Egypt. J. Agric. Res., 81 (1), 2003.

A NEW SUBFAMILY BRYONYCHINAE INCLUDEING TWO NEW TRIBES, GENERA AND SPECIES (ACARI:TETRANYCHIDAE)

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(Manuscript received July, 2002)

Abstract

Reviewing tetranychid mites females in Egypt revealed the existence of a new subfamily Bryonychinae which is distinguished by the presence of tenant hairs on empodium 1 and having one or two pairs of anal setae. Thus, this new subfamily resembles the subfamily Tetranychinae, Berlese in having one or two pairs of anal setae and the subfamily Bryobiinae Berlese in having tenent hairs on empodium 1. The new subfamily comprises of two new tribes, Bryonychini and Zaheranychini.

The first tribe comprises a new genus *Bryonychus* which includes a new species *B. zaheri*, while the second tribe includes a new genus *Zaheranychus* which comprises a new species *Z. bakeri*. The two new species are described.

INTRODUCTION

Family Tetranychidae Donnadieu is one of the most important plant feeder mite families. It includes numerous mites of considerable economic importance. They feed on leaves, buds and fruits causing great injury to plants, especially in case of heavy infestations. Accurate identification of members of this family in Egypt is of great help to suggest an external or internal agricultural quarantine. Prior to this study only 36 species belonging to 14 genera in 7 tribes of 2 subfamilies Bryobiinae and Tetranychinae, in the family Tetranychidae were recorded in Egypt. Tetranychid genera are *Bryobia* Koch 1836, *Septopia* Zaher, Gomaa & El-Enany 1982, *Hemibryobia* Tuttle & Baker 1968, *Neopetrobia* Winstein 1956 (= *Langella*), *Paraplnobia* Wainstein 1960, *Petrobia* Murray 1877, *Tetranychina* Banks 1917, *Eutetranychus* Banks 1917, *Chinotetranychus* Ma and Yuan 1982 (=*Aponychus*), *Panonychus* Yokoyam 1929, *Schizotetranychus* Tragardh 1915, *Eotetranychus* Oudemans 1931a and b, *Tetranychus* Dufour 1832 and *Oligonychus* Berlese 1886.

MATERIALS AND METHODS

Surveying species of the family Tetranychidae that exit in Egypt, included samples of leaves, twigs and fruits were taken from as various plants as possible and also from some soils. Samples represented several localities all over the country and extended for 6 years. The samples were brought into laboratory in tight closed polyethelyne bags, will all necessary information concerning plant, locality and date. Observation were also made on the nature of infestation.

Each plant samples was divided into two parts, the first was directly examined with a dissecting microscope, while the second was left for mite extraction in modified Tullgren funnels with 60 watt bulb for 24 hours. Mites in soil samples were also extrated using these funnels. Collected mites were mounted in Hoyer's medium and gently heated for clearing specimens. As adult males are of great importance for species identification, some were mounted in a lateral position.

Mounted adults were examined and drawn using high microscopic at magnification power of(400-600X). The oil emersions power was used for fine and important taxonomic structures. Morphological description and identification followed those given by Pritchard & Baker (1955), Tuttle & Baker (1968), Meyer (1974a) and (1987).

RESULTS AND DISCUSSION

Subfamily, BRYONYCHINAE

New Subfamily

The present study revealed that there are individuals that have one or two anal setae as well as an empodium with tenent hairs, I-IV having duplex setae, coxae 1 and 11 each with 2 setae, so a thrid subfamily is created (*i.e.* Bryonychinae). This subfamily consists of two tribes Bryonychini and Zaheranychini.

Diagnosis: This subfamily (Bryonychinae) resembles the subfamily Bryobiinae in having tenent hairs on empodium 1, but differs in having one or two pairs of anal setae. Also, this subfamily (Bryonychinae) resembles the subfamily Tetranychinae in having one or two pairs of anal setae, but differs in having tenent hairs on empodium 1. Also, the subfamily Bryonychinae differs from other two subfamily in having duplex setae on all legs. This subfamily Bryonychinae comprises of two tribes:

1 - Tribe : BRYONYCHINI new tribe.
2 - Tribe : ZAHERANYCHINI new tribe.

