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MITES DWELLING IN NESTS OF THE YELLOW WASP, *Polistes gallica* L. IN SHARKEIA GOVERNORATE, EGYPT

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ABSTRACT

Ten mite species were recorded dwelling in nests of the yellow wasp, Polistes gallica L. in different localities in Sharkeia Governorate, Egypt. Of these, six species of family Tarsonemidae, one species of Glycyphagidae and one species of Oppiidae. Those species are considered of uncertain feeding habits, they may be fungivorous, phoretic or may be responsible for transmitting certain insect pathogens or plant diseases.

The other two species belongs to the predacious families Raphignathidae and Cunaxidae.

***Conclusively,** Surveying mites associated with nests of the yellow wasp, P. gallica were studied in different parts in Sharkeia Governorate, Egypt. Ten species were recorded belonging to five families and three suborders. Two major groups according to their feeding habits.*

Key words: Mites, yellow wasp, *Polistes gallica* L.

INTRODUCTION

The yellow wasp, *Polistes gallica* L. is one of the insect enemies of honey bees, *Apis mellifera* L.. This relationship attracted the attention to survey mites dwelling in its nests as a primary study to explore that phenomenon and to group them into major categories according to their feeding habits.

Mites associated with insect pests are considered as beneficial organisms when they reduce the pest populations. They (mites) may be harmful when infest the useful insects.

Mostafa (1970) described 28 species of saproglyphid hypopi associated with wasps of the genus *Zethus*. El- Badry (1971) described the hypopus of *Sennertia egyptiaca* El-Badry from the acarinarium of the carpenter bee, *Xylocopa aestuans* Linn.. El- Naggar (1977) studied the relationship between mites and some hymenopterous insects, he recorded 44 mite species from those insects and their nests. El- Duweini (1978) found 38 mite species belonging to 4 suborders in association with hymenopterous

insects. Yousef and Metwally (1979) described the anoetid mite species, *Hististoma cataglyphi Yousef & Metwally* in the nests of the ant, *Cataglyphus bicolor* Fab. Kandeel (1981) described *Metasiteroptes polistesi* Soliman & Kandeel from nests of the yellow wasp, *Polistes gallica* L. from El- Ismaelia Governorate, Egypt, which was published in Zaher (1986). In 1984, Metwally described 4 species of the genus *Scutacarus* in the nests of *C. bicolor*. Gamih (1985) collected 30 mite species belonging to 4 suborders in association with different insect species. Fouly (1988) surveyed the acari association with hymenopterous insects belonging to 22 families. El-Gazzar (1992) collected 42 mite species association with various economic insects.

Therefore, the aim of the present work was mainly to survey mites invalids the nests of the yellow wasp, *P. gallica* in some parts in Sharkeia Governorate, Egypt. .

MATERIALS AND METHODS

Nests of the yellow wasp, *P. gallica* were collected from different parts in Sharkeia Governorate, Egypt around Jan.-Dec., 2013. The nests were placed in plastic bags and transferred to the laboratory. Mites were extracted using Tullgren's funnel, then they were directly mounted in Hoyer's medium, gently heated to have stretched individuals and hasten the clearing process. Lables recording all the necessary informations were stuck on each side of the slides. The collected mites were identified using a research binocular microscope.

RESULTS AND DISCUSSION

Surveying mites dwelling in nests of the yellow wasp, *P. gallica* in several parts in Sharkeia Governorate, Egypt proved the incidence of ten species belonging to five families and three suborders (Table 1). The suborder Actinedida ranked the highest, either in number of species or in their population. Six species of family Tarsonemidae, a single species from both families Raphignathidae and Cunaxidae.

The tarsonemid species were *Tarsonemus pauperoseatus* Suski, *T. schaarschmiditi* Mahunka, *T. minusculus* Can.& Fanz., *T. pomi* Suski, *T. noxius* Humic. and *Pseudotarsonemoides* sp. Krantz (1978) stated that the majority of the species of the genus *Tarsonemus* Can.&Fanz. are fungivorous or algivorous. Smiley and Landwehr (1976) described *Tarsonemus destructor* Reuter from Monterey pine, *Pinus radiata* D. Den in California and they stated that the adults of this mite are predacious on eggs of the false spider mite, *Brevipalpus pini* Baker and the three spider mites

Oligonychus subnudus (McGregor), *O. milleri* (McGregor) and *O. cunliffei* Pritchard& Baker. Again, Lindquist and Smiley (1978) established the new genus, *Acaronemus* for tarsonemid mites predaceous on tetranychoid mite eggs based on the mite, *T. destructor* as the type species.

Table 1: Mites dwelling in nests of the yellow wasp, *Polistes gallica* L. in Egypt.

