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**Predominant spider Species on Mango Trees
in Relation to Prey, Temperature degrees and
Relative Humidity in Serabium at El-Ismailia
Governorate**

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V. SUMMARY

In extensive survey studies carried out in different apple, citrus, guava, mango, olive and peach orchards in six different localities of El-Ismailia Governorate, indicate the presence of 22 families including 24 genus, as following, Agelenidae, Araneidae, Dictynidae, Dysderidae, Gnaphosidae, Filidatidae, Hersilidae, Linyphiidae, Liocorinidae, Lycosidae, Mimetidae, Miturgidae, Oecobiidae, Onanpidae, Philodromidae, Pholcidae, Pisauridae, Salticidae, Scytodidae, Theridiidae, Thomisidae and Uloboridae and *Cyrtophora citricola*, *Argiopes* sp., *Dyosdera* sp., *Setaphis subtilis*, *Synaphosus synteticus*, *Zelotes complex*, *Trachyzelotes lypelie*, *Hersilia caudata*, *Erigone dentipapis*, *Lycorma ferox*, *Mesiotelues tenuissimus*, *philodromus glausmus*, *Thanatus albini*, *Cheracanthium isiacum*, *Mimetus* sp., *Scystodes* sp., *Plexyppus paykulli*, *Oecobius putus*, *Perminus* sp., *Theridion* sp., *Onops* sp., *Thomisus* sp., *Runcinia* sp., *Xysticus* sp. and *Uloborus* sp. which differed in their population densities and frequencies of occurrence according to different localities and fruit trees. However, the spider families Gnaphosidae, Gnaphosidae, Thomisidae, Philodromidae and Theridiidae were found in almost surveyed localities with relatively highly population densities and frequencies of occurrence. The spider families Araneidae, Lycosidae, Miturgidae, Salticidae, Liocornidae, Scytodidae and Oecobiidae were found in most examined localities with moderate population densities and frequencies of occurrence, while Agelenidae, Pisauridae, Dictynidae, Mimetidae, Onanpidae, Pholcidae and Uloboridae were found in few surveyed localities with low averages of population densities and frequencies of occurrence. On the other hand, Gnaphosidae, Philodromidae, Theridiidae, Thomisidae, Araneidae and Agelenidae were the

most prevalent spiders isolated from the selective fruit trees, followed by Filistatidae, Liocomidae, Lycosidae, Miturgidae, Oecobiidae, Onanpidae, Pisauridae, Salticidae and Uloboridae with moderate population densities and frequencies of occurrence, followed by Dictynidae, Dysderidae, Hersilidae, Linyphiidae, Mimetidae, Pholcidae and Scytodidae which collected from such fruit trees with low values of population densities and frequencies of occurrence.

The true spider species were also varied in their population densities and frequencies of occurrence according to the type of surveyed localities. However, *Setaphis subtilis*, *Traichyzolotes lyplie*, *Zelotes complex*, *Mesiotelus tenuiorus*, *Philodromus glaucinus*, *Plexippus paykulli* and *Permius* sp. were found in all surveyed localities with moderately population densities and frequencies of occurrence. On the other hand, the spider species, *Argiopsis* sp., *Cyrtophor cirticola*, *Dysdera* sp., *Sunaphosus symtherts*, *Hersilia caudata*, *Minetus* sp., *Onops* sp., *Thanatus albini*, *Scytodes* sp., *Theridion* sp., *Runcinia* sp., *Thomisus* sp., *Xysticus* sp. and *Uloborus* sp. were isolated from two or five localities with low population densities and frequencies of occurrence.

The true spiders were highest in fruit trees of Qantara Shark, Qantara Gharb, Ismailia Agric. Res. Sta. and Scrabium with total averages of population density and frequency of occurrence (3.68-48.79 %), (3.50-45.13 %), (3.23-33.07 %) and (3.05-31.41 %), respectively; and moderate in Salheia and El-Manaief with total average of population density and frequency of occurrence (2.88-27.20 %) and (2.75-23.93 %), respectively.

