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NESIDIOCORIS TENUIS (REUTER) AS A POTENTIAL PREDATOR OF *TUTA ABSOLUTA (MEYRICK)*, THEIR HOSTS, DISTRIBUTION AND DENSITY ON DIFFERENT VEGETABLE CROPS IN BASRAH* PROVINCE

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The search lemma from Farhan. J.Al bahadely thesis

ABSTRACT

The plant bug *Nesidiocoris tenuis* Reuter(Hemiptera: Miridae) one of predators important in the Mediterranean basin,That feed on the *Tuta absoluta*. The study purpose was survey of natural enemies on tomato leaf miner *Tuta absoluta* in Basrah province during season 2011-2012.The results show record for first time of *Nesidiocoris tenuis* as a predator of *Tuta absoluta* in Qarnet Ali / location university/ Basrah province at 4/11/2011, Therefore show *N. tenuis* presence on tomato and Snake cucurbits crops while not presence on other crops in same season in Basra province. Adults and nymphs appeared in the beginning at November 2011(autumn season temperature is 23 °c and humidity 30%) and density increase until adults arrived 88 per 50 m and nymphs 79 per 50 m in middle December and then densities decrease in the middle of January and February (adults 75, 71 per 50 m,nymphs74,70 per 50 m) (15 °c &40% r.h). Infestation appeared in the middle March to begin month of May (26 °c & 60% r.h), and found also of that the highest density (adults 155 per 50 m, nymphs 143 per 50 m) in middle April (25 °c & 65% r.h)and found lower density in July (adults 4,nymphs 6). Finally the study show distribution *N. tenuis* at defferent region of Basrah province and found also of that the highest density(adults and nymphs 143 per 50 m) in Qarnet Ali region and found lower densities in Alzobear region (adults and nymphs 102 per 50 m) at April.

Keywords *Nesidiocoris tenuis*. new recorded, Hosts, Distribution Density

INTRODUCTION

Nesidiocoris tenuis is a predatory bug of tobacco whitefly, thrips, spider, mites, moth eggs and larvae of leaf miner and Aphids,the Environmental Conditions of N.tenuis prefers temperature between 25-28°C and humidity higher than 60% (Torreno and Magallona,1994)

N. tenuis has the life cycle of egg-nymph-adult, It has 5 nymph stages, *N. tenuis* insert eggs in tissue of the leaf, vein or stalk in crop, N. tenuis lays average 105 eggs with a maximum of 130 eggs at 25°C,the development time from egg to adult takes 22-25 days and adult lives 30-35 days at 25°C, *N. tenuis* adults also feed about 30 whitefly eggs or 15-20 whitefly nymphs per day. *N. tenuis* is the predominant species colonizing tomato crops in some Mediterranean areas(Wheelr,.2001). This generalist predator also consumed lepidopteron eggs, Both in green house and in open fields, it effectively controlled was responsible for a significant reduction in *T. absoluta* populations (Urbaneja et *al*., 2009). This predator can feed on all the

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aerial parts of tomato plants but has a strong preference for the three uppermost leaves and the apical bud, The predator population is found about 80% on the apical bud. The feeding activity of both nymphs and adults produced different types of damage that include: necrotic rings on the main stems, shoots, leaf petioles and flower stalks; the abortion of flowers and small fruits; and the reduced growth of stems and leaves which causes stunted plant growth, In laboratory and field investigation, an inverse relationship had been observed between prey availability and the abundance of necrotic rings and aborted flowers(Urbaneja et *al*. 2005). The damage that *N. tenuis* causes to tomato crops was described at high predator densities and with low prey availability and was related to the duration of predator/plant interaction. However, most lesions disappeared after a few days and no negative effects were observed in terms of plant growth, the number of flowers or fruit, or the average weight of the fruits (Arnó *et al*., 2009)

MATERIALS AND METHODS

1-The Survey

A-The survey areas

The data were carried out every ١٥day at 2011 - 2012 in four localities:

- AL Zobear/Drehmyeh
- Qarmet Ali/location university
- Abo Alkaseab/Hmdan
- AL Chebasy/Aljazyerh 4.

B- The crops

The survey Crops included :

- Eggplant
- Snake cucurbits
- Tomato
- Pepper

The survey were conducted, As far as possible, these plants were not treated with broad-spectrum insecticides which could destroy part or all of the useful Entomophagous.The four crops presence in all survey area and method cultivate were in greenhouse and open field.

2- Densities

For each tomato crop present in Qarmet Ali/location university, 12 entire plants of 50 m (length line cultivate plants in greenhouse) were inspected for at least 5 min, the mean nymphs and adults densities per leaf or stem from these plants are presented in Diagram 1 and 2 on succession, data collected at 2011- 2012 every 15 day on length the season.

