

Scientific Note

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

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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.*

bourboniana 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, streptomycin 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.



Figure 1. *Helicoverpa armigera* on: **a.** *Dracocephalum heterophyllum* **b.** *Artemisia pallens* **c.** *Silybum marianum* **d.** *Matricaria chamomilla* **e.** *Salvia officinalis* **f.** *Salvia sclarea* **g.** *Rosa* sp. **h.** Adults trapped in pheromone trap **i.** *Stevia rebaudiana* **j.** *Foeniculum vulgare* **k.** *Asparagus officinalis* **l.** *Nepeta cataria* **m.** *Borago officinalis* **n.** *Rosmarinus officinalis* **o.** *Hypericum perforatum* **p.** *Pelargonium graveolens*

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

S. No.	Crops		Family	Place of observation	Period of observations	Parts damaged
	Botanical name	Common Name				
1.	<i>Rosmarinus officinalis</i> L.	Rosemary	Lamiaceae	Greenhouse & Field	April, July	leaves
2.	<i>Thymus serpyllum</i> L.	Breckland thyme, Wild thyme or Creeping thyme	Lamiaceae	Greenhouse	June	Leaves
3.	<i>Melissa officinalis</i> L.	Lemon balm	Lamiaceae	Field	April	Leaves
4.	<i>Nepeta cataria</i> L.	Catnip, Catswort, or Catmint	Lamiaceae	Field	April	Leaves
5.	<i>Dracocephalum heterophyllum</i> Benth.	White dragonhead	Lamiaceae	Greenhouse	June	Leaves, flowers

6.	<i>Salvia sclarea</i> L.	Clary or clary sage	Lamiaceae	Field	June, April	Leaves, flowers
7.	<i>Salvia officinalis</i> L.	Garden sage, Common sage	Lamiaceae	Greenhouse & Field	April, July	Leaves, stem, flowers
8.	<i>Artemisia pallens</i> Wall. ex DC.	Davana, Dhavanam	Asteraceae	Greenhouse	July	Leaves, stem, buds, flowers
9.	<i>Matricaria chamomilla</i> Blanco	German chamomile	Asteraceae	Field	April	Leaves, flowers
10.	<i>Anacyclus pyrethrum</i> (L.) Lag.	Pellitory, Spanish chamomile, or Mount atlas daisy	Asteraceae	Field	April	Buds, Flowers
11.	<i>Silybum marianum</i> (L.) Gaertn.	Milk thistle	Asteraceae	Field	April	Buds, flower
12.	<i>Achillea millefolium</i> Ladeb.	Yarrow	Asteraceae	Field	April	Buds, Flower
13.	<i>Borago officinalis</i> L.	Borage, Starflower	Boraginaceae	Field	April	Buds, flower
14.	<i>Plumbago zeylanica</i> L.	Ceylon leadwort, Doctorbush	Plumbaginaceae	Field	November	Buds, Flower
15.	<i>Hypericum perforatum</i> L.	Tipton's weed, chase-devil, or Klamath weed, St John's wort	Clusiaceae	Greenhouse	June	Leaves
16.	<i>Pelargonium graveolens</i> L'Her	Rose geranium	Geraniaceae	Field	April, June	Leaves
17.	<i>Asparagus officinalis</i> L.	Asparagus	Asparagaceae	Field	April	Leaves
18.	<i>Foeniculum vulgare</i> Mill.	Fennel	Apiaceae	Field	April	Leaves, stem
19.	<i>Rosa damascena</i> Mill.	Damask rose	Rosaceae	Field	March, April, May	Buds, flowers
20.	<i>Rosa bourboniana</i> L.	Bourbon rose	Rosaceae	Field	April, May, June	Buds, flowers

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