Key to Tribes and Genera of BRYONYCHINI in Egypt (Female)

1 - With one pairs of anal setae. Empodium one claw-like stucture ..... BRYONYCHINI *Bryonychus* (n.g.)

2- With two pairs of anal, enpodium two claw-like structure ..... ZAHERANYCHINI *Zaheranychus* (n.g.)

A-Tribe BRYONYCHINI new Tribe

This new tribe is characterized by having one pair of anal setae and empodium uncinate with two rows of tenent hairs .This tribe comprises only one new genus named ***Bryonychus***.

A..1-Genus:*Bryonychus* new genus

Type species: *Bryonychus zaheri* sp.n.

Bryonychus is characterized by having one pair of anal setae;empodium uncinate with two ventrally directed rows of tenent hairs, hysterosoma with 10 pairs of setae,peritreme anastomosing distally. This genus comprises one new species named *Bryonychus zaheri.*

Bryonychus zaheri sp.n.
Fig.1& 2

Diagnosis: This species resembles Pe*trobia (Mesotetranychus) lycopersici* in having empodium claw-like with two rows of tenenet hairs and the anastomosing peritreme, but differs in having one pair of anal setae.

Female: Body oval measure 900 µ in length including gnathosoma, 725 µ excluding gnathosoma and 500 µ wide, peritreme anastomosing distally, penultimate palp segment with 4 setae.

Dorsum: with 13 pairs of setae,propodosoma with 3 pairs of setae and with transvers median propodosomal striae. Hysterosoma having 5 central pairs, 4 pairs of lateral setae and 1 pair of Humeral setae. The striae are transvers between dorsocentral hysterosomal setae.