3- *N.tenuies* potential predator of *Tuta absoluta*

In greenhouse of tomato crop and which limited for account densities (in step two) do observations nutrition predation *N. tenuies* of eggs and larva of *T. absoluta* using hand lens power 5 x. The predators were collected with aseparater and kept in container diameter 5and length 8 cm and put in incubator for 24 houres at 26°C and humidity higher than 65%. Same leaves of tomato crop that contain of eggs *T. absoluta* on two surfaces calculate from field,these leaves put in Petri dish diameter 9 cm and kept with laboratory conditions.After 24 houres predator transport to eggs T. absoluta that on leaves tomato crop wtich in Petri dish and put under dissecting microscope 10 x. using The randomized completely block design with (LSD) Least significant different

At 0.05 level standard

RESULTS AND DISCUSSION

The survey results for basrah regions four demonstrate presence *N. tenuis* (figure 1) in four regions. I deem that adequate the environmental conditions from temperature, humidity and nutriment for growth and reproduction, that agree with franco et *al.* (2011) environmental conditions for of *N. tenuis* was 25± 2 °C and 70±5 RH, So the results show *N. tenuis* was with high density (143, 158 per 50 m for nymph and adult) in QarmetAli / location university and low densitiy (99, 85 per 50 m for nymphs and adults) in AL Zobear/Drehmyeh (Diagram 1) at 1/4/2012and no signifent between Abo Alkasaeb and Alchebasy, *N.tenuis* record at first once in QarmetAli / location university at 4/11/2011(Diagram 2). We supposed that higher humidity for this location beside of the shatt alArab river and the plants were not treated with broad-spectrum insecticides that lead to increase density in QarmetAli / location university while contrary low humidity (waste region) and treated with broad-spectrum insecticides decrease density in AL Zobear / Drehmyeh that repute famous product region in Iraq that agree with Aldarkazly (1982) mean growth and reproduced for most insects increase when humidity 60-70%. The survey results presence *N. tenuis* rin two phases nymph and adult on crops demonstrate presence on tomato with high density(88,96 per 50 m) and then low density presence on *Cucumis melo* var (37,42 per 50m) (Table 1), while no presence on eggplant and pepper crops maybe because *N. tenuis* prefer Snake cucurbits and tomato, presences interpret on them crops but cause increase on tomato presences preys that more than *Cucumis melo* (Snake cucurbits) other experimental crops and that give complete nutriment that agree with Wheeler (2001), The results showed density nymphs and adults during season 2011-2012 and give high density in April with; 143 nymphs per 50 m and 158 adults per 50 m where it low presence in July; 6 nymphs per 50 m and mean 4 adults per 50m (Diagram1). We think idealism environmental conditions for temperature, humidity, nutriment in April and not treated with broad-spectrum insecticides because this location (Qarmet Ali) was use to station research of Basrh universities while mean temperature was more than 40 °C and a few, nutriment in July.

While the results observations predator in greenhouse showed vision nutrition *N. tenuis* by hand lens 5 x on larva young *T. absoluta* by entering mouth parts through body wall of larva and then suck the content. While vision nutrition *N. tenuis* on eggs *T. absoluts* in laboratory by dissecting microscope by entering mouth parts through egg cortex then suck the content. Similar using feet foreground. The present study concluded that *N. tenuis* get of nutriment from during predator of egg and larva of *T. absoluta* that was agree with Nicolas D. *et al.* (2010) during use *N. tenuis* in biological control as predator of *T.absoluta* in Europe and Mediterranean Basin countries.

Table.1: Hosts and density in the various crops for nymphs and adults of *N. tenuis*

Crop	Scientific name	Common name species	Mean density /50 m	
			nymph	adult
Tomato	Lycopersicon esculentum Mille	Nuten	88	96
snake cucurbits	*Cucumis melo* var	locality	37	42

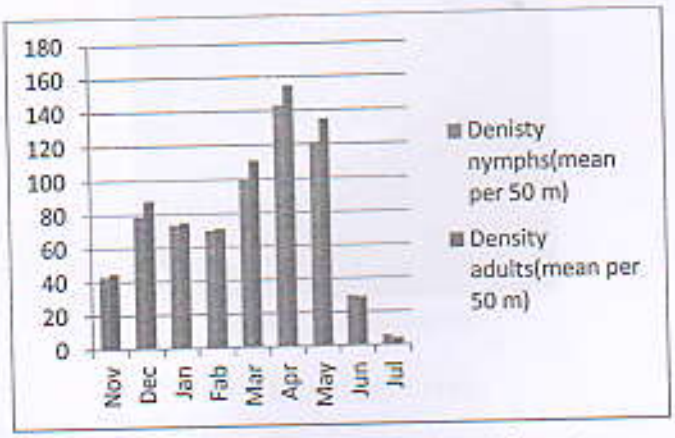

Diagram 1: density nymph and adult of *N. tenuis* On tomato crop during which season 2011-2012 in Qarnet Ali region in Basrah province

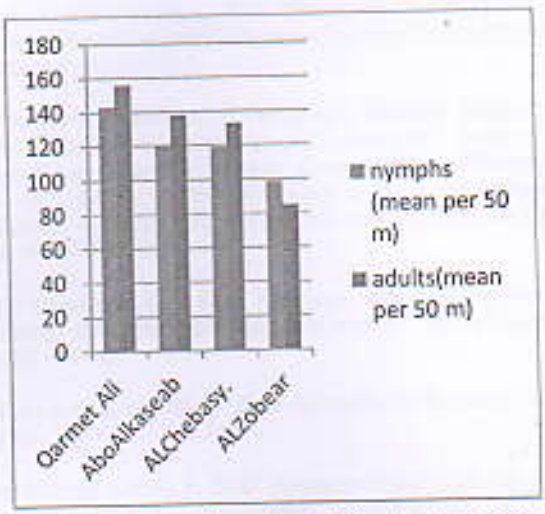

Diagram 2: presence *N. tenuis* at defferent region of Basrah province (data collected at 2011- 2012)

Figure 1: *N. tenuis* predator

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