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V. SUMMARY

In Egypt, date palm (***Phoenix dactylifera***) plantations are markedly increased allover the different governorates, especially in the desert new reclaimed lands and represented by more than 13 million trees producing about one million tons of fresh, semi-dry and dray fruits each year.

Date palm trees are subjected to variable degrees of infestation with more than 36 insect and mite pests. Recently, some insect pests (such as *Potasia cuprea*) changed their behavior and became economically serious attacking the trees and recorded for the first time.

The following aspects were studied:

1. Surveying insect and mite pests attacking roots, stem, leaves and fruits on different varieties (Zhaglol, Hayiani, Samani, Sewi or Seidi, Amhat, Manthour, Tamer, Ramly, Hegazi, Iraqi, Oriebi, Hallawi, Baladi, Sultani, Aglani, Ohm el Frakh and Bent Aasha and Males), in different localities (Ismailia, Qalubia, Behera, Giza, Fayoum and New Valley) all the year round (winter, spring, summer and autumn).
2. Biological studies on ***Ephestia cautella*** (from March 1997 to February 1998) on date fruits.
3. Biological studies on ***Potasia cuprea*** during 1997/98 on trees stem.

The following results were achieved:

1. Survey of the Insect and Mite Pests Associated with Date Palm Trees in Egypt:

Date palm trees were subjected to infestation with 33 insect species belonging to 17 families from the orders of Isoptera (4 species), Hemiptera (4 species), Lepidoptera (4 species), Coleoptera (20 species), and Hymenoptera (1 species) and 3 mite species belonging to 2 families from order Prostigmata. Two insect species (***Potosia cuprea*** and ***Scarabaeus sacer***) were recorded for the first time.

The most economically important major insect pests in date palm plantations were the termite ***Anacanthotermis ochraceus*** (Isoptera: Hodotermitidae), the mealy bug ***Planococcus citri*** (Hemiptera: Pseudococcidae), the scale insects ***Aonidiella aurantii*** and ***Parlatoria planchardii*** (Hemiptera: Diaspididae), the Lepidopterous fruit moths ***Viracola livia*** (Lepidoptera: Lecaenidae), ***Batrachedra amydraula*** (Lepidoptera: Momphidae), ***Ephestia cautella*** (Lepidoptera: Phycitidae) and ***Arenipses sabella*** (Lepidoptera: Pyralidae), the Coleopterous fruit beetle ***Coccotrypes dactyliperda*** (Coleoptera: Scolytidae), Coleopterous boring beetles ***Phonapate frontalis*** (Coleoptera: Bostrychidae), ***Macrotoma palmate*** (Coleoptera: Cerambycidae), and ***Rhynchophorus ferrugineus*** (Coleoptera: Curculionidae), the Coleopterous Scarabaeid grubs ***Oryctes sinaicus, Oryctes sahariensis, Phyllognathus excavatus, Scarabaeus sacer*** and ***Potosia cuprea*** (Coleoptera: Scarabaeidae), the wasp ***Vespa orientalis*** (Hymenoptera:

Vespidae) and the mites ***Oligonychus afrasiaticus*** (Prostigmata: Tetranychidae) and ***Raoiella indica*** (Prostigmata: Tenuipalpidae).

The insects of economically minor importance in date palm plantations were the termites ***Kalotermis flavicola*** (Isoptera: Kalotermitidae), ***Psamotermis hypostoma*** (Isoptera: Rhinotermitidae) and ***Amitermis desertorum*** (Isoptera: Termitidae), the scale insect ***Chrysomphalus ficus*** (Hemiptera: Diaspididae), the Coleopterous fruit beetle ***Carpophilus hemipterus*** (Coleoptera: Nitidulidae), Coleopterous boring beetles ***Bostrychoplites zickli, Bostrychopsis reichei, Dinoderus bifoveolatus, Dinoderus minutus, Enneadesmus forficula, Enneadesmus obtusedentatus, Enneadesmus trispinosus*** (Coleoptera: Bostrychidae), ***Pseudophilus testaceus*** (Coleoptera: Cerambycidae), the Coleopterous Scarabaeid grubs ***Pachnoda fasciata*** and ***Pentodon bispinosus*** (Coleoptera: Scarabaeidae) and the mite ***Tetranychus*** **sp.** (Prostigmata: Tetranychidae).

