

Short Communication

Natural Parasitism of *Pieris rapae* (L.) And *Pontia daplidice* (L.) (Lepidoptera: Pieridae) on Cruciferous Crops in Kashmir Valley (India)

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Abstract: In a field survey conducted in Kashmir Valley (India) during 2004-2006, to determine the parasitoids associated with insect pests of cruciferous crops, the two butterfly pests, viz. *Pieris rapae* (L.) and *Pontia daplidice* (L.) were found attacking cruciferous crops such as mustard, cabbage, cauliflower, knoll-khol, kale and turnip. The rearing of larvae and pupae of *P. rapae* yielded three parasitoids, viz. *Cotesia glomerata* Linn. (Hymenoptera: Braconidae), *Hyposoter ebeninus* (Grav.) (Hymenoptera: Ichneumonidae) and *Brachymeria femorata* Panz. (Hymenoptera: Chalcididae). However, only *H. ebeninus* was recovered from *P. daplidice*. This study is a first report of parasitism of *P. rapae* and *P. daplidice* from India.

Key words: First report • Parasitoid • Butterfly • *C. glomerata* • *H. ebeninus* and Kashmir

INTRODUCTION

The cruciferous crops such as cabbage, cauliflower, knoll-khol, mustard, kale and turnip are widely grown mostly as vegetables in Kashmir Valley. These crops are attacked by a number of insect pests in this region, including the larvae of cabbage butterflies, *Pieris brassicae* (L.) and *Pontia daplidice* (L.) (Lepidoptera: Pieridae). During a thorough field survey conducted in Kashmir (India) from 2004 to 2006, to determine the parasitoids associated with insect pests of cruciferous crops, *P. rapae* was observed attacking cruciferous crops such as mustard, cabbage, cauliflower, knoll-khol, kale and turnip, where as *T. daplidice* was recorded on mustard, knoll-Khol and kale.

Collections of immature stages of *P. rapae* and *P. daplidice* were made from the host crops in several areas (districts) of Kashmir as part of an effort to understand the contribution of natural enemies to population regulation of caterpillars of these butterflies. Larvae were fed on the foliage of host crops while pre-pupae and pupae were placed in cylindrical plastic containers (15-cm diam × 25-cm height) for emergence of adults or parasitoids. The parasitoids emerged were identified and the percentage of parasitism by each parasitoid was estimated.

Altogether 3 hymenopteran parasitoids, viz. *Cotesia glomerata* Linn. (Hymenoptera: Braconidae),

Hyposoter ebeninus (Grav.) (Hymenoptera: Ichneumonidae), *Brachymeria femorata* Panz. (Hymenoptera: chalcidiae) were recovered from *P. rapae*. However, only *H. ebeninus* was recovered from the larvae of *P. daplidice*. This study is a first report of parasitism of *P. rapae* and *P. daplidice* from India. The summary of parasitoids recorded during the present investigation is provided in Table 1. *H. ebeninus* was witnessed to be the predominant of these parasitoids. It was found active in the field from June to October and the highest extent of parasitism caused to its host pests, *P. rapae* and *P. daplidice* was recorded to be 28% and 22% respectively. *B. femorata* was observed to be the next abundant parasitoid causing the highest extent of 18.5 % parasitism to *P. rapae*. The parasitism by *B. femorata* was witnessed only during the months of May and June. *C. glomerata* was found to be the least abundant among these three parasitoids of *P. rapae*. During the survey period, it was recovered only during the month of September from its host and the highest extent of parasitism caused was observed to be 12 %. Some earlier reports of parasitism of *P. rapae* and *P. daplidice* by *H. ebeninus*, *B. femorata* and *C. glomerata* on cruciferous crops have been given by Rusinov [1] from Turgai region of the USSR, Hassanein *et al.* [2] from Egypt, Moiseeva [3] from Krasnodae region of Soviet Union and Radzievskii [4] from Ukraine.

Table 1: Hymenopteran Parasitoids of *P. rapae* and *P. daplidice*, recorded during 2004-2006 survey in Kashmir Valley (India)

Keys to the Districts of Kashmir (India): - At. =Anantnag, Bd. = Badgam, Bn. = Bandipora, Br. = Baramulla, Gn. = Ganderbal, Pl. = Pulwama, Sr. =Srinagar

Hymenopteran Parasitoid	Host pest/Stage	Host-crop/s	Dates & Districts
(1). Ichneumonidae			
<i>Hyposoter ebeninus</i> (Grav.)	larva/ <i>P. rapae</i>	Cabbage	2-vii-2006 (Sr.) ; 28-viii-2005 (Bd.)
		Knoll-khol	12-viii-2005 (Sr.); 17-viii-2006 (Gn.) ; 1-ix-2004 (Gn.); 9-vi-2006 (At.); 24-vii-2005 (Br.) ; 24-vi-2004 (Br.)
	Kale	25-vii-2004 (Bn.); 2-vii-2006 (Sr.); 31-vi-2006 (Pl.)	
	larva/ <i>P. daplidice</i>	Knoll-khol	1-ix-2006 (Gn.); 27-vi-2004 (Br.)
Kale		24-vii-2005 (Br.)	
(2). Braconidae			
<i>Cotesia glomerata</i> Linn	larva <i>P. rapae</i>	Cabbage	8-ix-2004 (Br.); 12-ix-2006 (Gn.)
		Turnip	14-ix-2006 (Bd.)
(3). Chalcididae			
<i>Brachymeria femorata</i> Panz.	pupa / <i>P. rapae</i>	Cabbage	29-v-2006 (Bd.); 22-v-2004 (Sr.)
		Knoll-khol	1-vi-2006 (Br.)

ACKNOWLEDGEMENTS

The authors are highly thankful to Dr. V.K. Gupta, Entomology Department, University of Florida, Dr. T.C. Narendran, University of Calicut, Kerala and Dr. R.A. Wharton, Department of Entomology, Texas A. & M. University, for providing useful literature and extending help in the identification of hymenopteran parasitoids.

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