Preliminary Studies on the Effect of Insecticides on the Emergence of Trichogramma chilonis (Ishida)

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Laboratory bioassay was carried out to determine the toxicity level of insecticides viz., Bifenthrin 10EC (Talstar 10EC), at 25, 50 and 75 g ai/ha, Lambda Cyhalothrin 5EC (Karate 5EC), at 12.5 g ai/ha and Chlorpyriphos 20EC (Dursban 20EC) at 37.5 g ai/ha on the egg parasitoid, Trichogramma chilonis (Ishida). The egg cards were treated with the above insecticides and the control with water using an atomizer. The treated cards were shade dried and kept inside the test tube plugged with cotton. The number and the control with water using an atomizer. The treated cards were shade dried and kept inside the test tube plugged with cotton. The number of adults emerged from each treatment was recorded after 24 hours and the percentage mortality was worked out. The results revealed that maximum emergence of T. chilonis was noticed in control with 96.40 per cent with significantly less in Bifenthrin 10 EC @ 25 g a.i./ha (88.14%), Bifenthrin 10 EC @ 50 g a.i./ha (86.42 per cent) and Bifenthrin 10 EC & 12.5 g a.i./ha and Chlorpyriphos 20 EC @ 37.5 g a.i./ha recorded 78.49 and 80.32 per cent adult emergence, respectively (Table 1).

Table 1 : Effect of insecticides on the emergence of Trichogramma

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Treatments</th>
<th>Dose (g a.i./ha)</th>
<th>% emergence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Bifenthrin 10 EC</td>
<td>25</td>
<td>88.14% (69.65)</td>
</tr>
<tr>
<td>2.</td>
<td>Bifenthrin 10 EC</td>
<td>50</td>
<td>86.42% (68.37)</td>
</tr>
<tr>
<td>3.</td>
<td>Bifenthrin 10 EC</td>
<td>75</td>
<td>84.72% (66.99)</td>
</tr>
<tr>
<td>4.</td>
<td>Lambda Cyhalothrin 5 EC</td>
<td>12.5</td>
<td>78.49% (62.36)</td>
</tr>
<tr>
<td>5.</td>
<td>Chlorpyriphos 20 EC</td>
<td>37.5</td>
<td>80.32% (63.66)</td>
</tr>
<tr>
<td>6.</td>
<td>Control</td>
<td></td>
<td>96.40% (79.06)</td>
</tr>
</tbody>
</table>

SED 1.82
CD (p = 0.01) 2.60

Values are mean of four replications; values with different alphabets differ significantly; transformed values in bracket.

Similarly, four palms each bearing round and elongated nuts were selected to study the influence of nut shape on the infestation. Nuts with mean circumference/length (C/L) ratio less than 1.90 were considered as elongated nuts and those with C/L ratio above 1.90 as round nuts. The nuts of the palms from four consecutive harvests were grouped into six damage categories (Category 1–Nuts without scars, II–Nuts with 1 to 5 scars, III–Nuts with 6-20 scars, IV-Nuts with > 20 scars in a single ring round the nut, V–Nuts with > 20 scars distributed more or less all over the nut VI–Nuts heavily scarred in which the endosperm failed to develop). The Mean Intensity Score (MIS) of each harvested bunch was calculated as follows.

\[
\text{MIS} = \frac{\text{Number of nuts belonging to category 1} \times 1 \text{ (score of nuts)} + \ldots + \text{Number of nuts belonging to category 6} \times 6 \text{ (score of nuts)}}{\text{Total number of nuts}}
\]

The result showed that the lowest damage was recorded in bunches with green coloured nuts, the MIS being 3.10. The damage observed in the nuts was significantly lesser than that in the other bunches. Damage of the pest was significantly higher in elongated nuts (MIS – 4.10) compared to palms having round shaped nuts (MIS – 3.30).

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Influence of Nut Colour and Shape on the Extent of Damage by Paradasynus rostratus Dist. in Coconuts

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The coreid bug, Paradasynus rostratus Dist. is a notorious pest of coconut and it causes immature nut fall and yield loss in coconut. To study the influence of nut colour and shape on coreid bug attack, five coconut palms each yielding green, red, greenish orange and orange nuts were selected. The potato tuber moth (PTM) Phthorimaea operculella (Zeller) is one of the serious pests of the potato (Solanum tuberosum, Solanaceae). Studies were conducted at Central Potato Research Institute, Shimla (north India) situated at an altitude of 2200m ASL in Himachal Pradesh between 31°N 77°E, during the main potato crop seasons of 2008 and 2009 in polyhouse at ambient temperature of 25±2°C. Nine plants namely neem (Azadirachta indica L.), ritha (Sapindus mukorossi L.) and ratna jayot (Jatropha curcas). Chrysanthemum (Chrysanthemum cinerariaefolium), bana (Vitex negundo L.) Kaner (NERium oleander L.) eucalyptus (Eucalyptus globules), stinging nettle (Urtica dioica L.) and lantana (Lantana camera L.) were decorticated in a grinder. Required quantities of plant powders were used as 5g/350g potato tubers and untreated potato tubers were used as control in small open boxes in polyhouse. The observation was taken after 10 days of treatment up to two months to record the effectiveness of plant powder.

Eco-friendly Management of Phthorimaea operculella (Zeller) using Indigenous Plant Powder

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The potato tuber moth (PTM) Phthorimaea operculella (Zeller) is one of the serious pests of the potato (Solanum tuberosum, Solanaceae). Studies were conducted at Central Potato Research Institute, Shimla (north India) situated at an altitude of 2200m ASL in Himachal Pradesh between 31°N 77°E, during the main potato crop seasons of 2008 and 2009 in polyhouse at ambient temperature of 25±2°C. Nine plants namely neem (Azadirachta indica L.), ritha (Sapindus mukorossi L.) and ratna jayot (Jatropha curcas). Chrysanthemum (Chrysanthemum cinerariaefolium), bana (Vitex negundo L.) Kaner (NERium oleander L.) eucalyptus (Eucalyptus globules), stinging nettle (Urtica dioica L.) and lantana (Lantana camera L.) were decorticated in a grinder. Required quantities of plant powders were used as 5g/350g potato tubers and untreated potato tubers were used as control in small open boxes in polyhouse. The observation was taken after 10 days of treatment up to two months to record the effectiveness of plant powder.