# SUMMARY

# SUMMARY

In Egypt, citrus orchards are liable to attack by different groups of insects. Scale insects are considered to be among the important pests, which cause serious damage to orange trees with a noticeable reduction in quantity and quality of the obtained yield.

## I.Seasonal fluctuation in population of the Purple scale insect, *Cornuaspis beckii* , infesting Wachington citrus trees and factors effecting on it:

Seasonal abundance of *Cornuaspis beckii* (Newman) has been studied throughout the period 1994 - 1996 at Shobra hares Qalubiyah Governorate. Results showed the occurrence of four peaks of abundance per annum in the total population in the 1st year 1994/1995, these peaks occurred in March / April, (3362/100 leaves) July, (1252/100 leaves) ,September (779/ 100 leaves) , February (663 / 100 leaves),the peaks of abundance for the total stages was supported with peaks of abundance for the female stages and ovipositing stages and the two peaks of April and February of nymphs supported it. While in the 2nd year 1995/1996 they took place April / May (911/ 100 leaves) - early august (1279/ 100 leaves) - early October (1578/ 100 leaves) and early February (4941 / 100 leaves), the peaks of abundance for the total stages was supported with peak of abundance for the ovipositing female stages with the exception of the peak of October when peak of nymphs supported it. It was also observed that peaks of abundance for male either preceded for coincided with peaks of abundance.

## Seasonal abundance of *Parlatoria blanchardii* (Targ)

Seasonal abundance of *Parlatoria blanchardii* (Targ) has been studied throughout the period 1994 - 1997 at Degwa, Qalubiyah Governorate. Results showed the occurrence of two peaks of abundance per autumn in the 1st year 1994/1995, these peaks occurred in June (1473/ 40 branches) and September (8235/ 40 branches). Peaks of abundance for the total of stages were supported with peaks of abundance for the immature stages and ovipositing female stages in September and adult female stages in June. While in 2nd year 1995/1996 and 3rd year (1996/1997) they took place in May

(10092, 10214/ 40 branches) and September (7764, 8699/ 40 branches), respectively. Peaks of abundance for the total stages were supported with peaks of abundance for the female stages and immature stages. It was also observed that peaks of abundance for males either preceded or coincided with peaks of abundance.

## Seasonal abundance of *Aonidiella aurantii* (Maskell)

Seasonal abundance of *Aonidiella aurantii* (Maskell) has been studied throughout the period 194 - 1996 at Shobra Hares, Qalubiyah governorate. Results showed the occurrence of three peaks of abundance per annum. In the 1st year 1994/1995, these peaks occurred in June (1885 / 100 leaves), August (1114/ 100 leaves) and March (841/ 100 leaves). while in the 2nd year they took place in May (858/ 100 leaves), August (1991 / 100 leaves) and March 2438 / 100 leaves). In both two years, peaks of abundance for the total stages were supported with peaks of abundance for the nymphal stage, female stage and adult male stage. Four important scales belonging to order Homoptera under super Family Coccoidea and Family Diaspididae and Coccidae were found to be infest species of citrus trees belonging to Family **Rutaceae**, These species are ***Citrus sinensis L. Var. (Washington), Citrus Sinensis Var, Baladi, Citrus Sinensis Var. Valenchia.*** These scales are: *Cornuaspis beckii* (Newman) , *Parlatoria blanchardii* (Targ) , *Aonidiella aurantii* (Makell) and *Ceroplastes floridensis* (Comst).

### Collected parasitoids from samples have been identified as :

1 Primary ectoparasitoid: one parasitoid found to be associated with these pests, belonging to Order Hymenoptera and Family Aphelinidae. This was, *A. lepidosaphes* (Comp.)

2. Hyperparasite: one parasitoid was found to be associated with these pests belonging to order Hymenoptera and Family Aphelinidae this was ***Marietta sp.*** (Andre). which parasitoid on ***A. lepidosaphes*** .

**Predacious mites:**

Predacious mites which have been found associated with scale insects during the period of the study belonged to two families i.e. :

*Amblyseius enab* (El-Badry) (Fam: Phytoseiidae)

*Tydeius californicus* ( Fam: Tydidae)

## Chemical control of the scale insects infested citrus trees in Qalubiyah Governorate:

Field experiments were carried out in citrus orchards at Shobra Hares, Degwa locality Qalubiyah Governorate during 94-96 on ***Cornuaspis beckii***, ***Parlatoria blanchardii***, ***Aonidiella aurantii*** and ***Ceroplastes floridensis*** to invsetigate the efficacy of 3-9 treatments in controlling all the pests.

Chemical control of *C. beckii*, *P. blanchardii* and *A. aurantii* preadult (N1+N2) and adult female should be high response to the tested treatment then the ovipositing female and total alive stages. Also were obtained differences between treatment against the three insects total population could be arranged in groups according to their reduction in total alive stages Methadithion, Actellic, Buprofezin, Diazinon, Dimethoate, KZ oil. Anthio. Malathion, and Selecron.

### Efficacy of the insecticides against Purple scale insect, *Cornuaspis beckii* (Newm.)

Field experiment were carried out in citrus orchard which located at Shobra Hares. The post treatment count in six trials the scalicides were obtained between treatment against ***C.beckii*** total alive stages which could be in different products to their reduction as follows Methadithion , Actellic, Buprofezin, Diazinon and KZ oil reduction percentages in first trial as follow ranged 5.11 – 100%, second trial 49.6 – 100%, third trial 35.38 –100%, fourth trial 57.25 –96.8%, fifth trial one application 29.26-100% , two sprays 62.64-100% , sixth trial one application3.15 –98.1% two application 0.9-99.8%.

**Efficacy of the insecticides against Date-palm scale insect, *Parlatoria blanchardii* (Targ.) :**

Field experiment were carried out in citrus orchard which located at Degwa. The post treatment count in four trials the scalicides were obtained between treatment against ***P. blanchardii*** total alive stages which could be in different products to their reduction in total alive stages as follows Diazinon , Actellic , Buprofezin, Dimethoate, KZ oil , Anthio Malathion and Selecron first trial ranged 16.98 – 98.4%, second trial 55.23 – 98.8%, third trial 23.58 – 100%and fourth trial 37.86 – 98.4%.

**Efficacy of insecicides against California red scale insect, *Aonidiella aurantii* (Maskell)**

Field experiment were carried out in citrus orchard which located at Shobra Hares . The post treatment count in four trials the scalicides were obtained between treatment against ***A. aurantii*** total alive stages which could be in different products to their reduction in total alive stages as follows Actellic, Buprofezin and Diazinon first trial ranged 15.0-97.84%, second trial 37.5-100%, third trial 91.67 – 99.38%, fourth trial 31.56 – 100%

**Efficacy of insecticides against Wax scale insect, *Ceroplastes floridensis* (Comest)**

Field experiment were carried out in citrus orchard which located at Shobra Hares. The post treatment count in two trials the scalicides were obtained between treatment against ***C. floridensis*** total alive stages which could be in different products to their reduction in total alive stages as follows Actellic, Buprofezin and Diazinon first trial ranged 97.67-99.69%, second trial 97.05-99.55%

**Fruits count trial**

Field experiment were carried out in citrus orchard which located at Shobra Hares. The post treatment count in one trial the scalicides were obtained between treatment against ***C. beckii, P. blanchardii*** and ***A. aurantii*** total alive stages which could be in different products to their reduction in total alive stages as follows Actellic, Buprofezin and Diazinon ranged 40.72- 95.41% and reduction percentage of infested count fruits ranged 51.16– 63.43%.