



ORIGINAL ARTICLE

**Observations about the Infestation and Abundance of Thrips, Thysanoptera:
Thripidae on the Crop of Onion, *Allium cepa* in Aligarh Region (U.P.)**

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ABSTRACT

A survey was carried out for monitoring the thrips population in Aligarh region on favorable growing season of onion to provide information on infestation and abundance of thrips species. Five localities were participated Iglas, Jalalli, Gabhana, Khair and Tappal in our biological monitoring survey. On the basis of infestation level of thrips, data was collected from these localities. According to the result, a total of three thrips species present such as; *Thrips tabaci*, *Frankliniella schultzei* and *Frankliniella occidentalis*.

Key words: *Allium cepa*, Thrips, Thysanoptera, Nymph, Yield

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INTRODUCTION

Onion, *Allium cepa* is a very important food and cash crop, belongs to the family Alliaceae. The onion is consumed in the fresh form as well as used in a frozen and dehydrated bulb by the low and high income community in Aligarh region. There are several reasons for the low yield, among which insect pest is the important one. There are many insect pest of onion crop including thrips, maggot and leaf minor which cause reduction in yield. Among these, thrips (Thysanoptera: Thripidae) play a major role as pest of onion. The feeding of thrips causes direct damage to plant while indirectly harms the crop by transmitting viruses. The nymph, do more damage than adults in a peculiar feeding behavior in flowers and fruits (Ruidar *et. al.*, 2015). Thrips mainly feeds in a piercing- sucking manner and leaving silvery areas on leaves and consequently consuming the cell substances through the feeding tube formed by the maxillary stylets (Ruidar *et. al.*, 2015). Thrips selected young plant for feeding and consequently the silvery patches or streaks are formed which can easily seen without hand lens in during day time. The size of bulb reduced due to severe attack of thrips in some cases huge amount of onion crop may be lost. The objective of this study was to evaluate the damage level of thrips on generative structure of onion plant at different field localities in district Aligarh.

REVIEW AND LITERATURE

Onion (*Allium cepa*) is one of the major crops grown by small and marginal farmers around the world (Chhina, *et al.* 2015). The experiment to evaluate the onion cultivars against *Thrips tabaci* infestation was conducted during 2011- 12. Eight onion cultivars (Ambika, Swat- 1, Trichmir, Barkel, Macarena, Red ball, Granada Red and Sun set) were assessed to determine the most tolerant cultivar against *Thrips tabaci* infestation (Ruidar,

et al. 2015). Thrips mainly infested onion at large scale at early stages results in poor establishment of crop due to high mortality of seedling (Srinivas and Lawande, 2007).

MATERIAL AND METHODS

Thrips population were monitored in survey during the growing seasons of onion crop; February – April of 2016 where the productivity of the horticulture crop is high. In biological monitoring survey five localities Iglas, Jalalli, Gabhana, Khair and Tappal were purposely selected based on production level. Few plants were selected by random sampling method on each selected field. On the basis of thrips abundance, data were collected from each selected plant by collecting and counting the nymph and adult thrips found on upper and underside of 2-3 top most fully expanded onion leaves. Sampling of thrips were collected early in the morning hours by gently trapping which dislodged the thrips from leaves to white sheet of paper placed each selected plant. Adults were removed using a fine-tipped paint brush, then placed into vials containing 70% ethanol for preservation. After the collection the vials were then taken to the laboratory for counting the thrips. A microscope slides were prepared for each trap collection and identified the thrips species under a compound microscope by the using of morphological feature described by Palmer (1990).

OBSERVATION

In a typically growing season of onion, some species of thrips; *Thrips tabaci*, *Frankliniella occidentalis* and *Frankliniella schultzei* are found at different localities. Due to the infestation of thrips on onion results in the form of curling leaves, deformation of flower, necrosis tissue, silver patches, flecking on expanded leaves and finally reduced the bulb yield. The pest status of onion thrips are high reproductive rate, short generation time, high survival of cryptic (non- feeding prepupa and pupa) instars and ability to reproduce without mating (Parthenogenesis). Thrips feeds on plant tissue by rasping and sucking the sap, resulting in tissue scarification and reduces the photosynthetic capacity of onion leaves and causes blemishes on fruits. Highest frequency of thrips was recorded in Jalalli (approx. 90%).

RESULT

The result of biological monitoring survey; Feb- April of 2016 in Aligarh region is shows that the symptoms of infestation occur at a seeding stages. So the main purpose of our research is to point out the better use of IPM management strategies in the favor of onion crop and to inform the sampling is important to know the growers about the thrips population pressure over time.

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