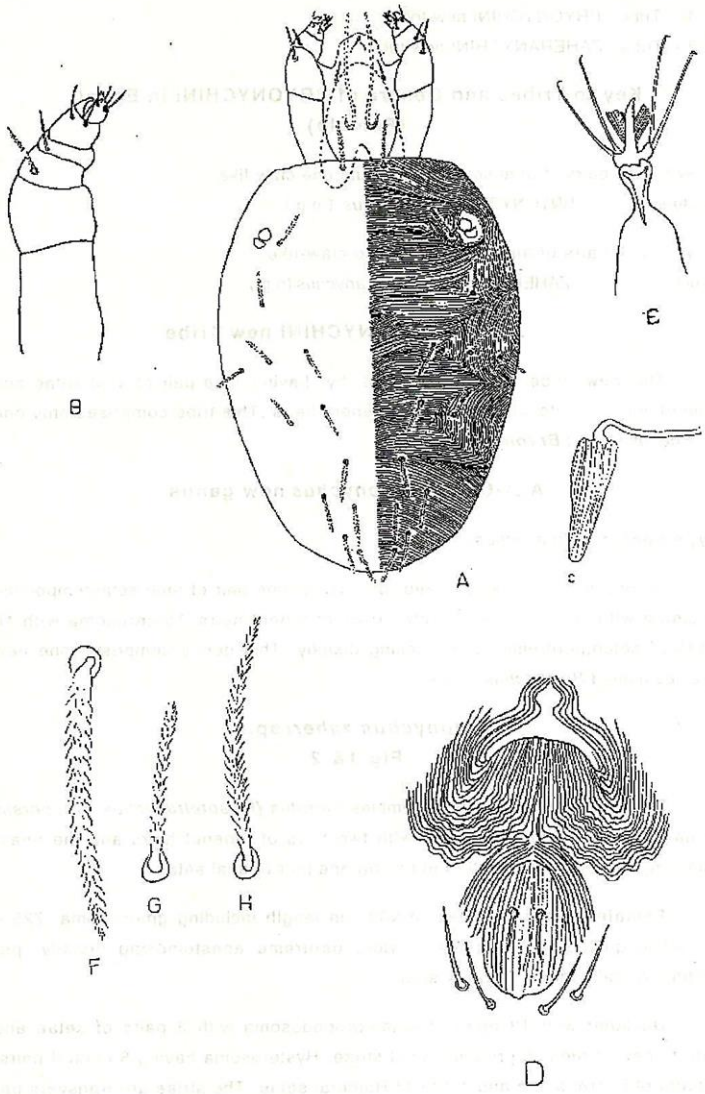

Fig 1. ***Bryonychus zaheri*** **n.sp. (female)**

A: Dorsal view. B: palpus

C: Terminal end of peritreme D: Genito-anal area

E: Terminal appendages of tarsus1 F: First propodosomal setae

G: Dorsal setae H: Clunal seta

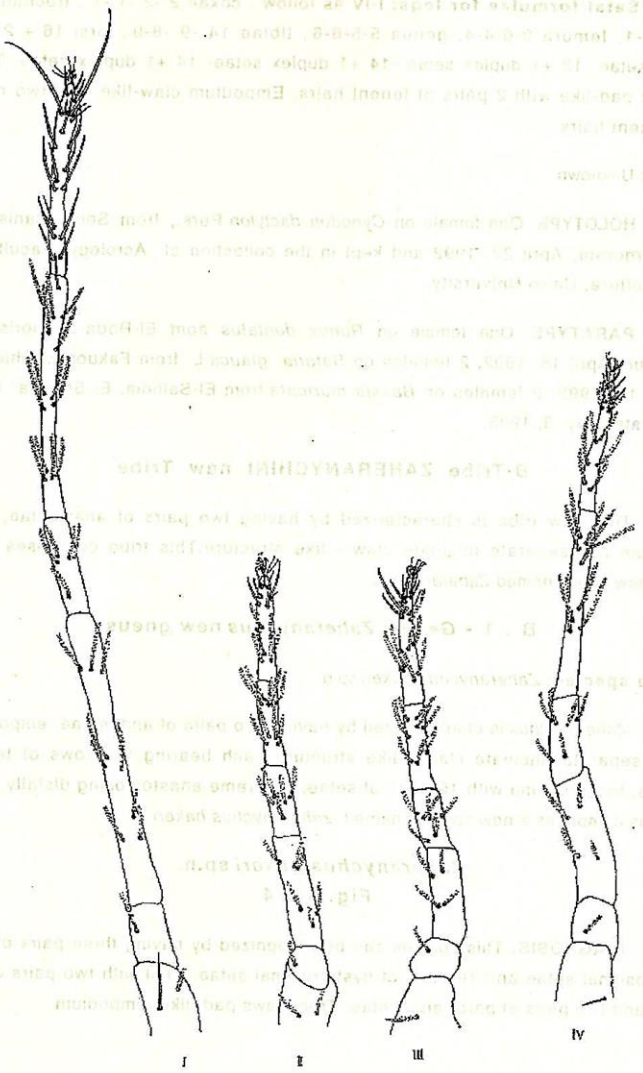

Fig 2. ***Bryonychus zaheri*** **n.sp. (female)**
Legs I-IV

Setal formulae for legs: I-IV as follow : coxae 2 -2 -1 -1 , trochantars 1-1-1-1, femura 9-6-4-4, genua 5-5-6-6, tibiae 14 -9 -8-9, tarsi 16 + 2 duplex setae ,13 +1 duplex setae -14 +1 duplex setae- 14 +1 duplex setae. True claws pad-like with 2 pairs of tenent hairs. Empodium claw-like with two rows of tenent hairs.

Male: Unknown

HOLOTYPE: One female on *Cynodon dactylon* Pers., from Seds, Baniswief Governorate, April 22, 1992 and kept in the collection of Acrology, Faculty of Agriculture, Cairo University.