Termite infested roots, stem and leaves and feeding in tunnels which covered with mud to protect the colony inside. Family Hodotermitidae attacked date palm varieties of Zhaglol, Samani, Amhat, Hayiani, Sewi, Manthour, Tamer and males descending allover the governorates of Ismailia, Qalubia, Giza, Fayoum and New Valley. Family Kalotermitidae included ***Kalotermis flavicola*** which infested Amhat, Iraqi, Hegazi, Zhaglol and Sewi descending in the governorate of Qalubia. ***Psamotermis hypostoma*** of the family Rhinotermitidae attacked

descending Sewi, Manthour, Tamer and Amhat in New Valley, Fayoum and Giza governorates. ***Amitermis desertorum*** of the family Termitidae was recorded infesting Sewi variety in Giza governorate.

Mealy bugs attacked off shoots and leaves all the year round and fruits during autumn. ***Planococcus citri*** caused serious damage by sucking the plant sap and secreted honeydew which dread sooty mould. It attacked descending Manthour, Seidi, Tamer, Zhaglol, Amhat and Males in the governorates of New Valley, Qalubia, Behera and Ismailia.

Scale insects infested leaves all the year round and sometimes fruits during late autumn. They caused damage by sucking the plant sap and cover the infested plant parts with their scales. ***Aonidiella aurantii*** attacked descending Zhaglol, Samani, Hayiani, Amhat, Hallawi, Oriebi, Iraqi, Hegazi and Sewi in the governorates of Behera, Ismailia, Qalubia and Giza. ***Chrysomphalus ficus*** was attacked Zhaglol, Samani, Hayiani and Amhat in the governorates of Behera, Qalubia and Ismailia. ***Parlatoria planchardii*** infested off shoots and the short older trees, infestation was decreased in taller trees. It descending attacked Males, Zhaglol, Samani, Amhat, Hayiani, Ramly, Oriebi and Sewi. Infestation concentrated in the governorates of Ismailia, Behera, Qalubia, Giza and Fayoum.

Lepidopterous fruit moths attacked fruits and sometimes flowers, fruit bunches and terminal bud of the tree. Larvae of ***Viracola livia*** attacking descendingly Sewi and Manthour during

the different stages of the fruit development. Infestation was reported from New Valley governorate. ***Batrachedra amydraula*** attacked green fruits, fed on the fruit bulb which turned red in color and secreted silken threads around the infested fruits. Infestation was on Sewi, Manthour and Tamer in the governorates of New Valley and Giza. ***Ephestia cautella*** attacked fruits in the field and in the store. Larvae fed on the inner bulb of fruits of Sewi and Tamer varieties in New Valley, Giza and Qalubia governorates. Larvae of ***Arenipses sabella*** was found inside the flowering / fruiting bunches and the fruits of Sewi, Manthour, Tamer, Zhaglol, Iraqi, Amhat and Hayiani allover the governorates of New Valley and Giza, Qalubia and Behera.

Coleopterous fruit beetles (*Coccotrypes dactyliperda*) attacked the fruits during their developmental stages and caused direct damage and indirect fungus infections to the fruit flesh. Sultani, Samani, Zhaglol and Seidi varieties were descendingly attacked in the governorates of Behera, Qalubia, Giza and Fayoum. ***Carpophilus hemipterus*** was found on the previously injured fruits. Most varieties were liable to infestation especially Seidi variety which wasn't recorded before in the governorates of New Valley and Giza.

Coleopterous boring beetles of the Family Bostrychidae attack weekend and dried and semi-dried leaves and consume large amount of leaves tissues. ***Bostrychoplites zickli*** descendingly attacked Zhaglol, Samani, Amhat and Sewi in the governorates of Qalubia, Giza and Behera. ***Bostrychopsis reichei***

