



Identification of Mite Types Infesting *Cucumis Sativus* at Al Monshah District, Sohag Governorate, Egypt

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Abstract

The study was carried out at Al Monshah District, Sohag Governorate, Egypt to identify of mites' species infesting cucumber plants, *Cucumis sativus* L during March-June 2020. The results showed that found one mites' species was two-spotted spider mite *Tetranychus urticae* Koch. The red spider lives at the beginning of the infestation on the lower surface of the leaves to feed on the absorption of succulents, so that the affected leaves appear faded spots, and with the increase of the injury the spots increase and collect and turn into a light brown to make the whole leaf dry brown, and note the silk threads that the spider secretes on the bottom surface of the paper where the dust collects With spider waste, the paper becomes dirty.

Red spider sews strings to move from one leaf to another, and the plant is covered with fine strings that the spider witnesses to move from one leaf to another and from one plant to another, and its members have the ability to carry some pesticides and form impregnable strains by repeating the use of pesticides. It leads to a decrease in the value of the product and a reduction in production and income. The results obtained in the present study should be considered in planning programs when conducting the integrated management on *Tetranychus urticae* Koch.

Keywords: Cucumber Plants; *Cucumis sativus*; Red spider; *Tetranychus urticae*; Two-spotted spider.

Introduction

Cucumber plant is one of the most popular vegetables in Egypt [1] Cucumber, *Cucumis sativus* L, is one of the most important delicious vegetable crops among the family *Cucurbitaceae* and it is consumed as a raw green fruit or in salads and pickles. In Egypt, in 2017 the total cucumber production recorded 488.723 tons [2]. The cucumber, *Cucumis sativus* L, is a new greenhouse crop which can be grown successfully under protective structures year-round. Several insect pests that cause stunting plant and low yield attack cucumber crop; as a result, these pests must be controlled for optimal crop production [3].

It is well known that cucumber is a subject to the infestation by many pest species especially phytophagous mites in the family *Tetranychidae*.

The two-spotted spider mite, *Tetranychus urticae* Koch is one of the most dangerous mite pest infesting a wide range of plants worldwide [4-6]. The abovementioned vegetable plants are liable to be infested by several phytophagous mites, *Tetranychus urticae* Koch; *Tetranychus cucurbitacearum* that cause severe damage to the plants by feeding on the plant sap in addition to plant viruses transmission [7,8]. The aim of this study is to identify of mite species that affect the cucumber plants.

Materials and Methods

The study was carried out in five different fields at Al Monshah District, Sohag Governorate, Egypt during March to June 2020. In each field, ten random samples of cucumber leaves, *Cucumis sativus* L were taken weekly from different parts and levels of

the plant. The leaves of the plant samples were placed in plastic bags and transferred to the place of examination using a binocular microscope. The identification of phytophagous mite species was done using certain keys illustrated by Krantz [11], Zaher [12,13], Evans [14].

Results and Discussion

Taxonomic Tree

- I. kingdom Animalia
- II. Sub kingdom: Metazoa
- III. Phylum: Arthropoda
- IV. Subphylum: Chelicerata
- V. Class: Arachnida
- VI. Subclass: Acari
- VII. Superorder: Acariformes

VIII. Suborder: Prostigmata

IX. Family: Tetranychidae

X. Genus: Tetranychus

XI. Species: *Tetranychus urticae*

The data presented in Table 1 showed the presence of *Tetranychus urticae* Koch, one species of mites collected from *Cucumis sativus* L in the study area, It has also been shown that *Tetranychus urticae* Koch is most is the most higher prevalent and infested on cucumber plants. The results of this study showed effect of feeding duration and initial infestation density of *Tetranychus urticae* Koch on the foliage and yield attributes of cucumber. Mite incidence causes chlorosis in the leaves resulting in enormous loss in the total photosynthates of the plant followed by reduced yield. Thus, early identification of *Tetranychus urticae* Koch incidence and implementation of treatment should minimize yield loss, allowing potential higher benefit to the growers.

Table 1: mites species infesting cucumber plants at *Al Monshah* District, Sohag Governorate, during March to June 2020.

Mites species	Species
Period	Tetranychus urticae Koch
March-June 2020	

Our results were similar with: [9] reported *Tetranychus urticae* Koch infesting many vegetables like cucumber. [10] Increased activity of *Tetranychus urticae* Koch population was considered to play an active role in causing foliar damage and yield losses. There was a significant negative correlation between *Tetranychus urticae* infestation density and various attributes under investigation which emphasized the fact that quantitative losses occurred due to *Tetranychus urticae* Koch infestation in cucumber and as low as 5 mites released per grown up leaf (less than 1 mite/ sq. cm leaf) was capable of causing significant damage to the crop.

Conclusion

The results obtained in this study should be taken into consideration in the future to work the following research studies:

- I. Identification the types of mites spread on all agricultural crops in the region
- II. Conduct biological and ecological studies and population fluctuations for red spider
- III. Study integrated control programs for the red spider, which includes prevention methods, agricultural, mechanical

processes, and natural enemies such as predatory mites, and finally the study and evaluation of the best acaricides.

Acknowledgment

None.

Conflicts of Interest

No conflicts of Interest.

References

1. Abdel-Rahman HR (2019) Toxicological and Biological Responses of *Tetranychus urticae* Koch to Three Pesticides and their Side Effect on the Predatory Mite, *Euseius scutalis* (A.-H.). J. of Plant Protection and Pathology, Mansoura Univ 10(12): 639-646.
2. FAO (2017) FAO Stat database available from <http://faostat.fao.org>. Accessed date.
3. Bashir NHH, Abdalhadi MA (1986) Screening of some insecticides against cucumber insect pests in the Sudan Gezira. Iraqi J. Agric.Sci 4: 39-45.
4. Zaher MA (1986a) Predaceous and non-phytophagous mites in Egypt (Nile Vally and Delta) PI 480 Program. USA Project No. EG. ARS, 30. Grant. No, FG, Eg 139: 567.
5. Abdel Rahman HR, Fouly AH (2001) Residual analysis of some pesticides in sweet pepper and their side effect on non-target mite species in greenhouses. J. Agric. Sci., Mansoura Univ 26(1): 459-465.

6. Zhang ZQ (2003) *Mites of Greenhouses; Identification, Biology and Control*. CABI Publishing. Wallingford. UK.
7. Farrag AM, Megali MK, Habashi NH (1998) Survey of mites inhabiting cucurbitaceous and leguminous vegetables in Qualiobia and Giza Governorates. *Egypt J. Agric. Res* 76 (1): 63-68.
8. Abou-Attia FA, Sharshir FA, Tadros MS, El-Shafei GMA (2004) Relative abundance and spatial distribution of *Liviomyza trifolii* (Burgees), *Thrips tabaci* (Lind.) and *Tetranychus urticae* Koch populations attacking cucumber and tomato grown undergreen houses. *J. Agric. Res. Tanta Univ* 30(2): 342-357.
9. Rai SN, Indrajeet (2011) Note on phytophagous mites associated with common vegetables in Varanasi and Azamgarh district of Eastern Uttar Pradesh. *J Insect Sci* 24(2): 199-200.
10. Tehri K, Gulati R, Geroh M (2014) Damage potential of *Tetranychus urticae* Koch to cucumber fruit and foliage: Effect of initial infestation density. *Journal of Applied and Natural Science* 6 (1): 170-176.
11. Evans J (1992) *Plantation Forestry in the Tropics*. 2nd. Edn. Clarendon Press, Oxford 403pp.
12. Krantz GW (1978) *A Manual of Acarology*. Second Edition. Oregon State University Book Stores, Inc., Corvallis, Oregon. Second Printing 1-7: 1-509.
13. Zaher MA (1986 b) Survey and ecological studies on phytophagous, predaceous and soil mites in Egypt. II-B: Predaceous and non-phytophagous mites in Egypt. (Nile Valley and Delta): 567.
14. Zaher MA (1986 c) Survey and ecological studies on phytophagous, predaceous and soil mites in Egypt. III-C: Mites of Sinai: 36 pp.