PARATYPE: One female on *Runex dentatus* from El-Roda-Sennoris El-Fayoum April 18, 1992, 2 females on *Setaria glauca* L. from Fakuos-El-Sharkia, April 12, 1992, 2 females on *Bassia muricata* from El-Salheia, El Sharkia Governorate May, 3, 1993.

B-Tribe ZAHERANYCHINI new Tribe

This new tribe is characterized by having two pairs of anal setae, empodium two separate uncinate claw - like structure.This tribe comprises only one new genus named *Zaheranychus.*

B . 1 - *Genus: Zaheranychus* new gneus

Type species: *Zaheranychus bakeri* sp.n.

Zaheranychus is characterized by having two pairs of anal setae, empodium two separate uncinate claw - like structure each bearing two rows of tenent hairs, hysterosoma with 10 pairs of setae, peritreme anastomosing distally. This genus comprises a new species named *zaheranychus bakeri.*

Zaheranychus bakeri sp.n.
Fig. 3 & 4

DIAGNOSIS: This species can be recognized by having three pairs of propodosomal setae and 10 pairs of hysterosomal setae. Anal with two pairs of setae and two pairs of para -anal setae. True claws pad -like, empodium

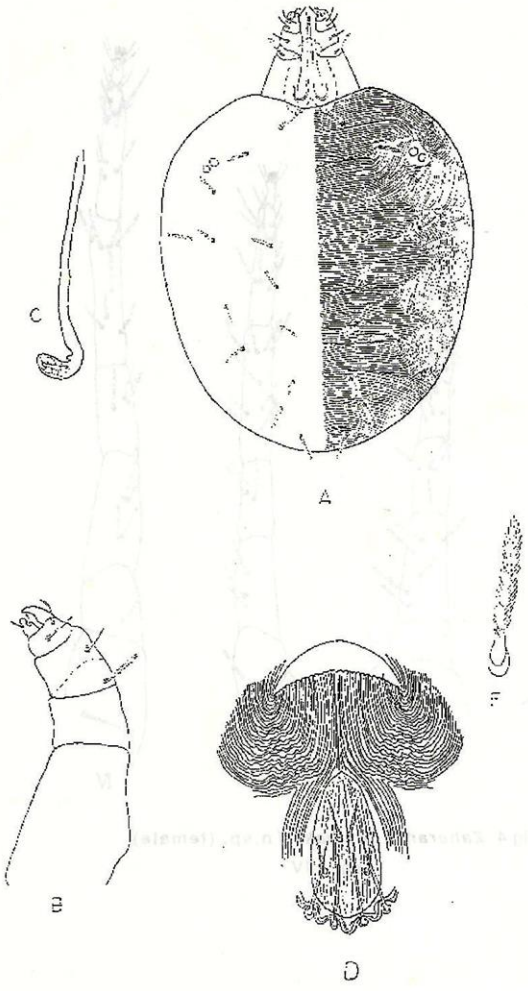

Fig 3. ***Zaheranychus bakeri*** n.sp. (female)
A: Dorsal view
B: palpus
C: Terminal end of peritreme
D: Genito-anal area
E: Terminal appendages of tarsus 1
F: Dorsal seta