were collected from Zhaglol, Samani, Sewi and Amhat in the governorates of Qalubia, Ismailia, Behera, Fayoum and Giza. ***Dinoderus bifoveolatus*** was found in Seidi, Tamer, Males, Zhaglol and Amhat in the governorates of New Valley, Fayoum, Giza and Qalubia. ***Dinoderus minutus*** bored inside Seidi, Tamer, Males, Amhat, Zhaglol, Samani and Hayiani in the governorates of New Valley, Fayoum, Giza and Qalubia and Ismailia. ***Enneadesmus*** spp. were seen boring inside the mid-rib of dried leave and the inner fibers of the leaves tissues turns into saw dust. ***E. forficula, E. obtusedentatus, E. trispinosus***. ***E. trispinosus*** attacked almost all varieties in all governorates. ***E. obtusedentatus*** attacked Tamer, Males, Zhaglol, Samani, Sultani, Aglani and Hallawi in the governorates of New Valley), Giza, Qalubia, Behera and Ismailia. ***Phonapate frontalis*** was the most economically important infesting the mid-rib of vigor leaves as well as semi-dry and dry leaves and fruit bunches of Zhaglol, Males, Samani, Hayiani, Sewi, Bent Aasha, Ramly and Amhat in the governorates of Ismailia, Behera, Qalubia, Giza, Fayoum and New Valley. ***Macrotoma palmate***, a serious boring insect pest consuming huge amount of the inner fibers of trees whatever its variety in the governorates of Qalubia, Ismailia and Giza. ***Pseudophilus testaceus*** was surveyed only once on Sewi in New Valley governorate. ***Rhynchophorus ferrugineus*** was dangerous and destructive boring insect pest. It attacked all parts of trees of Zhaglol, Samani, and Hayiani in Ismailia, Qalubia Sharkia governorates.

Coleopterous Scarabaeid grubs of ***Oryctes sinaicus*** were collected from the root zone, while adults gnaw and

infested the leaves base and bunches and attacked the terminal bud of Hayiani variety in the governorate of Ismailia. The same was ***Oryctes sahariensis*** and was recorded on Manthour in the governorate of New Valley. ***Pachnoda fasciata*** adults gnawed the matured fruits of Zhaglol, Samani, Hayiani, Amhat, Ramly, Oriebi and Ohm el-Frakh in the governorates of Behera, Qalubia and Ismailia. ***Pentodon bispinosus*** larvae fed on the roots of Males, Zhaglol, Samani, Amhat, Sewi, Manthour, Baladi, Iraqi and Hegazi in the governorates of Behera, Ismailia, Qalubia, Giza, New Valley and Fayoum. ***Phyllognathus excavatus*** gnaw the leaves base Males and Manthour, Sewi, Zhaglol and Samani in the governorates of New Valley, Giza and Ismailia. Adults of ***Scarabaeus sacer*** was first recorded on date palm trees feeding on fruits, while larvae damaged the roots of Sewi in Giza. Also, ***Potosia cuprea*** was recorded for the first time severely attacking date palm trees. Larvae fed on the inner tissues on Hayiani in Ismailia and Qalubia governorates.

Males and workers of the wasp ***Vespa orientalis*** attacked fruits of Zhaglol, Samani, Hayiani and Sewi in the governorates of Behera, Ismailia, Qalubia, New Valley and Giza.

Mite adults and nymphs attacked green fruit and leaves and suck the sap and caused swelling, curl and malformation. ***Raoiella indica*** attacked Zhaglol and Samani, ***Oligonychus afrasiaticus*** Sewi, Seidi, Manthour and Tamer in the governorates of New Valley and Giza, ***Tetranychus*** **sp.** Samani in the governorate of Behera.

2. Biological Studies on *Ephestia cautella*:

Ephestia cautella was reared under mean laboratory conditions from March 1997 to February 1998. Four annual generations were reared during March / May 1997 for the first generation (20.2 °C and 56% R. H.), May / July 1997 for the second generation (25.7 °C and 50% R. H.), July / September 1997 for the third generation (26.3 °C and 64% R. H.) and September 1997 / February 1998 for the fourth generation (17.4 °C and 68% R. H.).

2.1. Biological aspects on *E. cautella*:

Detailed studies were carried out only during the first generation on Amery date. Results indicated that **mating** process took place in the same day of moths' emergence and lasted 40 – 115 minutes. **The pre-oviposition period** was very short as females laid eggs the same day of emergence without pre-oviposition period in days (only 6-38 hours). **The oviposition period** ranged of 2-6 days. **The post-oviposition period** ranged 1-6. **The total number of eggs laid per female** varied from 142.7 eggs during the second generation to 189.8 ±97.8 eggs during the third generation. **The adult longevity** ranged 4-7 days for females and males. ***E. cautella*** under went 6 **larval instars** with 1.91 to 3.79 to 6.01 to 7.69 to 10.49 to 13.91 mm body length, respectively. During the first generation, **the total larvae duration** averaged 40.4 ± 3.2 days, with a range of 34-47 days. The fourth instar larvae showed the shortest duration (an average of 5.1 ± 0.8 days), slightly increased (an average of 5.5 ± 1.9 days) during the fifth instar and the third instar larvae (an

average of 5.9 ± 1.6 days), then the second instar larvae (an average of 6.2 ± 1.7 days) Higher duration (an average of 8.4 ± 2.4 days) was during the sixth instar larvae while the maximum duration (an average of 9.5 ± 3.2 days) was during the first instar larvae.

