

**DISCOURELLA AEGYPTICUS, A NEW UROPODIOD MITE,
WITH NOTES ON ITS BIOLOGY (ACARI: GAMASIDA:
TRACHYTIDAE).**

G.M. SHEREEF,¹ A.M. AFIFI,¹
M.S. NAWAR¹ AND M.A. AHMED²

¹ Agricultural Zoology Department, Faculty of Agriculture, Cairo University, Giza, Egypt.

² Plant Protection Research Institute, Agricultural Research Centre Dokki, Egypt.

(Manuscript received 8 April 1991)

Abstract

Discourella aegypticus, a new species of the family Trachytidae Tragardh is presented in Egypt for the first time. It was collected from organic manure on the farm of the Faculty of Agriculture, Cairo University, Giza, Egypt. Female and male stages were figured and described. *D. aegypticus* n.sp. was successfully reared on larvae of the house fly (*Musca domestica* L.) and the vinegar fly (*Drosophila melanogaster* Morgan). Life cycle and adult female longevity averaged 10.80 & 18.30, 12.00 & 16.60 days when feeding on larvae of house and vinegar flies, respectively. Average female deposited 20.00, and 19.00 eggs at 30°C when fed on larvae of the two flies, respectively.

INTRODUCTION

The uropodids attain their maximum numbers and diversity in form in the tropical and subtropical regions, yet are moderately represented in Egypt. They are free living, inhabiting soil, organic manure, debris, moss, and under bark of trees where they feed on soil fungi and lichens. Some species are predators of flies larvae and free living nematodes.

In Egypt, only five species of five genera are recorded, and these are *Urodispis aegypticus* Ahmed, *Trichouopoda patavina* (Canestrini), *Uroobovella*

(*Fuscuropoda*) Krantzi Zaher & Afifi, *Urodinychus pioosus* Ahmed, and *Chiropturopoda bakeri* Zaher & Afifi (Zaher 1986). Some scattered works were done on biology and feeding habits (Ahmed 1984, and Zaher and Afifi 1986).

The Present work aims at investigating the biology and feeding habits together with description of *Discourella aegypticus* n.sp. adult stage.

MATERIALS AND METHODS

Discourella aegypticus n. sp. was reared in plastic rings 2.8 cm in diameter and 2cm in depth. the rings were filled up to 0.5cm with plaster of Paris and Charcoal. Drops of water were added daily to maintain suitable relative humidity. For culturing mites, several adult females were placed in plastic rings supplied with food and kept in an incubator at 30°C. For individual rearing, newly desposited eggs were transferred singly to rearing plastic rings. Each newly hatched larva was supplied with prey and devoured individuals were replaced daily by fresh ones until maturity. Mites were examined twice daily. Emerging females were copulated and kept for oviposition. House fly larvae (*Musca domestica* L.), and vinegar fly larvae (*Drosophila melanogaster* Morgan) were used as prey.

RESULTS AND DISCUSSION

A- Description of Adult Stage:

Genus *Discourella* Berlese

Type species : *Trachyuropoda (Discourella) discopomoides* Berlese.

Diagnosis: Body ovate or wide ovate. Dorsum with ornamentation, Pygidial shield present or absent. Genital shield of female bottle like, truncate posteriorly. Peritreme twisted, and cheliceral fixed digit longer than movable digit.

Discourella aegypticus n. sp.

(Figs. 1-3)

Diagnosis : This species is related to *D. franzi* Hirschmann and Zirngieble-

Nicol, 1969, But differs in having 7 pairs of posterior marginal setae arising from small oval platelets, of them, two pairs brush-like. Centro-dorsal region with 3 pairs of brush-like setae.

Female : Dorsal shield (Fig.1) 690-725 μm long, 424-435 μm wide, and divided to centro-dorsal and latero-dorsal regions, Centro-dorsal region with 14 pairs of simple setae, and 3 pairs of brush-like setae, and scattered punctated areas. Laterodorsal region sclerotized, with ornamentations, 7 pairs of postero-marginal setae arising from small oval platelets, of them two pairs brush-like. Marginal shield with 33 pairs of simple setae, each arising from small platelet.