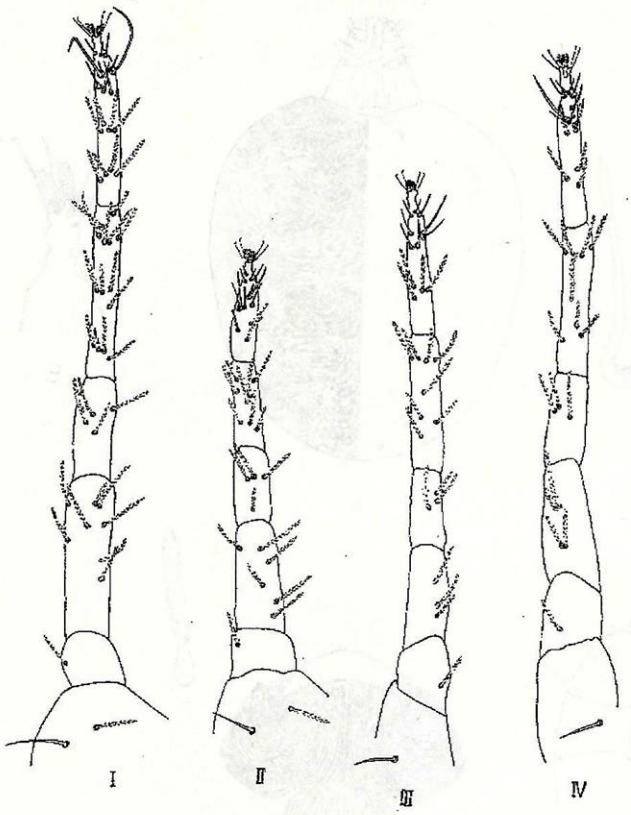

Fig 4. ***Zaheranychus bakeri*** **n.sp. (female)**
Legs I-IV

Female: Body semi -circle,800 μ long including gnasothosoma, 650 μ excluding gnathosoma,500 μ wide, peritreme anastomosing distally palp tarsus with 2 setae.

Dorsum: with 13 pairs of setae, propodosoma with three pairs of setae, with medium transvers striae. Hysterosoma having 5 pairs of central setae, 4 pairs of dorsolateral setae 1 pair of humeral setae. The striae transverse between all dorsocentral hysterocomal setae.

Setal formulae for legs: I-IV as follows, coxae2-2-1-1; trochanters 1-1-1-1; Femura 8-10-3-1; genua 4-5-3-4; tibiae 14-8-8-8; tarsi 14+2 duplex setae 11+1 duplex setae -10+1 duplex setae -12+1duplex setae. True claws pad-like and each with a pair of tenent hairs. Empodium modified to separated claw-like structure each with two rows of tenent hairs.

Male: Unknown

HOLOTYPE: One female on *Salicornia fruticose* from ELKassasien, EL-Ismailia Governorate April 27, 1993 and kept in the collection of Faculty of Agriculture, Cairo University.

PARATYPES: 2 females on *Salicornia fruticosa* with the same data and on *Arthocnemon glaucm* from El-Kassasien El-Ismailia Governorate, May 3, 1993.

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تحت فصيلة جديدة بريونيكينى تشتمل علي اثنين من الترايبس جديدين وجنسين جديدين ونوعين جديدين (اكارى:تترانيكيدى)

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أوضحت مراجعة أكاروسات التترانيكيدي في مصر وجود تحت فصيلة جديدة بريونيكيني التي تتميز بوجود شعرات تنتنية علي وسادة الرجل الأولي وكذا وجود زوج أو زوجين من الشعرات الشرجية. وهكذا فإن هذه التحت فصيلة الجديدة تشبة تحت فصيلة تترانيكيني برليز بوجود زوج أو زوجين من الشعرات الشرجية وتشبه تحت فصيلة بريوباييني برليز لوجود شعرات تنتنية علي وسادة الرجل الأولي.

وتشتمل تحت الفصيلة الجديدة علي اثنين من الترايبس جديدين هما ترايب بريونيكيني، وترايب زاهرانيكيني .

وتشتمل الترايب الأولي علي جنس جديد بريونيكس الذي يشتمل علي نوع جديد هو بريونيكس زاهراي، بينما تشتمل الترايب الثانية علي جنس جديد زاهرانيكس الذى يشتمل على نوع جديد هو زاهرانيكس باكرای حيث تم وصف النوعين الجديدين . وايداع الهلوتايب لكليهما بمجموعة كلية الزراعة جامعة القاهرة.