2.2. Comparative Studies on *E. cautella* reared on Different Hosts:

E. cautella was reared for four annual generations from March 1997 to February 1998 on three hosts (i.e., Amery and Sewi date fruits and white flour). Comparative biological studies were carried out on the different developmental stages (i.e., egg, larvae, pupa and adult) and the total life cycle.

The egg stage: During the first generation in March / May, the incubation period varied from Sewi data (average, 4.4 ± 0.27 days) to Amery dates (average, 4.6 ± 0.34 days) to wheat flour (average, 5.2± 0.33 days). The second generation in May / July showed equal egg duration (average 3.3 ± 0.21 days). The third generation in July / September 1997 averaged almost the same (4.4 ± 0.16, 4.6 ± 0.16 and 4.6 ± 0.16 days) for Sewi and Amery date fruits and wheat flour, respectively. The egg stage during the fourth generation in September 1997 / February 1998 averaged 5.0 ± 0.56, 5.1 ± 0.48 and 5.3 ± 0.52 days for Sewi and Amery date fruits and wheat flour, respectively.

The larval stage: The shortest larval duration was recorded during the second generation followed by the first, then the third, while the fourth generation was the longest. Also, Amery or Sewi date fruits showed slight differences between them, but shorter than the duration of larvae reared on wheat flour. The larval stage, during the first generation in March / May, averaged 40.4 ± 1.07, 40.6 ± 1.1 and 53.6 ± 2.7 days when reared on Amery and Sewi date fruits and wheat flour, respectively. During the second generation in May / July, the larval durations averaged 36.1 ± 2.07, 36.5±1.6 and 46.6 ± 3.08 days when reared on Sewi and Amery date fruits and wheat flour, respectively. During the third generation in July / September 1997 the average durations were 45.8 ± 1.27, 46.8 ± 1.14 and 55.7 ± 2.89 days when reared on Sewi and Amery date fruits and wheat flour, respectively. Larval duration was too much expanded during the fourth generation in September 1997 / February 1998 generations where the averages reached 119.6 ± 5.88, 120.1 ± 7.01 and 126.0 ± 7.28 days on Sewi and Amery date fruits and wheat flour, respectively.

The pupal stage: The shortest pupal durations were recorded during the second generation in May / July. Wheal flour showed the least pupal duration (average 5.0 ± 0.26 days) followed by amry date (average 5.1 ± 0.31 days) while Sewi date was the highest (average 5.3 ± 0.31 days). The pupal duration of the first generation (in March / May) averaged 5.6 ± 0.27, 6.0 ± 0.33 and 7.1 ± 0.28 days when reared on wheal flour, amry and Sewi date fruits, respectively. The pupal duration of the third

generation (in July / September averaged 5.04 ± 0.52, 6.3 ± 0.42 and 7.0 ± 0.49 days when reared on wheat flour , Sewi and amry date fruits , respectively. The longest pupal durations were recorded during the fourth generation in September 1997 / February 1998 generations. Longer pupal duration (average, 28.7±1.54 days) was found in rearing on wheat flour, while less pupal durations (averages, 22.2 ± 1.29 and 22.5 ± 1.34 days) when reared on amry and Sewi date fruits, respectively.

The adult stage: Adults from rearing on wheat flour lived extremely shorter period, while those from rearing on Amry or Sewi dates were slightly differed. The shortest life – span was during the second generation (average, 2.1 ± 0.35, 5.6 ± 0.34 and 5-9 ± 0.35 days when the adults resulted from generation reared on wheat flour, Sewi and Amry date fruits, respectively. The third and first generations were close in adults life- span as they averaged 2.3 ± 0.26 and 2.4 ± 0.16, 6.8 ± 0.33 and 7.7 ± 0.30 and 7.4 ± 0.27 and 7.6 ± 0.22 days when adults were from rearing on wheat flour, Sewi and amry date fruits, respectively. The longest life – span of adults was during the fourth generations showing averages of 3.2 ± 0.25, 9.9 ± 0.46 and 10.3 ± 0.47 days when the generation was reared on wheat flour, amry and Sewi date fruits, respectively.

