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A RECOMMENDABLE ARTIFICIAL REARING METHOD ON THE LEAF MITE *TETRANYCHUS VIENNENSIS* (ZACHER)

BY HUA TANG, ZHEMIN ZHENG, RONG XU, WENSHENG JIANG, ZHONG KONG

(Accepted septembre 2001)

**TETRANYCHUS VIENNENSIS**
**ARTIFICIAL REARING**

**SUMMARY:** In order to provide experimental resource of the leaf mite, *Tetranychus viennensis*, an artificial rearing method has been studied. Results showed that the method not only made the population of the mite more and more, but also was easy to renew old leaves. It is a good artificial rearing method and worthy to recommend.

**TETRANYCHUS VIENNENSIS**
**SUBSTRAT ARTIFICIEL D’ÉLEVAGE**

Résumé : Une méthode d’élevage de *Tetranychus viennensis* a été expérimentée. Cette technique d’élevage permet non seulement un bon développement de la population mais aussi facilite le renouvellement des feuilles.

Researches on artificial rearing of *Tetranychus viennensis* (Zacher) have been rarely reported. In *World Crop Pest* (Helle, W. et al.,1985) and *China economic insects record* (Hui Fu Wang, 1981), the methods of artificial rearing of the mite have only been introduced generally. In order to provide sufficient experimental resource of the mite, the artificial rearing methods of this mite have been further studied in this paper on the base of the above-mentioned researches.

**I MATERIAL AND MAJOR EQUIPMENT**

The leaf mites were collected from Zhongning County and Yinchuan City, Ningxia, P. R. China, and the hosts were the apple tree and mulberry. Major equipments include the super clean work table (moon altar brand made in the first factory of Beijing semiconductor equipment) and cultivation box with constant temperature (HH.B11.600 brand made in the Tianjin experiment instrument factory).

**2 RESEARCH METHODS**

According to the concerning Reference, the following method as a Treatment way have been designed. Mulberry leaves were used, because of apple leaf is small, thick and often curly and aren’t easy to be spreaded and the villus is long, some mites on it aren’t easy to be observed; mulberry leaf is just contrary to it, which is adapted to rearing and observing the mite.

A young but full-grown primary leaf without petiole was spreaded with the upper surface on a

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piece of filter paper on a wet sponge (0.8 cm in thick and 6 cm in square) contained in a Petri dish (7 cm in diameter). There was not any interspace between the margin of the leaf and the filter paper in order to prevent mites from moving to the undersurface of the leaf and escaping observation. After sufficient leaves contained in Petri dishes were prepared, they were put in super cleaned work table and were disinfected for 3 hours with ultraviolet lamp.

Some adults with high vigor on outdoor fresh leaves were selected with the pointed ends of small brush under microscope and put on the leaves contained in Petri dishes (32 in every Petri dish). Distilled water was instilled into Petri dish along its side with burette until the surface of the water reached up to 5 mm high. The Petri dishes were marked and put into cultivating box under 28° C. In order to keep humidity, a beaker filled with distilled water was put in the lowest shelf of the box. To simulate natural situation, natural light was supplied by closing glass door of the cultivating box and leaving external gate open. The mating, eggs laying, hatching and life-span of the mite were observed under microscope every day until the 2nd generation finished. Distilled water should be supplied into the Petri dishes when observing, so as to prevent the leaf piece from losing water. The observation should be done on the super cleaned work table to avoid contamination and moldy of the leaf pieces.

Filter paper was used in a Contrast way instead of sponge. The other processes of the Contrast way are same as the Treatment way.

### RESULTS AND ANALYSES

The results are shown in the Accessorial Table.

<table>
<thead>
<tr>
<th>Group number</th>
<th>The highest amount of the 1st generation</th>
<th>The highest amount of the 2nd generation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Egg</td>
<td>Nymph</td>
</tr>
<tr>
<td>Treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>184</td>
<td>89</td>
</tr>
<tr>
<td>2</td>
<td>106</td>
<td>68</td>
</tr>
<tr>
<td>3</td>
<td>57</td>
<td>51</td>
</tr>
<tr>
<td>Contrast</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>32</td>
<td>13</td>
</tr>
<tr>
<td>2</td>
<td>24</td>
<td>21</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>0</td>
</tr>
</tbody>
</table>

Notes: "7*" means the time from the hatching of egg to the complete death of nymph mites.

It could be seen that the Contrast way is not successful, because of the mites tend to climb towards the leaf edge and be drowned often, the mites already died completely in the nymph period. On the contrary, the Treatment way is very successful. Because this way avoided the phenomenon of filter paper accumulating water too much and only kept filter paper on the sponge in the wet state, the mites could not be drown when they climbed to the filter paper edge and could return to the leaf in short of food. As a result, a large number of mites produced after one week and developed to the second generation and their amount was more and more.

### CONCLUSIONS

This artificial rearing method is good and worth recommending. It not only made the population of the mite more and more, but also was easy to renew old leaves. The renewing processes were as follows. After about 7 days, the leaves would lose green, sometimes were getting moldy, and needs to renew. Under the circumstance, a fresh leaf was cut into the same dimension as filter paper on the sponge wad and a great round hole (dimension is the same as the old leaf) was cut in the center of it. Then, it was directly put on the filter paper along the old leaf's edge. The next day, the
overwhelming majority mites moved on the new leaf, especially the female adults, and their eggs started to appear. Then, the old leaf was replaced by another fresh leaf, which was cut into the same dimension of the old leaf.

REFERENCES