Perigenital shield (Fig. 2) punctated with four pairs of simple setae. Genital shield bottle like, truncated posteriorly, devoid of setae and extending from anterior limit of coxae III to middle of coxae IV. Opisthogastric region with three pairs of simple setae, and scattered punctated areas. Anal plate present with one pair of pre-anal setae, and one pair of para-anal setae. Stigma present between coxa II and III; peritreme simple and extending anteriorly and posteriorly. Cuticle with ornamentation on lateral sides and striation posteriorly. Length of leg 275 μm , leg II 290 μm , leg III 229 μm , and leg IV 351 μm .

Male: Dorsal shield 805-816 μm long, 531 -450 μm wide, and with all characters as female. Perigenital shield (Fig. 3) with 6 pairs of simple setae. Genital aperture covered by a circular shield with one pair of setae.

Type series-Holotype: A female from organic manure, Giza, Egypt.

Allotype : A male from the same locality.

Paratypes : 30 females, and 10 males from the same locality.

Holotype, allotype and paratypes were deposited in the Collection of Acarology Division, Faculty of Agriculture, Cairo University.

B - Biological studies:

Biscourella aegypticus n. sp. occurred in few number in organic manure associated with larvae of house and vinegar flies. All moving stages fed on larvae of the two flies, but refused to feed on acarid mites and soil fungi. It attacked the first instar larvae of both flies at the posterior end. Cannibalism was not observed. Adult female laid its eggs singly.

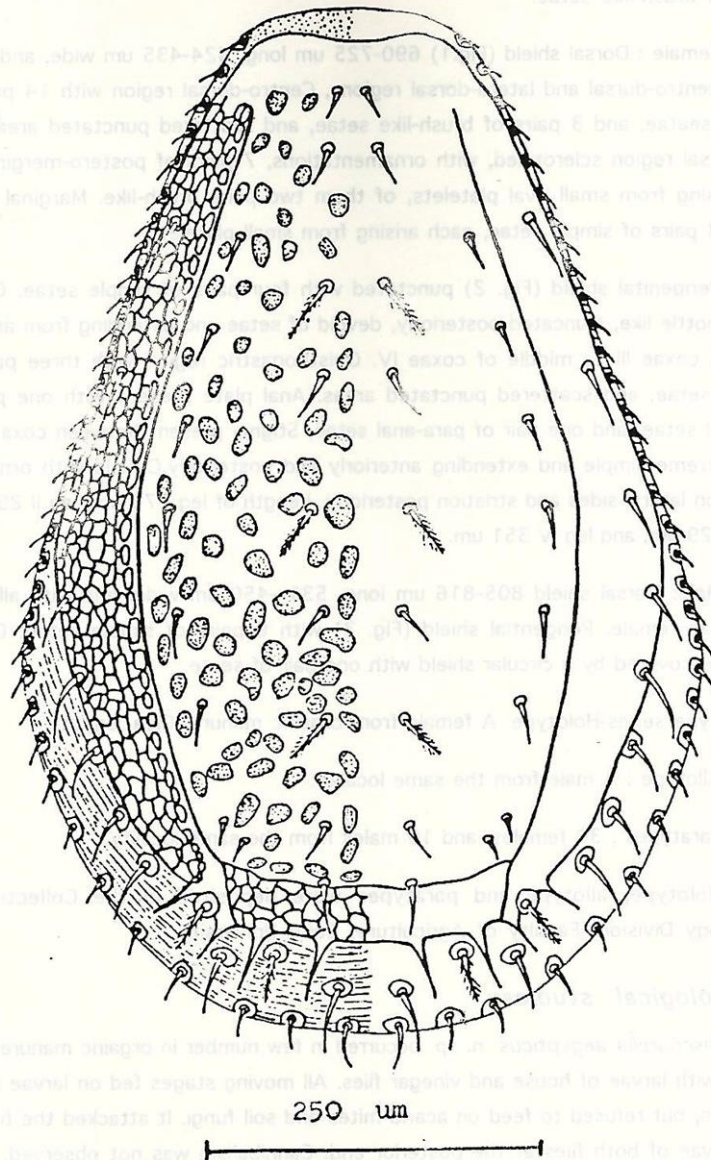


Fig. 1. *Discourella aegypticus* n. sp.-female dorsum.

