLLEMBOLA IN LIBYAN AGROECOSYSTEMS. Naima Shibani and Hassan Maghrabi, Zoology Department, Faculty of Science, Al-Fatah University, P.O. Box 13799,Tripoli, Libya, E-mail: Drmaghrabi@Yahoo.com

The results indicated that in all the " total" soil fauna is an estimate of 2244414 ind. per m² was obtained from the analysis and microscopic examination of 125 kg of soil samples. This study showed that "mites and Collembola" are the most represented of soil arthropds with an estimate of 1918932 ind. per m², which represent 85.5% of the "total" soil fauna in the eight different locations surveyed. The phytophagous and predacous mites population densities are in the range of 1296447 ind. per m², representing 57.8% of the soil fauna. Scaning electron microscope (SEM) used as an aid to identify and classify the highly aggregate mites group e.g. the species *Tectocepheus velatus*, *Protoribates capucinus* and *Scutovertex* cf. *Sculptus* of the family Oribatidae. On the other hand, Collembola ranked the second common group of soil fauna with an estimate of 622285 ind. per m², representing 27.7% of the total soil fauna. In general, these findings are similar to most reported studies of soil fauna bioecology, population dynamics and biodiversity in different ecosystems. The mites and Collembola faunal groups investigated in different agroecosystems and habitats in Libya showed a remarkable degree of dissimilaraties caused by agricultural management , physical and chemical properties of agricultural soils.

M 3

MITES ASSOCIATED WITH MANGO TREES IN EGYPT. Mahmoud El-Halawany, Plant Protection Research Institute, Nadi El-Sayd St., Dokki, Egypt

Mango varieties are liable to attack by several mite pests, such as mango bud mite, *Eriophyes mangiferae* (Sayed); mango leaf rust mite, *Togonotus mangiferae* (Keifer); mango rust mite, *Metaculus mangiferae* (Attiah); mango leaf coating mite, *Cisaberoptus Kenyae* Keifer and mango red mite, *Oligonychus mangiferus* (Rahman and Sapra). The predaceous mites *Amblyseius swirskii* A.-H., *Typhlodromus mangiferus* Zaher and El-Borolossy and *Agistemus exsertus* Gonzalez were recorded in different localities. Ecological studies on Taimour, Hindi and Zebda varieties in Giza Governorate indicated that *C. kenyae and T. mangiferae* have one annual peak of seasonal abundance in November, whereas for the variety Alphons the peak was in December. The population density of *E. mangiferae* has one annual peak in August on Taimour, in November on Hindi and in October on Alphons and Zebda. *M. mangiferae* has one annual peak in October on different mango varieties. The population density of *O. mangiferus* has one annual peak in April. The population fluctuation of mite species inhabiting Taimour mango variety in Fayoum showed that *E. mangiferae* and *C. Kenyae* have one annual peak in November. *T. mangiferae* has one annual peak in October, while *O.mangiferus* has one annual peak in April. *M. magniferae* was not found in Fayoum Governorate.

M 4

TWO PRELIMINARY METHODS FOR MASS PRODUCTION OF THE PREDATORY MITE, *PHYTOSEIULUS MACROPILIS* (BANKS) DURING DIFERENT SEASONS (ACARI:PHYTOSEIIDAE). Ibrahim H. Heikal, Plant Protection Research Institute, 7 Nadi El-Seid, Dokki, Giza, Egypt.

Two preliminary methods for mass production of the predatory mite, *Phytoseiulus macropilis* (Banks) under the conditions of two net plastic greenhouse (500 mesh/inch^2 and of 4 m^2 each) are described. The predator was reared on the two-spotted spider mite, *Tetranychus urticae* Koch, feeding on bean plants grown in trays or in the greenhouse soil. The highest predator production obtained during spring and autumn (moderate temperature) as the average yields of *P. macropilis* were 1.080.600 and 1.528.800 predator individuals in bean plots, while they were 1.080.000 and 720.000 predators on bean trays in the two previous seasons, respectively. Moderate predator yields were collected during summer months due to prevailing high temperatures and the least number was obtained during winter months due to the prevailing low temperatures and shortage of food (*T. urticae*) supply.

M 5

STUDY OF MITES POPULATION DENSITY ON FOUR KINDS OF GRAPES AND ITS RELATION TO ENVIRONMENTAL CONDITIONS OF AL-JABAL AL-AKHDAR, LIBYA. Omran Abusalah Abugela, Plant Protection Department, Faculty of Agriculture, Omar Al Mukthar University, El-Beida, Libya.

An experiment was conducted to study the population density of red spider mite on *Muscat humbug*, *M. ltalica*, *Pirovino lugib* and *Somarello* grapes. It was found that the first three cultivars were most affected followed by Somerollo. The population density was different in different months of the year, with a visible increase in warm months. Mite infestation started after fruit coloration and was concentrated at the bottom of the fruit in the beginning, and then spread to the entire fruit.

