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Population Density of *Pianococcus citri* Risso, (Hemiptera: Psedococcidae) in Misan Province, Iraq

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Abstract: The current study aimed to determine the population density of *Pianococcus citri* in the Mashtai location southeast of Maysan province, on grape and pomegranate trees. The first insect appearance was in April and the insect density continued to fluctuate during the months due to varying temperatures, humidity and host plant. The highest density of adult insects was in October, while the highest density of nymphs was in August on pomegranate trees, there were 3-4 generations of insect on pomegranate and grape.

Keywords: *Pianococcus citri*, Mashtai, Adult, temperatures

Mealybugs *Pianococcus citri* (Cox.1989) is one of the most important economic pests that infected citrus and many other plant, causing significant economic losses in many countries (Goldasteh et al 2009). The mealybug high reproductive capacity, host range and resistance to Insecticides (Seabra et al 2013). The mealy bug affect growth and vitality of the trees, the leaves turn yellow and then start falling. If the infection intensifies, the fruits begin to drop out at different ages and sizes. Mealybug was recorded on grape and pomegranate trees in most locations of Basra province, the highest density was on grape and pomegranate trees in October in Al-Hartha location (Al-Sudani 2018). Temperature and humidity to have a significant effect on the development and reproduction of mealybugs and the density of the insect increases

with increasing relative humidity (Johnson et al 2008, Kutuk et al 2014).

MATERIAL AND METHODS

The study was conducted during the 2018 season at Al-Mashtal in the province of Maysan planted with palm trees, some Indian jujube trees, grape trees, pomegranates and Gum trees (Eucalyptus). The ten grape trees and pomegranate on the edges and center of the orchard were selected and five leaves are randomly taken from each tree and placed in polyethylene bags adults and nymphs. The samples were taken every 15 days periodically from the beginning of December, 2017 until the end of November 2018, Relative temperatures and humidity data were collected from Meteorological Department in Maysan Governorate.

RESULT AND DISCUSSION

The adults and nymphs on pomegranate and grape trees were not observed in January, February and March with temperature of 12.75, 13.0 and 19.9°C and humidity when the range temperatures and relative humidity were, 58, 51 and 49%, respectively. The population of adults and nymphs in April was 8.7, 7.5 adults /leaf and 11, 10.2 nymphs /leaf on pomegranate and grape trees when the temperatures was higher and relative humidity low. The insect was not observed during survey in December with maximum and minimum temperatures of 23 and 9.1 °C. The insect at low temperatures enters the hibernation and appear of the insect was in April. The *P. citri* has ability adapt to different weather conditions affected by environmental factors (Abbas 2010). The insect density fluctuated during the months the density was higher in April, July and October with 3-4 peaks of the insect that represent 3-4 generations during the year (Al-Jassany 2019). The population density of insect on pomegranate plant was higher than on grape tree. This may be due to the different nutrients and humidity of pomegranate and grape trees of, which has a significant impact on the density of the insect (Al-Sudani 2018).