The total life –cycle: The shortest life–cycle was during the second generation (May/July) while the longest was during the fourth generation (September/February). The first (March/July) and third (July/September) generations were

slightly differed and longer than the second generation. In all four generations, the total life –cycle of ***E. cautella*** reared on wheat flour was longer than that reared on date fruits. However, the insect reared on Amry or Sewi date fruits didn't noticeably differred. During the second generation, the total life-cycle of the insect reared on Sewi and Amery date fruits and wheat flour, averaged 50.1±1.7, 50.8 ± 1.53 and 57.0 ± 2.98 days, respectively. During the first and third generations, the total life-cycle averaged 56.5 ± 1.9 and 63.3 ± 1.44, 58.6 ± 1.08 and 61.8 ± 3.91 and 67.0 ± 2.7 and 68.0 ± 3.09 days when reared on Sewi and amry date fruits and wheat flour, respectively. The total life–cycle during the fourth generation averaged 154.8±6.32 and 156.1 ± 7.17 days when reared on amry and Sewi date fruits, respectively. The average on wheat flour was 163.2 ± 7.61 days.

3. Biological Studies on *P. cuprea*:

Larvae of the Scarabaeidae ***P. cuprea*** were soil living and manure feeder until they were discovered for the first time during the present survey that they were living in and feeding on the date palm tree stems in Ismailia and Behera governorates. Adult beetles were also found for the first time that they were date fruit feeders. Accordingly, biological studies on ***P. cuprea*** were carried out on date palm trees for the first time.

3.1.The egg stage:

General description of ***P. cuprea*** eggs was given. They averaged 1.8 - 3.2 mm in length and 0.9 – 1.5 mm in width,

nearly spherical shape, and pale buff in color.

The egg hatchability was described. Egg hatchability significantly varied from 84% to 98% at different constant temperatures from 25 to 35 °C with 80% R.H.

The incubation period At 25 °C, the average incubation period was 12.8 ± 0.4 days, 11.0 ± 0.3 days at 28 °C, 9.2 ± 0.4 days at 32 °C and 7.9 ± 0.2 days at 35 °C.

The total number of eggs significantly decreased as the temperature increased. The highest number of eggs was laid at 25 °C, (average, 35.6), while the lowest number was laid at 35 °C, (average, 33.1). Moderate numbers were laid at 28 and 32 °C, (averages, 31.5 and 28.0, respectively).

The effect of nutrition (flowers of Samani, Zhaglol and Amhat flowers, 80% sugar solution and Cantaloupe slices) **on the number on eggs laid by *P. cuprea*** females was studied under constant temperatures (25, 28 and 32 °C, with 80% R.H.). The numbers of egg laid per female kept under lower degrees of temperatures were always significantly more than those kept under higher degrees of temperatures. Also, under all tested degrees of temperatures, females reared on cantaloupe slices significantly laid the highest numbers of eggs and descendingly the numbers of eggs significantly decreased when females reared on sugar solution (80%), Amhat, Zhaglol and Samani flowers, respectively. Females reared on Samani flowers laid 13.2±0.9, 11.3±1.1 and 8.7±1.3 eggs/female under 25, 28 and 32 °C,

respectively. Egg laid per female fed on Zhaglol and Amhat flowers were 16.8±2.1 and 22.2±2.3, 13.8±1.8 and 17.5±2.4 and 9.6±1.2 and 13.9±2.1.The numbers of egg lay per female reared on sugar solution (80%) and kept under 25, 28 and 32 °C were 23.7±2.0, 18.2±1.5 and 16.1±1.8, respectively. Moreover, the numbers of egg laid per female reared on cantaloupe slices and kept under the same respective degrees of temperatures were 30.6±3.8, 22.9±3.2 and 19.2±2.1.

