## Abstract

The present work was conduct to survey and study the seasonal abundance some of homopterous insects (whitefly, leafhoppers and aphids) infesting (squash, pepper, Eggplant, Cabbage, Cauliflower), the ability of *Circulifer tenellus* to transmit Beet curly top virus, effect of some agriculture practices and relationship between host plant, chemical contents and epidermal plant cell thickness and the infestation with certain homopterous insects .

**1: Survey studies could be summarized as follows :**

**a) whitefly (Fam : Aleyrodidae)** the whitefly *Bemisia tabaci* was collected from aforementioned vegetable plants. **b) leafhoppers (fam: Cicadellidae)***Empoasca decipiens, E .decedens* and *Balclutha hortensis* were collected from the squash plants . *Empoasca decipiens , E .decedens, Cicadulina chinai* and *Circulifer tenellus* were collected from the pepper plants, the following leafhoppers species were collected from Eggplants plants *Empoasca decipiens , E .decedens ,Cicadulina chinai* and *E.lybica . Empoasca decipiens , E .decedens* and *Balclutha hortensis* were collected from cabbage and cauliflower plants. **C)Aphids (fam: Aphidiae)** *Aphis gossypii* from squash plants and *Brevicoryne brassicae* and *Myzus persicaè* were collected from cabbage and cauliflower plants

**2: Seasonal abundance of dominant homopterous insect species infesting the aforementioned cucurbiaceous, solanaceous and crucifeous plants .**

The obtained results could be summarized as follows : **whitefly (immature stages)** : three peaks on squash, eggplant, cabbage and cauliflower plants, two peaks on pepper plants.

**Whitefly(adult stage):** three peaks on squash, eggplant plants, two peaks on pepper plants, four peaks on cabbage and cauliflower plants. **Leafhoppers** : *E.decipiens* recorded one peak on squash plants , two peaks on pepper , eggplant , cabbage and cauliflower plants. *E.decedens* recorded one peak on squash .eggplant . cabbage and cauliflower , two peaks on pepper plants . *B.hortensis* recorded two peaks on squash plants, one peak on cabbage plants, three peaks on cauliflower plants. *C.chinai* recorded one peak on pepper plants. *E.lybica* recorded two peaks on eggplant plants . **Aphids** : *A.gossypii* recorded one peak on squash plants *B.brassicae* recorded four peaks on cabbage plants . three peaks on cauliflower plants . *M.persicae* recorded two peaks on cabbage plants , three peaks on cauliflower plants.

**3: Effect of certain climatic factors**

Effects of the maximum temperature , minimum temperature and relative humidity on the population density of the abundant species of whitefly , leafhoppers and Aphids infesting squash , pepper , eggplant , cabbage and cauliflower plants were studied under field conditions . the results clearly indicated that significant and insignificant correlation coefficient and partial regression were obtained between number of insects and maximum , minimum temperature and relative humidity during two investigation seasons.

**4: Effect of certain agricultural practices (varieties and potassium fertilization levels) on population density of certain insects (whitefly, leafhoppers and Aphids)**

Escandarani variety in case of squash plant , Anaheium variety in case of pepper plant , longpurple variety in case of eggplant plants. Baladi variety in case of cabbage plant and early

Snowball variety in case of cauliflower (200 kg potassium fertilization / feddan ) showed the lowest infestation by whitefly, leafhoppers and Aphids and high yield than the other ones .

**5:Effect of chemical contents of certain cucurbiaceous, solanaceous and crucifeous vegetable plants varieties on the population density of the dominant homopterous insects .**

A positive correlation was found between the total percentage of protein, carbohydrate and PH value and potassium fertilization levels. It is worthy to mention that there was negative correlation between potassium fertilization levels, chemical content and insect populations.

**6: Effect of fertilization on the thickness of plant epidermal cells and its relation with certain homopterous insects.**

From the previous results it could be concluded that using potassium fertilization caused considerable increase in the thickness of plant epidermal cells and suppressed the ability of piercing sucking mouth part insects to feed and reproduce causing great reduction in the population density of these insects pests.

**7: Study the ability of *Circulifer tenellus* to transmit beet curly top virus to pepper plants.**

*Circulifer tenellus* has ability to transmit the virus to pepper plants . the acquisition threshold feeding periods ranged between 1 – 24 minute ; non incubation periods in insects while it was 2-3 weeks in celery plants and 5-7 weeks pepper plants ; inoculation threshold feeding period ranged between 1/2 – 24 minutes . retention periods of the virus in the infective leafhopper vector was 48 minuts.

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