MEDICINAL AND AROMATIC CROPS AS HOSTS OF *Helicoverpa armigera* Hübner (LEPIDOPTERA: NOCTUIDAE)

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IHBT Publication Number: 2330

Geotag: Kangra, India [E 76°33’29’’ – N 32°6’20’’]

*Helicoverpa armigera* Hübner (Lepidoptera: Noctuidae) is one of the most polyphagous, devastating and cosmopolitan pest species (Shelomi *et al.*, 2010). Its larvae feed on a wide range of plants, including many important cultivated crops (Sharma, 2001; Nadda *et al.*, 2012). It is a serious pest of cotton, maize, tobacco, tomato, pigeon pea and chickpea. In Russia and adjacent countries, it is reported to attack more than 120 plant species (AgroAtlas, 2012) and newer records are still increasing the number of host plants.

Present note will describe some of the medicinal and aromatic crops as new hosts of *H. armigera*. Regular surveys were conducted at Chandpur farm in fields and greenhouses of CSIR-Institute of Himalayan Bioresource Technology, Palampur (Latitude 76°33’29’’ East; Longitude 32°6’20’’ North; Elevation 1356 amsl). *H. armigera* was observed on many medicinal and aromatic crops raised and cultivated in and outside the greenhouses (Plate 1). Its larvae were observed on *Rosa damascena*, *R. bourboniana*, *Matricaria chamomilla*, *Salvia sclarea*, *S. officinalis*, *Borago officinalis*, *Silybum marianum*, *Plumbago zeylanica*, *Achillea millefolium*, *Asparagus officinalis*, *Foeniculum vulgare*, *Melissa officinalis*, *Nepeta cataria*, *Pelargonium graveolens*, *Stevia rebaudiana* and *Anacyclus pyrethrum* in the fields (Table 1 and Plate 1). Amongst the different crops grown in the same greenhouse, *H. armigera* attacked *Dracocephalum heterophyllum*, *Artemisia pallens* and *Salvia officinalis* more prevalently, compared to *Thymus serpyllum*, *Hypericum perforatum*, *Pelargonium graveolens*, *Rosmarinus officinalis* and *Stevia rebaudiana*. As far as I am aware from literature, all the plants except *Salvia sclarea*, *Asparagus officinalis*, *Foeniculum vulgare*, *R. damascena* and *R. bouroniana* are new host records for *H. armigera* (Table 1). Eggs and larvae from different crops were collected and reared under controlled laboratory conditions (25±2 °C; 50±10% RH) for identification. Larvae were reared on semi synthetic diet individually in plastic vials of 20 ml capacity. Ingredients for the preparation of one unit diet included corn flour-84 g, yeast-25 g, casein-10 g, agar -11 g, ascorbic acid-5g, sorbic acid-1g, methyl-4-hydroxybenzoate-2g, streptomycine sulphate 0.2 g, formaldehyde-2-3 drops, multivitamin drops (ABDEC) 3-4 drops and distilled water 600 ml.

The severity of infestation by *H. armigera* in the scented rose field at Chandpur farm was assessed by trapping adults using funnel type sex pheromone traps (Pest Control (India) Private Limited, Division: Bio-control Research Laboratory, Bangalore, India). A total of 7,896 males were trapped in the month of April with an average of 46.45 males/trap/day (maximum 102.29 and minimum 15 adults/trap/day). Time of emergence of *H. armigera* adults after winter diapause coincided with bud formation of scented roses. Hence, rose crop is utilized as a host crop besides other medicinal and aromatic crops as described in the manuscript.