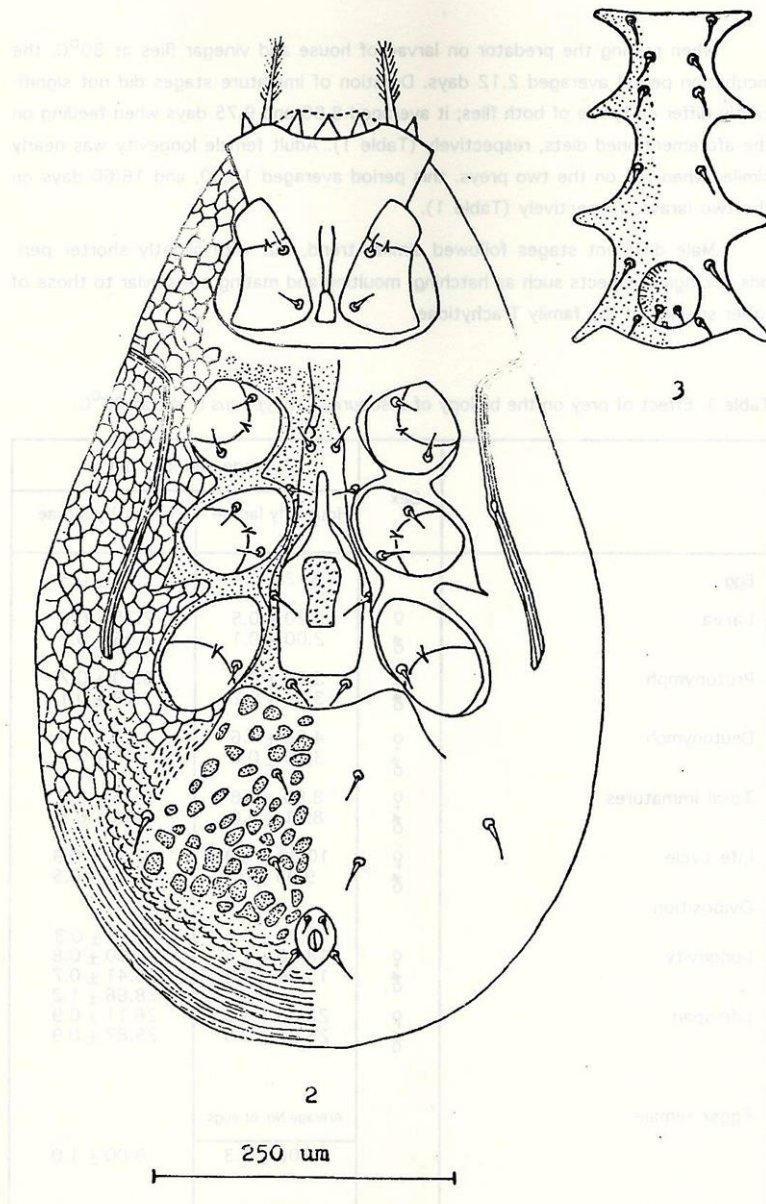


Fig. 2-3. *Discourella aegypticus* n. sp.-2. female ventrum, 3. male perigential shield.

when rearing the predator on larvae of house and vinegar flies at 30°C, the incubation period averaged 2.12 days. Duration of immature stages did not significantly differ on larvae of both flies; it averaged 8.80 and 9.75 days when feeding on the aforementioned diets, respectively (Table 1). Adult female longevity was nearly similar when fed on the two preys. this period averaged 18.30, and 16.60 days on the two larvae, respectively (Table 1).

Male different stages followed similar trend, but with slightly shorter periods. Biological aspects such as hatching, moulting and mating are similar to those of other species of the family Trachytidae.

Table 1. Effect of prey on the biology of *Discourella aegypticus* n. sp. at 30°C.