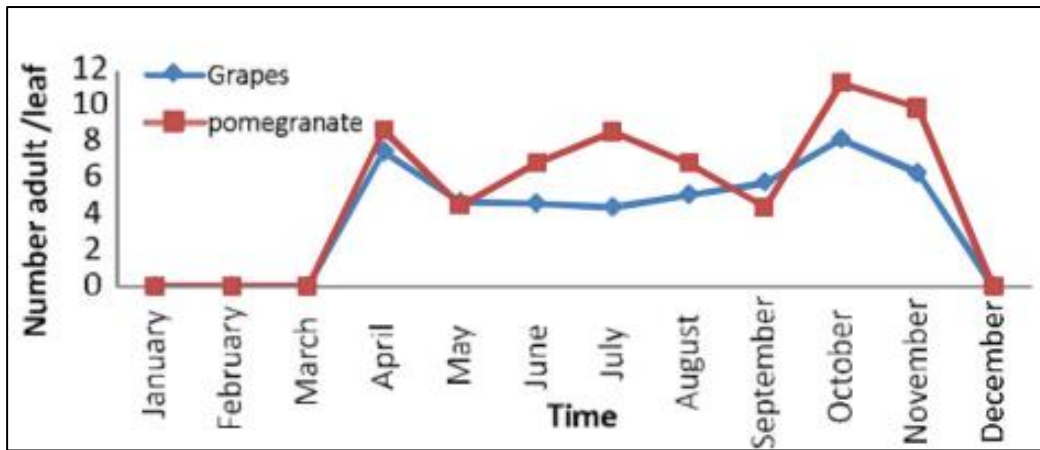


Fig. 1. Population density of adult *Planococcus citri* (2018)

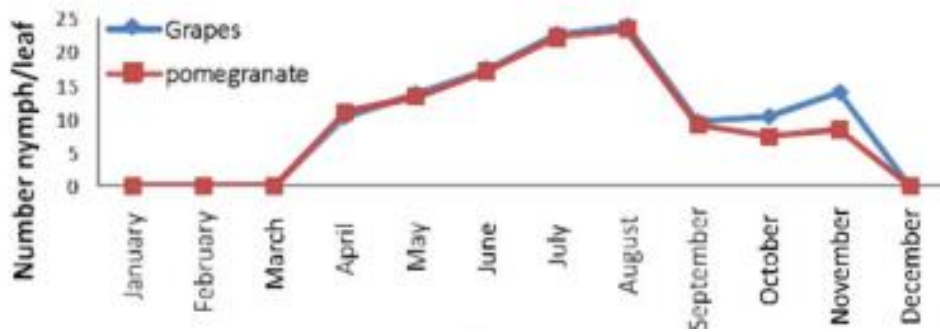


Fig. 2. Population density of nymph *planococcus citri* (2018)

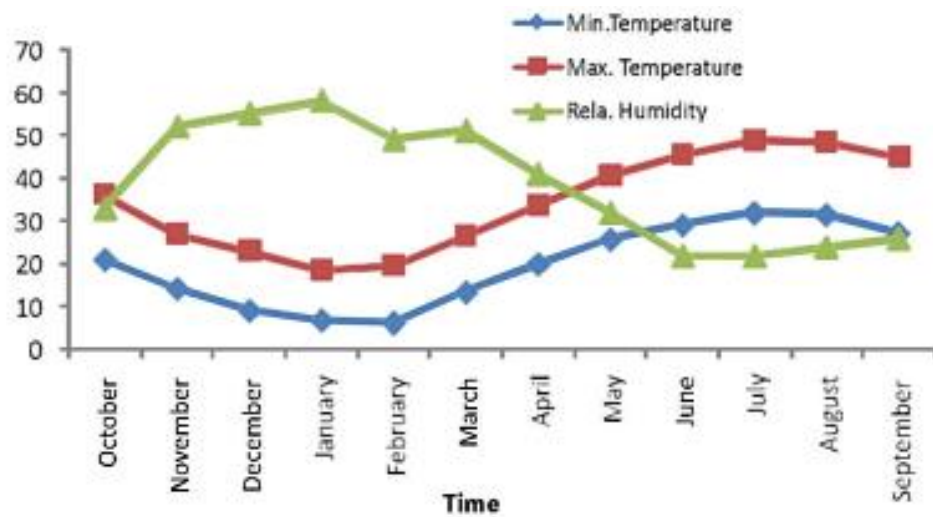


Fig. 3. Minimum and maximum temperature and relative humidity in the province of Maysan (2018)

CONCLUSIONS

The citrus mealy bug (*Planococcus citri* Risso) first appeared in April adults and nymphs on pomegranate and grape trees were not observed in January, February and March. The insect density fluctuated during the months the highest was in April, July and October. The density on pomegranate plant was higher than on grape trees.

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