Table 1. Medicinal and aromatic crops as hosts of Helicoverpa armigera

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Botanical name</th>
<th>Common Name</th>
<th>Family</th>
<th>Place of observation</th>
<th>Period of observations</th>
<th>Parts damaged</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Rosmarinus officinalis L.</td>
<td>Rosemary</td>
<td>Lamiaceae</td>
<td>Greenhouse &amp; Field</td>
<td>April, July</td>
<td>leaves</td>
</tr>
<tr>
<td>2.</td>
<td>Thymus serpyllium L.</td>
<td>Breckland thyme, Wild thyme or Creeping thyme</td>
<td>Lamiaceae</td>
<td>Greenhouse</td>
<td>June</td>
<td>Leaves</td>
</tr>
<tr>
<td>3.</td>
<td>Melissa officinalis L.</td>
<td>Lemon balm Catnip, Catnip, Catnip or Catnip</td>
<td>Lamiaceae</td>
<td>Field</td>
<td>April</td>
<td>Leaves</td>
</tr>
<tr>
<td>4.</td>
<td>Nepeta cataria L.</td>
<td>Catnip, Catswort, or Cat mint</td>
<td>Lamiaceae</td>
<td>Field</td>
<td>April</td>
<td>Leaves</td>
</tr>
<tr>
<td>5.</td>
<td>Dracocephalum heterophyllum Benth.</td>
<td>White dragonhead</td>
<td>Lamiaceae</td>
<td>Greenhouse</td>
<td>June</td>
<td>Leaves, flowers</td>
</tr>
</tbody>
</table>
6. *Salvia sclarea* L.  
   **Clary or clary sage**  
   Lamiaceae  
   **Field**  
   **June, April**  
   Leaves, flowers

7. *Salvia officinalis* L.  
   **Garden sage, Common sage**  
   Lamiaceae  
   **Greenhouse & Field**  
   **April, July**  
   Leaves, stem, flowers

8. *Artemisia pallens* Wall. ex DC.  
   **Davana, Dhavanam**  
   Asteraceae  
   **Greenhouse**  
   **July**  
   Leaves, stem, buds, flowers

9. *Matricaria chamomilla* Blanco  
   **German chamomile**  
   Asteraceae  
   **Field**  
   **April**  
   Leaves, flowers

    **Pellitory, Spanish chamomile, or Mount atlas daisy**  
    Asteraceae  
    **Field**  
    **April**  
    Buds, flowers

    **Milk thistle**  
    Asteraceae  
    **Field**  
    **April**  
    Buds, flowers

    **Yarrow**  
    Asteraceae  
    **Field**  
    **April**  
    Buds, flowers

13. *Borago officinalis* L.  
    **Borage, Starflower**  
    Boraginaceae  
    **Field**  
    **April**  
    Buds, flowers

14. *Plumbago zeylanica* L.  
    **Ceylon leadwort, Doctorbush**  
    Plumbaginaceae  
    **Field**  
    **November**  
    Buds, flowers

15. *Hypericum perforatum* L.  
    **Tipton’s weed, chase-devil, or Klamath weed, St John’s wort**  
    Clusiaceae  
    **Greenhouse**  
    **June**  
    Leaves

16. *Pelargonium graveolens* L’Her  
    **Rose geranium**  
    Geraniaceae  
    **Field**  
    **April, June**  
    Leaves

17. *Asparagus officinalis* L.  
    **Asparagus**  
    Asparagaceae  
    **Field**  
    **April**  
    Leaves

18. *Foeniculum vulgare* Mill.  
    **Fennel**  
    Apiaceae  
    **Field**  
    **April**  
    Leaves, stem

    **Damask rose**  
    Rosaceae  
    **Field**  
    **March, April, May**  
    Buds, flowers

20. *Rosa bourboniana* L.  
    **Bourbon rose**  
    Rosaceae  
    **Field**  
    **April, May, June**  
    Buds, flowers

**ACKNOWLEDGEMENTS**

Author is grateful to the Director, CSIR-Institute of Himalayan Bioresource Technology for providing necessary facilities and infrastructure during the course of investigation and to Council of Scientific and Industrial Research, India for providing financial assistance for conducting this research.

**REFERENCES**