It is interesting to notice that, the spider species *Mesiotelus temsiorus* and *Philodromus glaucinus* were collected with relatively high population densities, while *Theridion* sp. and *Xysticus* sp. were isolated with relatively population densities from all surveyed fruit trees. It is noteworthy that, the total average of spider species densities were higher on mango, citrus and olive as evergreen fruit trees (4.48, 3.77 and 3.01, respectively) than in peach, apple and guava as deciduous fruit trees (2.92, 2.75 and 2.53, respectively). Also, the spider species, *Oecobius putus* was only isolated from samples which collected from evergreen fruit trees (citrus, mango and olive).

The spider population density on mango trees during two successive years at Serabium locality in El-Isnailia Governorate, greatly varied according to available prey, temperature degrees, relative humidity and there were remarkable high and low seasonal fluctuation patterns. The spider population started to increase gradually during Spring months of the first year to reach the first noticeable peak in early Summer season (June 2000 with total average 10 individuals), then a sharp decline in spider population was occurred in Winter months (December 2000 with total average 69 individuals, January and February 2001 with total average 81 and 87 individuals) at which the temperature degrees and the prey of animals and insects reach its minimum levels. After which the spider population increased rapidly to reach their the highest equal two peaks in early Summer (June 2001 with total average 194 individuals) and

early Autumn (September 2001 with total average 216 individuals) at which the temperature degrees and prey of animals and insects reached its maximum levels. There was a positive relationship between the spider population density and both temperature degrees ($r = + 0.616$) and the prey of animals and insects ($r = + 0.555$). Also, there was a negative relationship between the spider population density and percentages of the relative humidity ($r = - 0.039$) during seasonal fluctuations in the two successive years.

It is important to note that when the insect pest *Aphis gossypii* reached to its the first peak in May 2000, the highest peak (June 2000) of spider species *Cheiracanthium isicum* was happened. Also, when the insect pests; *Aphis gossypii*, *Aceria mangiferae* and *Lepidosaphes beckii* reached to their peaks in October 2000, the highest peak (November 2000) of spider *Lycormia ferox* was occurred. Whereas the outbreaks of both insect pests *Aceria mangiferae* and *Aphis gossypii* happen in April and May 2001, they followed by the both peaks of spiders *Lycormia ferox* and *Philodromus glaucinus* in June and July 2001. Also, when the outbreaks of both insect and animal pests, *Icerya aegyptiaca* and *Tetranychus urticae* in August 2001, they followed by the two highest peaks of spiders *Lycormia ferox* and *Philodromus glaucinus* in September 2001. Biological aspects of the liocranid *Mesiotelus tenuissimus* as influenced by different prey at $30 \pm 2^\circ\text{C}$ and $60 \pm 5\%$ R.H. showed that the incubation period lasted an average 23.38 ± 1.14 days for female and 22.14 ± 0.63 days for male, after that the

eggs hatched producing the first spiderling which crawled outside the egg sac leaving behind the transparent egg shell. Each of these spiderlings after full-grown and before changing to the next instar passes through a resting period during which the individuals ceases feeding and the moulting presented. The first and second spiderlings lasted 29.15 ± 1.21 and 28.15 ± 0.80 days for female, and it averaged 28.57 ± 1.13 and 27.85 ± 0.69 days for male, respectively. The 3rd, 4th and 5th spiderlings durated 27.30 ± 0.75 , 24.46 ± 0.51 and 24.76 ± 0.43 days for female, while male lasted 26.57 ± 0.53 , 23.28 ± 0.48 and 22.00 ± 0.57 days, respectively, when spiderlings fed on the adult stage of fruit fly. The 6th and 7th spiderlings of female lasted 22.76 ± 0.43 and 21.61 ± 0.65 days, while male of the same spiderling instars durated 20.74 ± 0.69 and 20.14 ± 0.89 days, respectively. When 8th and 9th spiderlings of female fed on the 1st nymph of grasshopper lasted 20.38 ± 0.50 and 18.76 ± 0.72 days, respectively, while in case of male, the spiderling pass only to 8th spiderling and reached to adult stage which durated 20.25 ± 0.48 days. The total immature instars averaged 217.33 ± 6.00 and 195.54 ± 5.46 days, for female and male, respectively, in addition the life cycle of such species lasted 240.71 ± 7.52 and 218.58 ± 6.32 days, for female and male, respectively. Adult longevity of the spider species differed according to sex. Male lived for a shorter period than female. Adult female and male longevity averaged 128.83 ± 5.34 and 74.30 ± 4.96 days, respectively, when fed on the 1st nymph of