



SHORT NOTE

Natural enemy complex of *Thrips tabaci* Lindeman in onion and garlic

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Onion thrips, *Thrips tabaci* Lindeman (Thysanoptera: Thripidae) is a major pest of onion and garlic crops. Yield losses in onion and garlic due to thrips were estimated to be upto 50 per cent during *rabi* season (Anonymous, 2001, Juan Anciso 2002, Diaz-Montano *et al.*, 2011).

Several management practices are in vogue worldwide to control thrips and the major strategy is by chemical means followed by cultural, mechanical and biological methods. Biological methods include utilising natural enemies like micropathogens, insect predators and insect parasitoids. Although many species of predators and parasitoids of thrips, are known, a little is known about the specific natural enemies group against *T. tabaci*.

Further, their adaptability in onion and garlic ecosystem is also not well studied. To address these issues with respect to onion and garlic ecosystem we made a study during 2012 *rabi* season at Directorate of Onion and Garlic Research (DOGR), Rajgurunagar. Predator and parasitoid complex associated with *T. tabaci* occurring in onion and garlic was significantly varying. In onion ecosystem, the major group found was parasitoids (>80%) followed by predators (16%). But in the garlic, predator (90%) group was at the higher end followed by parasitoid (10%) group. Predicted reason behind non-preference of predators in onion is the odour of the onion foliage or leaf structure may not provide any shelter for the predators for multiplication. But in case of garlic,

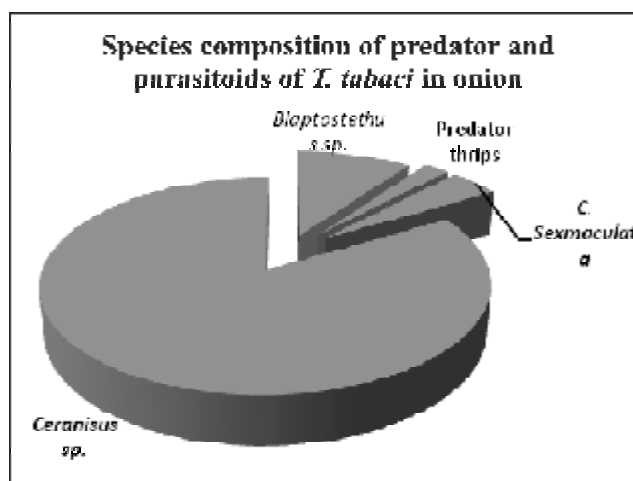
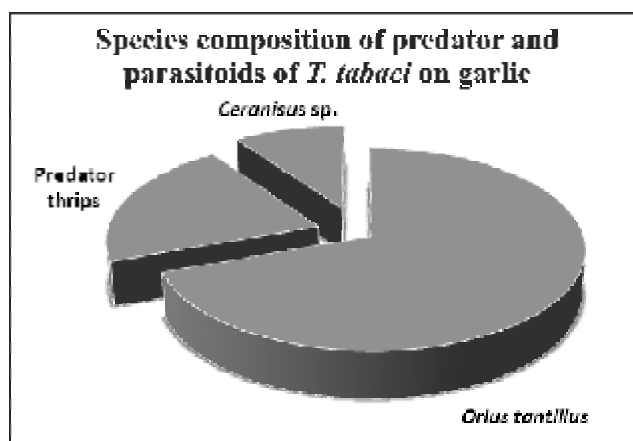


Table 1. List of natural enemies recorded on *Thrips tabaci* in onion and garlic

Species	Family	Order	Group
<i>Ceranisus menes</i>	Eulophidae	Hymenoptera	Parasitoid
<i>Blaptostethus</i> sp.	Anthocoridae	Hemiptera	Predator
<i>Cheilomenes sexmaculata</i>	Coccinellidae	Coleoptera	Predator
<i>Aelothrips</i> sp.	Aelothripidae	Thysanoptera	Predator
<i>Orius tantillus</i>	Anthocoridae	Hemiptera	Predator

higher number of predators were observed than parasitoids.

In onion, the distribution of natural enemies of *T. tabaci* comprised of 80 per cent parasitoids of *Ceranisus menes* (Hymenoptera: Eulophidae) followed by 10 per cent of predators *Blaptostethus* sp. (Hemiptera: Anthocoridae), 4 per cent coccinellid predator *Cheilomenes sexmaculata* (Coleoptera: Coccinellidae), and 2 per cent Predatory thrips of *Aelothrips* sp. (Thysanoptera: Aelothripidae). Jayanthi Mala, (2012) reported the occurrence of *C. menes* as a new parasitoid of *T. tabaci* in onion. In garlic, natural enemies of

T. tabaci distribution revealed that 70 per cent was predator viz., *Orius tantillus* (Hemiptera: Anthocoridae) followed by 20 per cent of predatory thrips, *Aelothrips* sp. (Thysanoptera: Aelothripidae) and 10 per cent of Hymenopteran parasitoides viz., *C. menes*. The higher preference of *O. tantillus* to garlic over onion might be due to congeniality of microclimate. We also observed the varietal preference by *O. tantillus* within garlic entries. Garlic line with broad leaves were highly preferred by predators. It is evident that these predators and parasitoids occur naturally and contribute to suppression of thrips population. Augmentation of natural enemies should be taken care by minimising the insecticidal sprays or by using botanicals or less harmful insecticides during the onset of thrips infestation. If habitat is created to enhance the survival of natural enemies, the natural enemies population will involve in natural control of pest complex. The information generated can be used to

develop a bio-intensive IPM technology in onion and garlic ecosystem.

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