

## A REVISION OF THE TRIBE EURYTETANYCHINI IN THE TETRANYCHINAE (TETRANYCHIDAE: ACARI)

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### ABSTRACT

The tribe Eurytetranychini is revised; *Eutetranychini*, *new tribe*, and *Aponychini* *new status* are described. A key to the tribes of Tetranychinae, generic synonymies and new combinations are proposed.

**Key Words:** Eurytetranychini, Eutetranychini, Aponychini, Tetranychidae

For the last three decades, systematists have assigned through the years quite a number of genera to the tribe Eurytetranychini Reck 1950. The most recent monographic work on the Tetranychidae (Meyer 1987) included the following genera within the tribe Eurytetranychini: *Synonychus* Miller 1966, *Eurytetranychus* Oudemans 1931, *Eutetranychus* Banks 1917, *Meyernychus* Mitrofanov 1977, *Aponychus* Rimando 1966, *Chinotetranychus* Ma & Juan 1982, *Paraponychus* Gonzalez & Flechtmann 1977, *Sinotetranychus* Ma. & Yuan 1980, *Stylophoronychus* Prasad 1975. In addition, Gutierrez (1985) also included *Atetranychus* Tuttle, Baker & Abatiello 1974, *Eurytetranychoides* Reck 1950, *Anatetranychus* Womersley 1940, and *Duplanychus* Meyer 1974. Baker & Tuttle (1994) further listed *Sonotetranychus* Tuttle, Baker & Abatiello 1976 in this tribe.

With the inclusion of all the aforementioned genera in the Eurytetranychini, the tribe has apparently drifted from the definition of Pritchard & Baker (1955) based on Reck (1950) that: the duplex setae on tarsus I and II are only associated setae with their alveoli not coalescent. The other characters are: body rotund, legs slender and long, 10 pairs of hysterosomal setae, 2 pairs of para-anals, dorsal integument striate, etc. Be that as it may, Pritchard and Baker (1955) presented key characters on the nature of the empodium: *Eurytetranychus* -- small, claw-like and hooked; *Eutetranychus* -- "rudimentary and rounded, appearing absent". In a sense, this has remained as our concept of the Eurytetranychini, but not quite in practice.

The present grouping, however, has resulted in the Eurytetranychini serving as a convenient receptacle of any taxon that did not fit into the existing tribal parameters of the Tetranychinae to an extent that the former has become heterogeneous as compared to the relative homogeneity of the other tribes. A mixture of uncorrelated character states now exists within Eurytetranychini and that no member has all the attributes which jointly characterize the taxon.

For description, the setal nomenclature as elaborated by Lindquist (1985) is preferred over that of Gutierrez (1985) because the former system recognizes the significance of the hysterosomal segments with phaneres that can be homologized with greater confidence not only within the Tetranychoida but also its sister-group like Raphignathoidea. Furthermore, the usage of Pritchard & Baker's (1955) "sacrals"

(f1-2) and "clunals" (h1) is revived here for their high descriptive value.

Since the monumental standard revision of Pritchard & Baker (1955) a great many higher taxa characters have been disclosed through the years but were not incorporated in identification keys so that a beginner using classic references or even the most recent monographs, may not be able to proceed with comfort. Improved keys of higher categories in the Tetranychidae are presented here.

### Key to the Subfamilies of the Tetranychidae Donnadieu

1. Female with three pairs of pseudanal setae (ps1, ps2, ps3), male with five pairs of genito-pseudanal setae (ps1, ps2, ps3, g1, g2); empodium with tenent hairs ..... **BRYOBIINAE**

Female with two pairs (ps1 ps2) or sometimes one pair (ps1) of pseudanal setae; empodium without tenent hairs or knoblike; male with four pairs (ps1, ps2, g1, g2) or sometimes three pairs (ps1, g1, g2) of genito-pseudanal setae ..... **TETRANYCHINAE**

### Key to the Tribes of Tetranychinae Berlese

#### Females

1. Tarsus I with two sets of duplex setae ..... 2  
Tarsus I with a pair of loosely associated setae or at least one set of duplex setae ..... 3
2. Empodium uncinata without ventral hairs; sacral setae along with clunal setae marginal posteriorly ..... **TENUIPALPOIDINI** Pritchard & Baker 1955  
Empodium not uncinata or if clawlike with proximoventral hairs or knoblike; sacral and clunal setae in normal position ..... **TETRANYCHINI** Reck 1950
3. Empodium a strong or small claw **EURYTETRANYCHINI** Reck 1950  
Empodium absent or knoblike or rudimentary ..... 4
4. Opisthosomal venter with two pairs of pseudanal setae (ps1, ps2); stylophore smoothly rounded anteriorly or slightly emerginate medioanteriorly .....  
..... **EUTETRANYCHINI** Rimando & Corpuz-Raros, **new tribe**  
Opisthosomal venter with one pair of pseudanal setae (ps1); stylophore with a pair of strong lobelike projections anteriorly ..... **APONYCHINI** Rimando, **new status**

### Tribe EURYTETRANYCHINI Reck

Eurytetranychinae Reck, 1950: 123 (in part); Pritchard & Baker, 1955: 100 (in part); Meyer, 1974: 132, 1987: 74 (in part); Baker & Tuttle, 1994: 135 (in part).