	Sex	Average period in days	
		House fly larvae	Vinegar fly larvae
Egg		2.12 ± 0.4	2.12 ± 0.5
Larva	♀	2.20 ± 0.5	2.25 ± 0.6
	♂	2.00 ± 0.1	2.05 ± 0.2
Protonymph	♀	3.20 ± 0.5	3.20 ± 0.7
	♂	3.04 ± 0.2	3.10 ± 0.1
Deutonymph	♀	4.08 ± 0.6	4.18 ± 0.4
	♂	3.20 ± 0.6	4.03 ± 0.2
Total immatures	♀	8.80 ± 0.8	9.75 ± 0.6
	♂	8.31 ± 0.6	8.98 ± 0.3
Life cycle	♀	10.80 ± 0.9	12.00 ± 0.9
	♂	9.99 ± 0.5	11.00 ± 0.5
Oviposition			
Longevity		8.25 ± 0.5	7.30 ± 0.3
	♀	18.30 ± 1.5	16.60 ± 0.8
	♂	15.84 ± 0.8	15.41 ± 0.7
Life span	♀	28.00 ± 1.3	28.66 ± 1.2
	♂	25.87 ± 0.9	26.11 ± 0.9
Eggs/ female		Average No. of eggs	
		20.00 ± 1.3	19.00 ± 1.0

Female oviposition period and fecundity did not significantly differ on both preys; averaged 8.25 days & 20.000 eggs when fed on house fly larvae, and 7.30 days & 19.00 eggs on vinegar fly larvae, respectively (Table 1)

Finally, it could be concluded that this species feeds only as predator. Ahmed (1984), reared *Urodiaspis aegypticus* Ahmed as a predator on the two acarid mites *Rhizoglyphus robini* Claparede and *Tyrophagus Putrescentiae* (Schrank) but failed to feed on house fly larvae. In the same year. Ahmed found that *Urodinychus piolsus* Ahmed did not feed on acarid mites or streptomycetes, but feeds on three soil fungi. According to Zaher (1986), Zaher and Afifi reared two uropodid mites *Uroobovella (Fuscuropoda) krantzi* Z. & A., and *Chiropturopoda bakeri* Z. & A. The first feeds on house fly larvae, while larvae and protonymph of the second feeds on fungi and deutonymphs, and adults predate on house fly larvae.

Due to the mite voracious feeding and other biological traits, it could be useful in decreasing house and vinegar flies populations.

REFERENCES

- 1 . Ahmed, M.A., 1984. Biology of some soil fauna feeding on soil microorganisms. M.Sc. Thesis, Zagazig Univ., 106 pp.
- 2 . Hirschman, W. and I. Zirngieble-Nicol, 1969. Neunzehn neue Uropoda-Arten. *Acarologi*, F. 12:20-31.
- 3 . Zaher, M.A., 1986. Survey and ecological studies on phytophagous, predaceous and soil mites in Egypt. Vol. 2A Predaceous & Non phytophagous mites. The Author, Giza.

ملاحظات بيولوجية للنوع الجديد

Discourella aegypticus

جابر مهران شريف^١ عبد النبي محمد عفيفي^٢
محمد سامي نوار^١ مني عبد الحميد أحمد^٢

١ - قسم الحيوان الزراعي - كلية الزراعة - جامعة القاهرة.

٢ - معهد بحوث وقاية النباتات ، مركز البحوث الزراعية ، الدقي.

يعتبر هذا البحث إضافة جديدة لعلم التصنيف في مجال الأكاروس حيث سجلت فصيلة rachytidae في مصر للمرة الأولى من خلال وصف النوع الجديد - *Discourella aegypti* .cus

وفي هذه الدراسة تم وصف الأطوار الكاملة لهذا النوع الجديد مع عمل رسومات توضيحية له يتواجد هذا النوع في أكوام السباخ المتواجدة بمزرعة كلية الزراعة جامعة القاهرة بالجيزة. وقد تم تربيته هذا النوع كمفترس بنجاح علي يرقات كل من الذباب المنزلي وذبابة الخل (الدروسوفيلا) لأنه يلعب دوراً هاماً في مجال مكافحة الحيوية لهذه الآفات بافتراسها. وقد وجد أن دورة الحياه ومدة حياة الأنثي البالغة هي ٨٠ ، ١٠ ، ٣٠ ، ١٨ ، ١٢ ، ١٦ ، ٦٠ يوما عند التغذية علي يرقات الذباب المنزلي ويرقات ذبابة الخل علي التوالي . كما أوضحت هذه الدراسة أن خصوبة الانثي تتراوح ما بين ٢٠ - ١٩ بيضة وذلك عند تغذيتها علي يرقات نوعي الذباب المنزلي والخل علي التوالي تحت الظروف المعملية علي درجة حرارة ٢٠ م.