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**Degree: Doctor of Philosophy**

**Title of Thesis: Studies on Certain Predatory Mites  
Attacking Arthropod Pests Infesting  
Cucumber in Plastic Houses.**

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**Approval: / /**

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## **ABSTRACT**

Cucumber plants infested with many arthropod pests which include mites such as two-spotted spider mite or insects like thrips, aphids and white fly.

Population dynamics of all pests on two cucumber cultivars (Sahm and Heikal) in plastic houses through two years (2004-2005) in Beheira Governorate were studied. The biological aspects of four predatory mites were tested on different stages of *Tetranychus urticae*, adults, immatures and eggs, the shortest life cycle averaged 3.90 days on adult stages for *Phytoseiulus macropilis*; 4.80 days on immatures for *Neusulus californicus*; 5.9

days on immatures of *N. zaheri* and 4.4 days on eggs of *N. cucumeris*.

Biological control for *T. urticae* on cucumber plants with the same prior predatory were made during two seasons 2004-2005, both *N. californicus* and *P. macropilis* giving the best reduction rate. The same predators used for controlling three insect pests: *Thrips tabaci*, *Aphids gossypii* and *Bemesia tabaci*, through the same season, *N. cucumeris* and *N. zaheri* giving the highest reduction rate. Two components were tested for controlling the all former pests during the same seasons; vertemic and ortus. Vertemic was the best one in reducing the all pests population. Integrated pest control were studied by using the best two predatory mites and the best bio-cide.

The population dynamics for the four phytoseiid mites were studied. The highly number of all predators observed on Heikal cultivar than Sahn one through the same two seasons.

**Key words:** *Phytoseiulus macropilis*, *Neusielus californicus*, *N. cucumeris*, *N. zaheri*, *Tetranychus urticae*, *Bemesia tabaci*, *Aphids gossypii*, *Thripis tabaci*, Biological control.

**Prof. Dr. Morad Fahmy Hassan**

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**Prof. Dr. Morad Fahmy Hassan**



## الخلاصة

يصاب الخيار بالعديد من الآفات من مفصليات الأرجل أكاروسية مثل العنكبوت الأحمر ذو البقعتين وحشرية مثل التربس والمن والذبابة البيضاء. تم دراسة ديناميكية التعداد على صنفين من الخيار سهم وهيكل المنزرع فى الصوب البلاستيكية فى محافظة البحيرة وتم عمل دراسة بيولوجية لأربع مفترسات أكاروسية على الأطوار المختلفة للعنكبوت الأحمر ذو البقعتين. وكان أقصر دورة حياة للمفترس *Phytoseiulus macropilis* 4.80 يوماً بتغذيته على الأطوار الغير كاملة للعنكبوت الأحمر، وكانت أقصر دورة حياة للمفترس *Neusulus californicus* 5.9 يوماً بتغذيته على الأطوار الغير كاملة. وبالنسبة للمفترس *N. zaheri* كانت دورة الحياة 4.4 يوماً بتغذيته على بيض العنكبوت الأحمر. أما المفترس *N. cucumeris* كانت أقصر دورة حياة بتغذيته على بيض العنكبوت الأحمر 4.4 يوماً.

مكافحة الأطوار المختلفة للعنكبوت الأحمر التى تصيب الخيار باستخدام نفس الأربعة مفترسات الأكاروسية خلال سنتين متتاليتين 2004، 2005. وقد حقق المفترسين *N. californicus* و *P. macropilis* أعلى نسبة خفض. واستخدام نفس المفترسات الأربعة فى مكافحة الآفات الحشرية التى تصيب الخيار خلال الفترة وقد حققا المفترسين *N. cucumeris* و *N. zaheri* أعلى نسبة خفض لهذه الآفات.

تم استخدام نوعين من المركبات على الآفات السابق ذكرها خلال نفس الفترة هما *vertemic* و *ortus* وأن المبيد الحيوى أعطى أعلى نسبة خفض للأطوار المختلفة للعنكبوت الأحمر والآفات الحشرية الثلاثة.

تم عمل المكافحة المتكاملة باستخدام أفضل نوعين من المفترسات وأفضل مبيد وذلك لتقليل تعداد الآفات الأكاروسية والحشرية.

أيضا تم دراسة ديناميكية التعداد بالنسبة للمفترسات الأكاروسية وأتضح أن أعلى نسبة لتعداد المفترسات الأربعة على الصنف هيكل من الصنف سهم خلال الموسمين.

الكلمات الدالة:

*Phytoseiulus macropilis*, *Neusielus californicus*, *N. cucumeris*, *N. zaheri*, *Tetranychus urticae*, *Bemesia tabaci*, *Aphids gossypii*, *Thrips tabaci*,

والمكافحة البيولوجية .

أ.د. مراد فهمى حسن

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