The members of this revised tribe possess the following character parameters: empodium strong or small but definitely clawlike; tarsi & tibiae I & II without duplex setae but may be represented by sets of loosely associated setae, their alveoli not coalescent; stylophore smoothly rounded anteriorly; opisthosomal venter with 2 pairs of pseudanal setae (ps1-2), one or mostly two pairs of para-anal setae

(h2-3); hysterosomal dorsum with 9-10 pairs of setae; idiosomal dorsum and venter with characteristic striations.

This tribe is separated from the rest of the group for the following reasons: (a) The nature of the empodium is generally regarded as an adaptive character displaying a plesiomorphic and an apomorphic progression in the Tetranychini. (b) The empodial claw being grouped with knoblike empodium is indeed practical but artificial in a sense that the knoblike empodium is as regressive character state and follows an opposite direction of development from that of the clawlike empodium which proceeds with unequalled diversity in the Tetranychini. (c) If the grouping of the empodial claw with the knoblike empodium is proposed as untenable, more so with the correlation accepted by most, with the loosely associated setae on tarsus I or II or on tibia I & II. The loosely associated setae is claimed as a "disjunct phenomenon" and it occurs on a lot of groups in the former Eurytetranychini. The other characters are mainly synapomorphic with the Tetranychini.

The tribe, now being more homogeneous, includes the genera *Eurytetranychus* Oudemans 1931, *Synonychus* Miller 1966 and *Eurytetranychoides* Reck 1950.

### Tribe EUTETRANYCHINI Rimando & Corpuz-Raros, new tribe

This tribe is characterized by the following character parameters: empodia knoblike, not clawlike; tarsi and tibiae I & II may have pairs of associated setae, bases not coalescent; stylophore rounded anteriorly or slightly emarginate; pseudanal setae 2 pairs (ps1-2); para-anal setae 2 pairs (h2-3); hysterosomal setae 9-10 pairs; idiosomal dorsum and venter with characteristic patterns of striation.

This tribe is proposed mainly because its association with the genus *Eurytetranychus* Oudemans is untenable in terms of their empodial development following opposite directions. Their shared character of loosely associated setae is plesiomorphic considering the evolution of the duplex setae being mainly a tetranychinine character state. However, the other characters like the clawlike empodium are synapomorphic with the Tetranychini.

The genera included in this tribe are *Eutetranychus* Banks 1957 and *Meyernychus* Mitrofanov 1977, the latter being possibly a subgroup of the former. This group exhibits so great a tendency toward variability even within conspecific taxa that more population studies should be conducted.

### Tribe APONYCHINI Rimando new status

Aponychinae Rimando, 1966: 106 (expanded definition)

This tribe includes members that exhibit character parameters as follows: empodium knoblike; tarsi & tibiae I & II with loosely associated setae or at least a recognizable single pair of duplex setae on tarsus I or II; opisthosomal venter with a single pair of pseudanal setae (ps1) correlated with strong stylophoric anterior projections; two para-anal setae (h2-3); dorsal hysterosomals 9-10 pairs.

This grouping recognizes the significance of the single pair of ps1 being consistently correlated with the occurrence of paired lobes at the anterior margin of the stylophore and the knoblike protuberance of the empodium.

The tribe consists of two genera: *Aponychus* Rimando and *Paraponychus*

Gonzalez & Flechtmann. Furthermore, some generic synonymies and new combinations are proposed.

### Genus *Aponychus* Rimando

*Aponychus* Rimando, 1966: 107, 1968:6. Type of genus: *Aponychus corpuzae* Rimando, on *Schizostachyum lima*; by original designation.

*Aponychus* Rimando: Tuttle & Baker, 1968: 82; Meyer, 1974: 156; 1987: 84; Chaudri, 1974: 135; Baker & Tuttle, 1994: 140.

*Aponychus* (*Stylophoronychus*) Prasad, 1975: 1-4. Type of genus: *Aponychus* (*S.*) *baghensis* Prasad. **New Synonymy.**

*Stylophoronychus* Prasad: Meyer, 1987:88.