M 6

FOOD PREFERNCE OF *ACARUS SIRO* ON DIFFERENT CEREAL CROPS. Fathi Saide, Omran Abusalah Abugela and Abdulbaga Ali, Plant Protection Department, Faculty of Agriculture, Omar Al Mukthar University, El-Beida, Libya.

The study illustrated that *Acarus siro* preferred wheat flour followed by barley and then corn as a food. On the other hand when local and imported flour were compared, *A. siro* was preferred highly infected local or imported flour than medium or low-infected with other pests.

M 7

PRELIMINARY STUDY OF RESISTANCE OF THE TWO–SPOTTED SPIDER MITE *TETRANYCHUS URTICAE* KOCH, TO SOME MODERN ACARICIDES. Rawa M.Youssef[1], Ibrahim Saker[2] and Ibteesam Marouf[3]. (1) Scientific Agricultural Research Center, Lattakia, Syria; (2) Faculty of Agriculture, Tishreen University, Lattakia, Syria; (3) Faculty of Science, Tishreen University, Lattakia, Syria.

A preliminary study was carried to elucidate resistance to acarcides in red mites which is considered as the most important problem facing their control. Experiments were carried to test number of acaricides on a resistant strain of *Tetranychus urticae* Koch to Dimethoate. The following acaricides Abamectin, Lufenuron, Diafenthiuron, Bromopropylate, Biphenthrin and Azocyclotin, gave good results, where the mortality exceeded 80% for each, compared with a sensitive strain to Dimethoate. These results suggest the possible use of these compounds in the control programs of mites without fear from occurrence of resistant strains. However, the acaricides Carbosulfan, Buprofeezin and Spenosad gave unsatisfactory results.

M 8

A STUDY OF HOST PLANTS –PHYTOPHAGOUS MITE (*TETRANYCHUS URTICE*) -PREDATOR (*PHYTOSEIULUS PERSIMILIS*) RELATIONSHIP.

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In studying the prey-predator relationship, it was found that the impact of the predator not only reduce the number of preys, but also by disturbing its age distribution. Among the factors that influence control efficiency is the timing of introducing the prey and the predator, the number of predators introduced, and the age of the plant. The introduction of 10-50 *Tetranychys urtica* individuals led to two fold increase during five to seven days in the presence of 2-4 predatory females. The predator *Phytoseiulus persimilis* was capable to efficiently control the prey. Firstly, because the predator was able to multiply faster than the prey and secondly because the predator is polyphagus and can survive in the green house in the absence of the prey.

M 9

A STUDY ON *AMBLYSEIUS ANDERSONI* CHANT (ACARI: PHYTOSEIIDAE) POTENTIAL FOR BIOLOGICAL CONTROL OF THE PHYTOPHAGOUS MITE *TETRANYCHUS URTICAE* KOCH (ACARI:TETRANYCHIDAE).

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Until now, *Phytoseiulus persimilis* is the most used predator in greenhouses for the biocontrol of *Tetranychus urticae*. However, in spite of its efficiency, this specific predator can not be introduced unless the prey is present in sufficient numbers. It will be more useful to introduce a polyphagous predator, capable to develop itself in the absence of its prey, to become present in large numbers before the infestation of the phytophagous mite. It is in this context that predatory capacities of *Amblyseius andersoni* was evaluated. In an experiment in closed environment, the development of the mite population on beans was observed in the presence and absence of the predator. Particular attention was given to the timing of the introduction of the prey and the predator, to the introduced numbers and to the presence of substitution food for the predator. The health status of the plant was also examined. It was evident that *Amblyseius andersoni* clearly slows down the population growth of *Tetranychus urticae*. In two cases, a 10 fold reduction of phytophagous mite was recorded in the presence of the predator, as compared to the control. However, when the *T. urticae* density becomes too high, the predator was then incapable to efficiently control and protect the plant. Therefore, the

utilization of Amb*l*yseius *andersoni* as a preventive measure and complementary to the introduction of *Phytoseiulus persimilis* should be considered.

M 10

POPULATION DENSITY OF THE CITRUS RED MITE (*PANONYCHUS CITRI*) AND THE TWO SPOTTED SPIDER MITE (*TETRANYCHUS URTICAE* KOCH) ON LEMON. N.K. Abukhashim[1], A.R. Hamza[2] and A. E. Gaga[2]. (1) Plant Protection Department, Faculty of Agriculture, El-Fateh University, Libya; (2) Date Palm Development Bureau, Libya.

In Libya, lemon trees are heavily attacked by phytophagous mites leading to severe damage. The population density of the citrus red mite *Panonychus citri* and the two spotted spider mite *Tetranychus urticae* were studied on lemon. It was found that temperature and relative humidity play an important role in governing their activity and population dynamics. The number of *P. citri* reached the highest peak in July at an average temperature of 31.6 C and relative humidity 65%, whereas the lowest number of mites was recorded in December at an average temperature of 14.9 and relative humidity 50%. However, the population density of *T. urticae* started to increase with the beginning of April at an average temperature of 25.7 C and RH 69% and the number of mites continued to increase to reach the highest peak in July, then started to decrease with the beginning of August to reach the lowest number in December.