

## Natural Enemies of Insect Pests Infesting Chickpea and Pigeonpea in Kanpur (Uttar Pradesh)

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Chickpea and pigeonpea are damaged by a variety of insect pests. Developing grains inside the pods are damaged by *Heliothis armigera* Hub. The pest has a very wide distribution and occurs in almost all parts of the country. According to a very conservative estimate, the damage due to this pest is about 14 and 11% in chickpea and pigeonpea, respectively. Podfly, *Melanagromyza obtusa* (Malloch) is another major pest of pigeonpea in northern and peninsular region of the country. Damage due to this pest has been reported to range from 19.1 to 30.3% in U.P. alone (Lal and Yadava, 1987). There are other insect pests which cause considerable damage to these crops. However, these pests in turn are attacked by a number of natural enemies (Ahmad, 1940; Bhatnagar, 1980 and Sithanantham *et al.*, 1983).

In order to know the natural enemies of these pests under Kanpur (U.P.) conditions, collection of immature stages of different pests from chickpea and pigeonpea were made during 1984-1989 and brought to laboratory and reared further till they completed the development or yielded parasites.

The results (Table 1) showed that amongst the lepidopterous pests, the larvae of *H. armigera* and *Autographa nigrisigna* Walk. were parasitized by *Campoletis chloridae* Uchida and *Carcelia* sp. respectively. Peak of parasitization (42.5%) by the former species was achieved during December (Fig.1) whereas, the latter species was in peak (9.6%) during February (Fig. 2). *C. chloridae* has been reported as an effective parasite of *H. armigera* on chickpea and other host plants from different parts ( Bilapate *et al.*, 1979; Bhatnagar, 1980).

Three species of parasites, *Ormyrus orientalis* Walk., *Eurytoma* sp. and *Euderus* sp. were found parasitizing the larval-pupal stages of *M. obtusa*. Percentage parasitization ranged

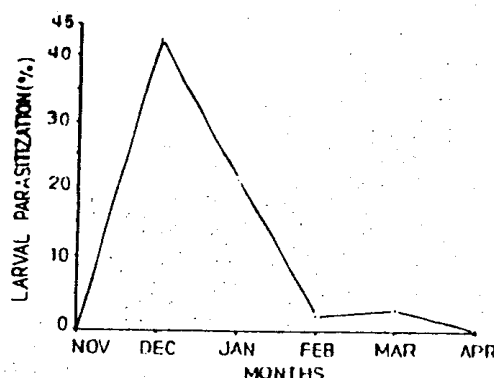


Fig. 1. Larval parasitization of *H. armigera* due to *C. chloridae* on chickpea

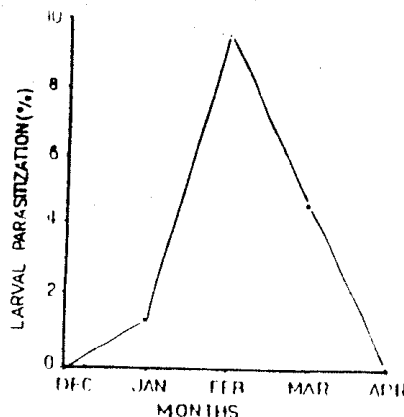


Fig. 2. Larval parasitization of *A. nigrisigna* due to *Carcelia* sp. on chickpea

Table 1. Natural enemies of insect pests of chickpea and pigeonpea

Name of parasitoids	Host insect	State of insect	Per cent parasitism (range)	Status
<b>Hymenoptera</b>				
Fam. Eulophidae				
<i>Euderus</i> sp.	<i>Melanagromyza obtusa</i>	Larval-pupal	0.0 - 11.0	Minor
Fam. Eurytomidae				
<i>Eurytoma</i> sp.	-do-	-do-		Major
Fam. Ormyridae				
<i>Ormyrus orientalis</i>	-do-	-do-		Minor
Fam. Scelionidae				
<i>Gryon</i> sp.	<i>Clavigralla gibbosa</i>	Egg	NR	Minor
-do-	<i>Nezara viridula</i>	-do-	NR	Minor
Fam. Braconidae				
<i>Apanteles taragamae</i>	<i>Cydia critica</i>	Larval	21.2 - 77.7	Major
Fam. Ichneumonidae				
<i>Campoletis chlorideae</i>	<i>Heliothis armigera</i>	Larval	2.2 - 42.5	Major
<b>Diptera</b>				
Fam. Tachinidae				
<i>Carcelia</i> sp.	<i>Autographa nigrisigna</i>	Larval-pupal	0.0 - 9.6	Minor

NR - Not recorded

from 2.9% during November to 11.0% during January (Fig. 3). Among these parasites,

*Eurytoma* sp. was the predominant. The eggs of green bug *Nezara viridula* (L) and brown bug *Clavigralla gibbosa* (Spin) were parasitized by a scelionid *Gryon* sp. Pigeonpea leaf tier,

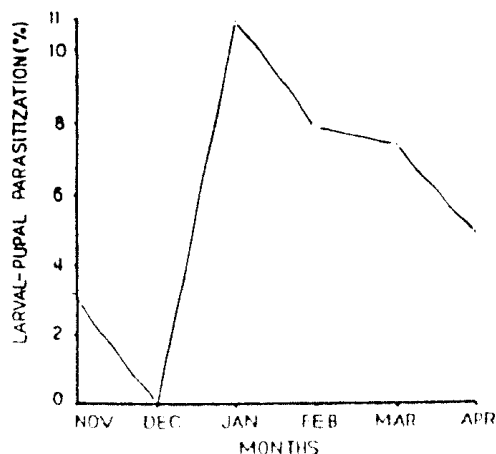


Fig. 3 Larval-pupal parasitization of *M. obtusa* due to *O. orientalis*, *Eurytoma* sp. and *Euderus* sp. on pigeonpea

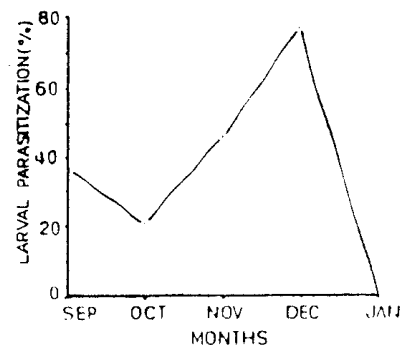


Fig. 4. Larval parasitization of *E. critica* due to *A. taragamae* on pigeonpea

*Cydia critica* Meyrick larvae were found parasitized by *Apanteles taragamae* Viereck which was active from September to January. During its peak period of activity (December), about 77% larvae were found parasitized (Fig. 4).

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**Key Words :** Chickpea, pigeonpea, parasites, seasonal incidence.

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