3.2.The larval stage:

General description of the three **larval instars** of ***P. cuprea*** was given. Also, the **larval habits** of feeding and living after changing to feed on date palm stem tissues were discussed.
Duration of larval stage: The three larval instars of ***P. cuprea*** are nearly found all the year round, as a result of the prolonged oviposition period of the long-lived female beetles. The larval period was significantly decreased as the temperatures increased. Also, under all tested constant degrees of temperatures, the larval durations significantly increased as the instar proceeds from the 1st to the 3rd instar. The maximum average duration of the first instar larvae (23.7± days) at 25 °C was descendingly decreased to an average of 19.2±2.1 days at 28 °C, then 16.4±1.8 days at 32 °C and the minimum average duration was 12.8±1.9 days at 35 °C. The second larval stage lasted longer periods. At 25 °C, the maximum average duration was 32.3±1.5 days. At 28 and 32 °C, the averages of durations were 28.6±1.9 and 24.1±2.4 days, respectively. The minimum average duration was 15.8±0.8 days (range, 15- 16 days) at 35 °C. The third larval stage showed the

maximum average duration at 25 °C (59.4±4.7 days). At 28 and 32 °C, the averages were 52.9±2.3 and 27.7±1.5 days, respectively. The minimum average was 21.2±1.3 days (range, 19- 22 days) at 35 °C. The average total larval durations were 49.8±2.4 and 68.2±3.2 days at 35 and 32 °C, respectively. At 28 °C the average duration was 100.7±2.5 days. At 25 °C the average duration was 115.4±6.1 days. **Rate of larval injury** was estimated and the damage may reach 90% in few years.

3.3.The pupal stage:

General description of ***P. cuprea*** was givin.

The pre-pupal duration was relatively and insignificantly long. The average durations were 13.1±0.9 days at 25 °C. At 28, 32 and 35 °C, the durations averaged 12.6±1.2, 11.4±0.8 and 10.7±0.5 days.

The pupal duration was relatively and insignificantly short. The average durations were 7.8±0.7 days at 25 °C. At 28, 32 and 35 °C, the durations averaged 6.3±0.4, 5.9±0.6 and 4.7±0.4 days.

3.4.The adult stage:

Emergence from the infested part of the tree and **general description** of ***P. cuprea*** was given.

The pre-oviposition period of ***P. cuprea*** was generally long. The pre-oviposition periods significantly decreased as the

degrees of temperatures increased. The averages were 23.5±1.5 days at 25 °C, 21.0±1.3 days at 28 °C, 17.0±1.3 days at 32 °C and 13.0±0.8 days at 35 °C.

The oviposition periods of ***P. cuprea*** were relatively long (42 – 75 days). As the degrees of temperatures increased the oviposition periods significantly decreased. The maximum period averaged 70.2±1.9 days at 25 °C, whereas, the minimum averaged 44.2±2.3 days at 25 °C. At 28 and 32 °C the averages were 61.3±1.3 and 53.3±2.5 days, respectively.

The post-oviposition period was relatively long (28 – 55 days). As the degrees of temperatures increased the post-oviposition periods significantly decreased. The average periods were 58.4±3.2, 41.5±2.2, 35.7±2.4 and 30.5±3.0 days at 25, 28, 32 and 35 °C, respectively.

The longevity was significantly too long. The longest life-span averaged 152.1±5.7 days at 25 °C, while the shortest was at 35 °C (average, 87.7±3.7 days). Recorded at 28 and 32 °C were 123.8±4.2 and 106.0±5.8 days, respectively. Male beetles lived somewhat shorter by 12 -15 days than females. **Death of the beetles** was also described.

3.5.Total life-cycle:

The egg, larval, pupal and adult stages as well as the total life cycle reared on the different four constant degrees of temperatures (25, 28, 32 and 35 °C) was studied. The total life

cycle significantly decreased as the degrees of temperatures increased. The maximum duration of the total life cycle was showing an average of 301.3±11.6 days at 25 °C. The minimum duration averaged 159.9±6.5 days at 35 °C. At 28 and 32 °C the average durations were 200.4±9.4 (range, 191 – 212) and 254.3±9.1 days, respectively.

3.6.The annual generations:

Field observations on the adult beetles' activity were conducted in Ismailia governorate (Ain-Ousien village, Abo-Sultan district, Fayed) during 1998 / 1999. ***P. cuprea*** has one-year life-cycles but principally, two overlapping of generations. The first generation was in spring /summer, while the second one was in summer / autumn. Adults of the first generation emerged from date palm tree trunks during early March, with a peak of flight in late June but the flight activity was greatly diminished, and ceases during late August. Adults of the second generation emerged from date palm tree trunks during early July. Flight was active, with a peak in September, till the end of October, and was sluggish in November and December, then the beetles over wintered inside the tree trunk. Emergence was then after resumed in late February / early March.