*Chinotetranychus* Ma & Yuan, 1982: 109, 113-114; Type of genus: *Eutetranychus firmianae* Ma & Yuan; Meyer, 1987-85. **New Synonymy.**

Gutierrez (1985) suspected that *Chinotetranychus* Ma & Yuan was a synonym of *Aponychus* Rimando but did not make any indication to that effect. Ma & Yuan established their genus on the basis of one seta on coxa II and the lengths of c1, d1, e1 & f1 relative to c1, d2, e2 & f2 (Meyer 1987). Prasad, on the other hand, established his subgenus, eventually raised to generic status by Meyer (1987) on the basis of deeply indented stylophore. In both cases, so much generic value had been placed on slight anatomical differences. Rimando (1966, 1968) repeatedly defined the genus to an extent that the number of hysterosomal setae in the genus *Aponychus* can range from 9-10 pairs. We are of the opinion that generic characters should involve the correlation of more broad characters especially now that it is widely considered that the setation of segments E, F. and H (Lindquist 1985) are highly variable in terms of shape, displacement and absence.

The genus *Aponychus* Rimando appears to be cosmopolitan in distribution in the tropical on the main or at most subtropical regions. There are now about 15 species included in this genus.

The *Aponychus* species affected by the proposed new synonymies are as follows:

1. *Aponychus vannus* Rimando, **new status** [Philippines]; 1968 (from *Stylophoronychus*)
2. *A. firmianae* (Ma & Yuan), **n. comb.** [China]; 1982 (from *Chinotetranychus*)
3. *A. imperatus* Hafez & Elbadry, **n.sta.** [Egypt]; 1980 (from *Chinotetranychus*)
4. *A. solimani* Zaher, Gomaa & El-Enany **n. sta.** [Egypt]; 1982 (from *Chinotetranychus*)
5. *A. parydrus* (Meyer), **n. comb.** [South Africa]; 1987 (from *Chinotetranychus*)
6. *A. grandidieri* (Gutierrez), **n. sta.** [Malagasy]; 1975 (from *Chinotetranychus*)
7. *A. baghensis* Prasad, **n.sta.** [India]; 1975 (from *Stylophoronychus*)
8. *A. nakaoi* Ehara & Wongsiri, **n. sta.** [Thailand]; 1975 (from *Stylophoronychus*)
9. *A. lalii* Prasad **n. comb.** [India]; 1976 (from *Stylophoronychus*)

### Genus *Paraponychus* Gonzalez & Flechtmann

*Paraponychus* Gonzalez & Flechtmann, 1977: 67-71; Type of genus:

*Paraponychus incanus* Gonzalez & Flechtmann.

*Paraponychus* Gonzalez & Flechtmann: Meyer, 1987: 87.

*Sinotetranychus* Ma & Yuan, 1980: 441-442; Meyer, 1987: 87. **New**

**Synonymy.**

*Paraponychus* Gonzalez & Flechtmann shares with *Aponychus* Rimando all the generic character states except that the former possesses one set of duplex setae on tarsus I and sometimes on tarsus II. We consider this character as autapomorphic for the tribe and apomorphic with the tetranychines. Meyer (1987) considered separation of *Paraponychus* from *Sinotetranychus* on the basis of the marginal position of "4 pairs of caudo-dorsal setae". As mentioned earlier we consider the variation of phaneres on the segments E, F & H as variable in terms of shape, number, displacement and absence, so that these characters can better be used for subgeneric or species groupings, otherwise the proliferation of genera can go wild on the basis of a small anatomical variation. Moreover, the case of classification and identification can become a meaningless tedious activity.

As a matter of fact, the present condition of the tribe Tetranychini needs rethinking in terms of classification and identification as the group is now presenting a heterogeneity that requires at least homology, if not phylogenetic treatment. We consider the presence of two sets of duplex setae on tarsus I and one set on tarsus II as autapomorphic for the tribe and all the other characters are either regressed or synapomorphic. Thus, the genera which had been included in the tribe Eurytetranychini should be assigned to the Tetranychini as declared by Meyer (1987): *Atatetranychus* Tuttle, Baker & Abatiello 1974, *Anatetranychus* Womersley 1940, *Duplanychus* Meyer 1974, and *Sinotetranychus* Tuttle, Baker & Batiello 1976.

The species of *Paraponychus* affected by this proposal of new synonymy are as follows:

1. *P. guangzhouensis* (Ma & Yuan) **n. comb.** [China]; 1980 (from *Sinotetranychus*)
2. *P. insularis* Flechtmann, **n. sta.** [Brazil]; 1981 (from *Sinotetranychus*)
3. *P. pilipinus* (Corpuz-Raros), **n. comb.** [Philippines]; 1978 (from *Aponychus*). About 4 or 6 world species are included in this genus.

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