Suborder, Family	Genus and species	Feeding behavior	No. of individuals
Actinedida			
Fam. :Tarsonemidae	1-*Tarsonemus pauperoseatus* Suski	uncertain	a
	2- *T. schaarschmiditi* Mahunka	"	a
	3- *T. minusculus* Can.& Fanz.	"	a
	4- *T. pomi* Suski	"	a
	5- *T. noxius* Humic.	"	a
	6- *Pseudotarsonemoides* sp.	"	a
Fam . :Raphignathidae	*Raphignathus niloticus* Rakha& Mohamed	predator	c
Fam . :Cunaxidae	*Cunaxoides zebedielensis* Den Hyer	"	c
Acaridida			
Fam . :Glycyphagidae			
Oribatida	*Glycyphagous geniculatus* Vitzthum	Uncertain	a
Fam . :Oppiidae	*Oppia sticata* Popp	"	b

(a): represents high numbers (not less than 30 individuals/ one nest), (b): represents moderate numbers (15-29 individuals/ one nest)and (c): represents few numbers (14 or less individuals/ one nest).

The mites, *Raphignathus niloticus* Rakha& Mohamed(Fam. Raphignathidae) and *Cunaxoides zebedielensis* Den Hyer (Fam.Cunaxidae) were recorded in few numbers. Rakha and Mohamed (1980) described *R. niloticus* which was collected in sparrow nests, Giza, Egypt. Smiley (1992) collected *C. zebedielensis* from *Citrus* sp., Zebediela Estates, Potgietersrust district, North Trasvaal, South Africa.

The Suborder Acaridida was represented by *Glycyphagous geniculatus* Vitzthum (Fam. Glycyphagidae) in high number. Hughes (1961) stated that *G. geniculatus* was found in bird's nests, collected near Slough Bucks, and in grain bin residues. Also, it was found in the nest of a bee,

Xylocopa (*Koptorthosoma*) *nigrita* F. d'Amani in East Africa. Cooreman (1942) found it in the coffee fruit fly, *Ceratitis (Trirhithrum) coffeae* Bezzi collected in Java and on a fungus, *Polyporus* sp. in Sumatra.

The Suborder Oribatida was recorded in moderate numbers by the mite, *Oppia sticata* Popp (Fam. Oppiidae). Zaher (1986) stated that *O. sticata* shows wide spread in soil and debris. Also, he gave a note about its biology showing that it feeds on the fungi *Aspergillus flavus*, *A. niger*, *Penicillium* sp., *Fusarium moniliform*, *Rizopus* sp. , *Rizoctonia solani* and *Sclerotium rolfsii*.

Data indicated that the collected species can be grouped into two major groups according to their feeding habits:

a- Predaceous mites which were represented by *R. niloticus* and *C. zebedielensis.*

b- Mites whose food is uncertain, probably fungivorous or phoretic. Those species were recorded by the tarsonemid representatives *T. pauperoseatus, T. schaarschmiditi, T. minusculus , T. pomi, T. noxius, Pseudotarsonemoides* sp.; *G. geniculatus* (Fam. Glycyphagidae) and *O. sticata* (Fam. Oppiidae). El-Naggar *et al.* (1993) stated that some species of the fungus feeders may introduce an exciting in the field of biological control by transmitting certain insect pathogens. On the other hand, some other species of this group may illustrate a drastic picture as they adversely affect the host plant by transmitting several plant diseases.

Al- Mahdawi and Al- Kinani (2011) stated that the red wasp, *Vespa orientalis* Linn. and the yellow wasp, *Polistes olivaceus* are hymenoptera insects during Spring and Summer season. Their occurrence increase dramatically during months of July, August and September. These wasps are found in orchards where attach grapes, figs, date and peach. They cause severe damage on both qualities and quantities of fruits. The adults of wasp chew on fruits causing severe injuries that may result in bacterial and fungal infections.

Conclusively, surveying mites associated with nests of the yellow wasp, *P. gallica* were studied in different parts in Sharkeia Governorate, Egypt. Ten species were recorded belonging to five families and three suborders. Two major groups according to their feeding habits.

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الأكاروسات القاطنة فى عشوش الدبور الأصفر *Polistes gallica* L . في محافظة الشرقية

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سجل عشرة أنواع من الاكاروسات المتواجدة في عشوش الدبور الأصفر الذى يعتبر أحد الأعداء الحيوية لنحل العسل في مناطق متفرقة بمحافظة الشرقية – مصر. وكانت هذه الأنواع مختلفة السلوك الغذائى فمنها أنواع تابعة لفصيلة Oppiidae وفصيلة Tarsonemidae وفصيلة Glycyphagidae.
تلك الأنواع التابعة للفصائل السابقة غير معروف سلوكها الغذائى فربما تكون فطرية التغذية أو متنقلة وتكون مسئولة عن نقل مسببات مرضية للحشرات أو أمراض للنباتات.
وقد سجلت أنواع أخرى مفترسة تلعب دورا فى المكافحة الحيوية وهى نوع يتبع فصيلة Cunaxidae. وآخر يتبع فصيلة Raphignathidae.

التوصية: