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Article

A new species of *Schizotetranychus* (Acari, Prostigmata, Tetranychidae) from the Chilean fauna, with a few remarkable morphological features

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Abstract

Schizotetranychus tegophallos sp.nov., from papyrus sedge (*Cyperus involucratus* Rottb., Cyperaceae) from Santiago, Chile, is described and figured. The genital stylets of the male, palpal tarsus tactile setae and chaetotaxy of leg IV trochanter in deutonymphs are discussed.

Key words: *Schizotetranychus*, taxonomy, Papyrus, *Cyperus*, genital stylets

Introduction

Spider mite infested leaves of papyrus sedge or papyrus reed, *Cyperus involucratus* Rottb. (Cyperaceae) from greenhouses in Quillota, Valparaíso, Chile, were brought to the attention of the junior author. The spider mite in question was a new species of *Schizotetranychus* Tragardh, 1915, and is herein described and figured.

Since papyrus sedge is exotic to Chile and the infested plants were grown in commercial greenhouses, it cannot be ascertained whether the spider mite was imported with the papyrus plants or if the mites are a local native species that entered the glasshouse. Although Gonzalez (1989) stated that the genus *Schizotetranychus* is represented in Chile no species names are provided.

The description nomenclature follows that of Lindquist (1985); measurements are presented as a range in micrometers.

Schizotetranychus tegophallos sp. nov.

(Figs. 1–16)

Diagnosis. The new species is readily distinguished by its aedeagus being ensheathed in between two curved, elongate, laminar stylets (Fig. 8) and by the palpal tarsus tactile *a* seta being flattened, isodiametric throughout its length, and deeply incised distally resulting in two prongs, giving the structure the aspect of a short two-tined carving fork; and tactile seta *b* is sinuous with a thickened base; dorsal setae short. Ratio of idiosomal length to width is greater than two.

Female. (n = 10). Body length 311–431, including gnathosoma 390–506, width 172–206. Idiosoma elongate (Fig. 1), length : width ratio is greater than 2. Dorsal setae short (12–14), equal or

less than one fourth of the distance to bases of consecutive setae, except for *f2* (23–25), and *h1* (24–27), which are about half the distance to base of consecutive setae. Propodosoma dorsum longitudinally striate, opisthosoma transversally striate (Fig. 2). Venter: transversally striate. Genital flap with transversally to weakly arched striae; pregenital striae transverse, flanked by longitudinal striae.

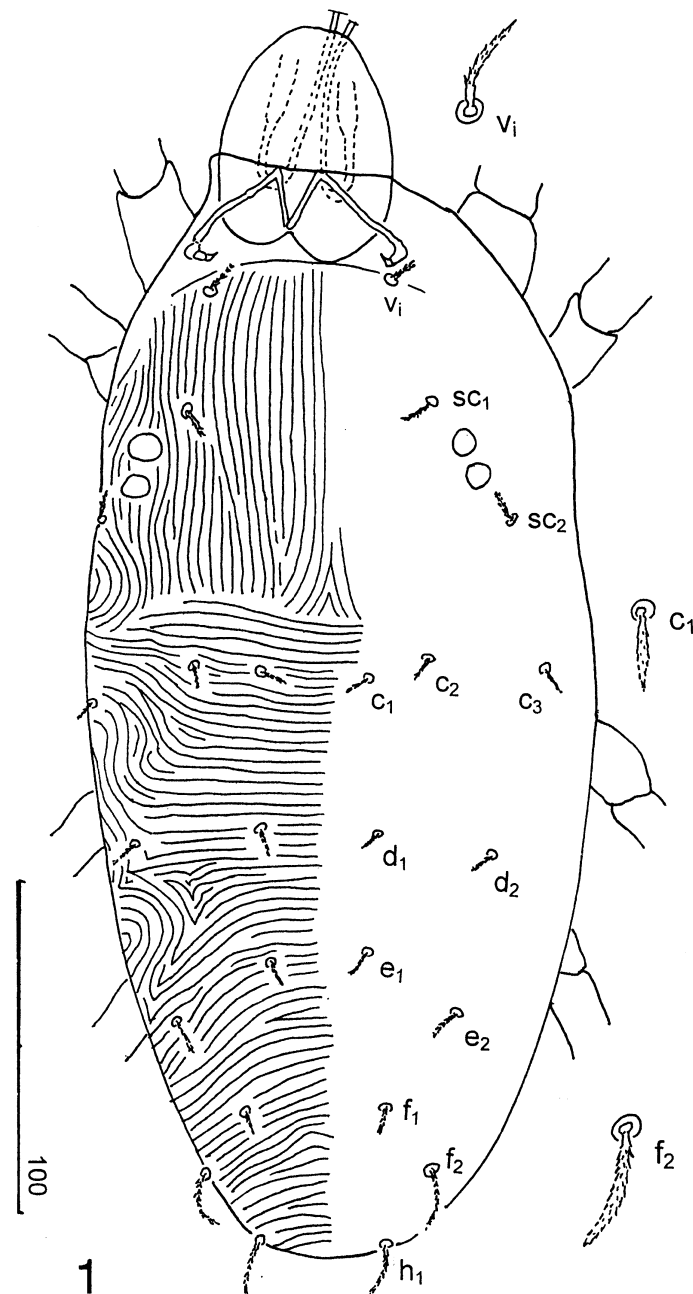


FIGURE 1. *Schizotetranychus tegophallos* sp.nov.—Female, dorsal habitus and enlarged detail of a few dorsal setae.

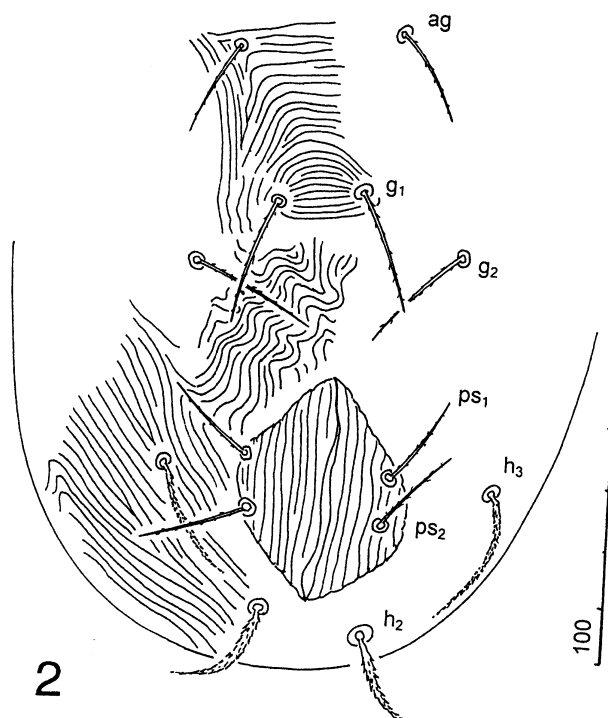


FIGURE 2. *Schizotetranychus tegophallos* sp.nov.—Female, genito-ventral area.

Gnathosoma: stylophore rounded anteriorly. Peritremes with short hook, ending in a conical, pointed chamber (Figs. 1, 12). Palp tibia with 3 setae in 9 specimens and 4 setae in 1 specimen. Palp tarsus with seta *a* flattened, of uniform width throughout its entire length, and deeply incised distally, resulting in an element resembling a short, two-pronged carving fork. Palp tarsus seta *b* sinuous with a thickened base; palp tarsus seta *c* setiform (Fig. 10). Spinneret well developed, twice as long as broad (Fig. 10).

Legs (Figs. 3, 4) : distribution of tactile setae and solenidia (in parentheses):

I - 2 - 1 - 8 - 3 - 6 (1) - 11 (1) + 2 duplexes

II - 2 - 1 - 5 - 3 - 5 - 8 (1) + 1 duplex

III - 1 - 1 - 3 - 2 - 5 - 9 (1)

IV - 1 - 1 - 3 - 2 - 5 - 8 (1)

Alternative leg segment setal counts observed:

Femur I: 7 setae in 3 specimens and 6 setae in one specimen; tibia I: 5 tactile setae in 1 specimen, 2 solenidia in 1 specimen; tarsus I: 10 tactile setae in 3 specimens, 9 tactile setae in 1 specimen, 3 solenidia in 1 specimen (with 11 tactile setae).

Femur II: 4 setae in 2 specimens; tarsus II: 9 tactile setae in 1 specimen; 10 tactile setae in 1 specimen.

Tibia III: 4 tactile setae in 1 specimen; tarsus III: 8 tactile setae in 1 specimen.

Tarsus IV: 7 tactile setae in 4 specimens.

Empodia split into 2 uncinat claws. (Fig. 11).

Male. (holotype + 3 paratypes). Measurements of holotype and range from 3 paratypes in parentheses. Body length 334 (281–360), including gnathosoma 409 (356–435).

Palp tarsus spinneret reduced to a small tubercle; setae *a* and *b* as in female.(Fig. 9). Palp tibia with 3 setae.

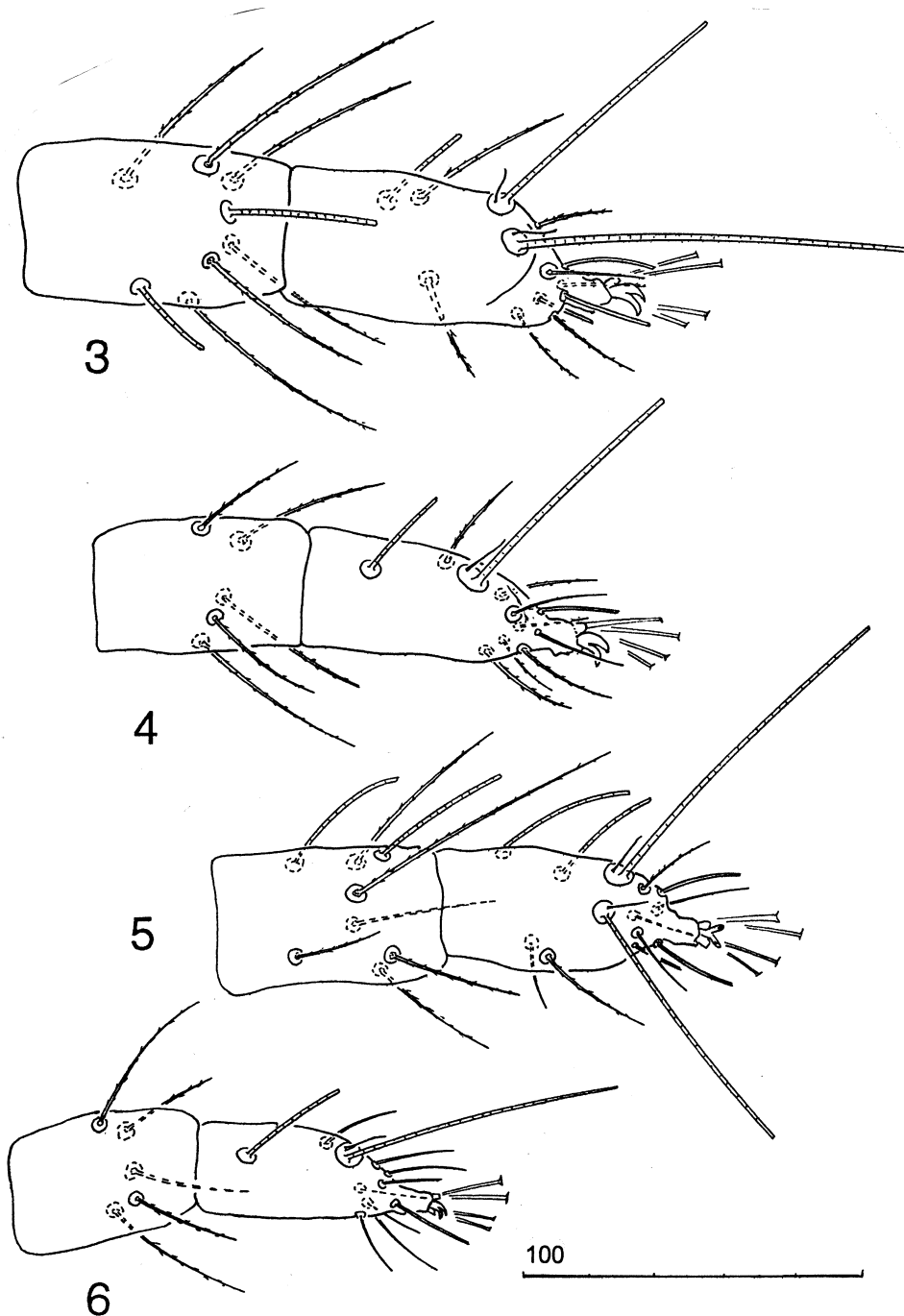
Legs (Figs. 5, 6): distribution of setae and solenidia (in parentheses):

I - 2 - 1 - 8 - 3 - 6 (2) - 9 (2) + 2 duplexes

II - 2 - 1 - 5 - 3 - 5 - 9 (1) + 1 duplex

III - 1 - 1 - 3 - 2 - 5 - 7 (1)

IV - 1 - 1 - 3 - 2 - 5 - 7 (1)



FIGURES 3–6. *Schizotetranychus tegophallos* **sp.nov.**—3. Tibia and tarsus of leg I of female; 4. Tibia and tarsus II of female; 5. Tibia and tarsus I of male; 6. Tibia and tarsus II of male.

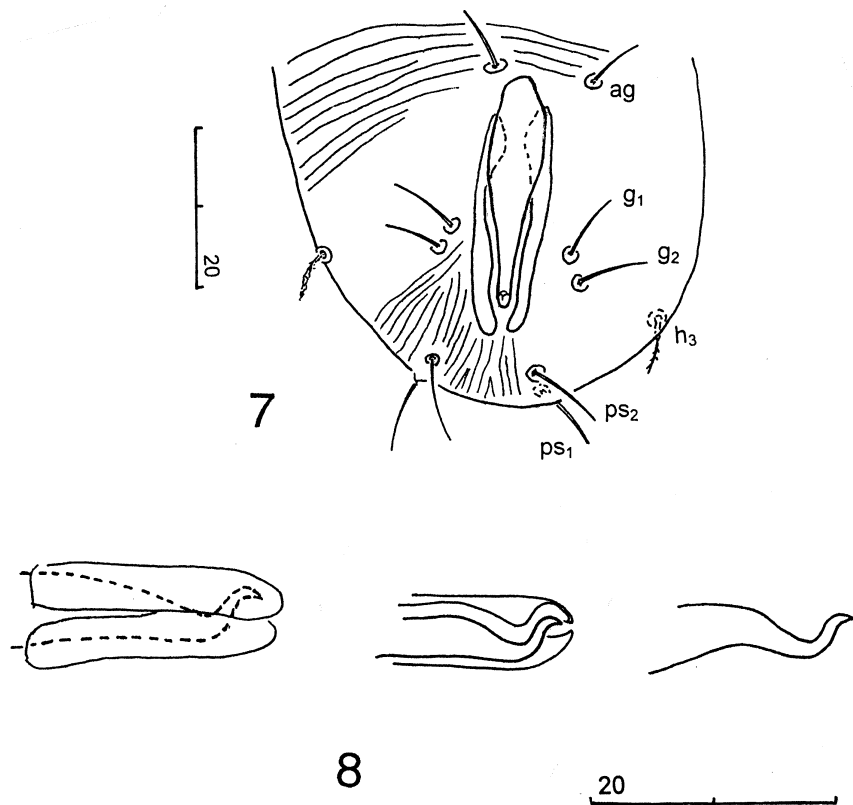
Alternative leg segment setal counts observed:

Tibia I: 5 tactile setae in 1 specimen; tarsus I: 3 solenidia in 2 specimens.

Tibia II: 10 tactile setae in 1 specimen.

Tarsus IV: 8 tactile setae in 1 specimen.

Aedeagus (Figs. 7, 8) sigmoid, turned upwards, with finely pointed posterior projection. Shaft is flanked by 2 curved laminar structures or stylets.



FIGURES 7–8. *Schizotetranychus tegophallos* sp.nov.—Male. 7. Genito-ventral area; 8. Aedeagi, left and center with genital “stylets”, right isolated.

Deutonymph. (n = 3). Body length 375–386, including gnathosoma 431–432, width 296–213.

Legs: distribution of setae and solenidia (in parentheses)

I - 2 - 0 - 6 - 3 - 6 (1) - 9 (1) + 2 duplexes

II - 2 - 0 - 2 - 3 - 6 (1) - 8 (1) + 1 duplex

III - 1 - 1 - 2 - 2 - 5 - 7 (1)

IV - 1 - 0 - 2 - 1 - 5 - 7.

Alternative leg segment setal counts observed:

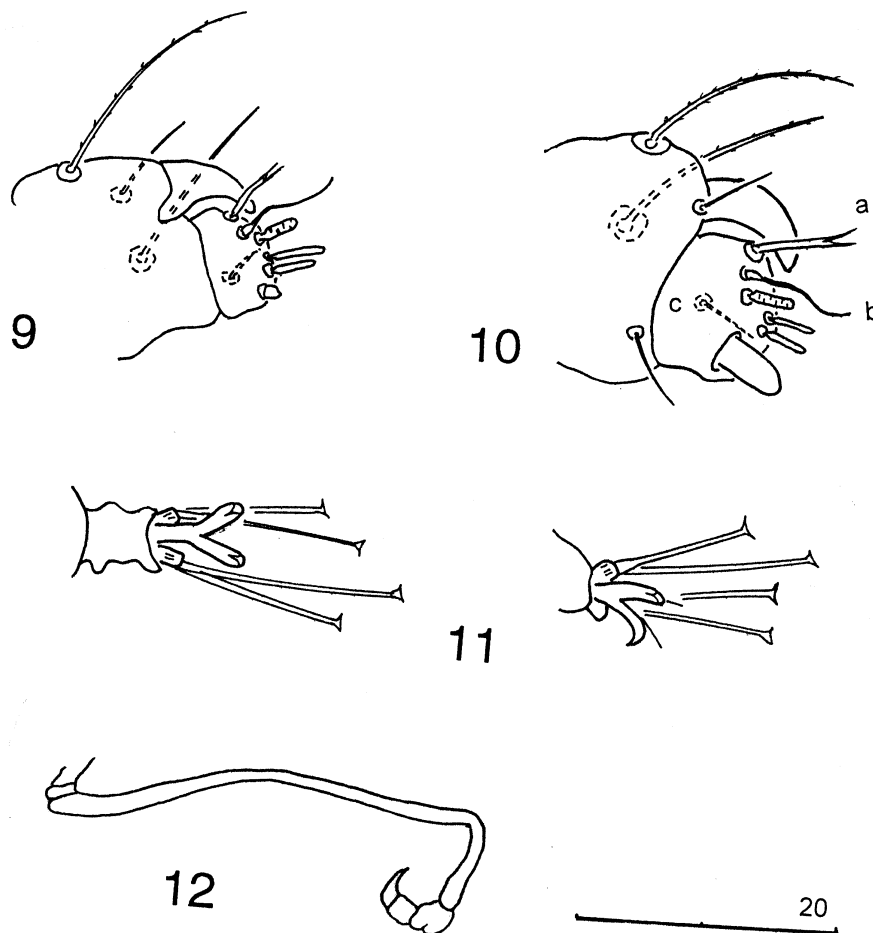
Trochanter I: 1 seta in 1 specimen; femur I: 5 setae in 1 specimen; tarsus I: 10 tactile setae in 1 specimen.

Trochanter II: 1 seta in 1 specimen; femur II: 2 setae in 1 specimen; genu II: 2 setae in 1 specimen; tarsus II 9 tactile setae in 1 specimen, no solenidium in 1 specimen (with 8 tactile setae).

Trochanter IV: 1 seta in 1 specimen; genu IV: 2 setae in one specimen.

Type material. Male holotype, 3 male, 10 female and 3 deutonymph paratypes, on 5 microscopic preparations, from leaves of papyrus sedge or papyrus reed, *Cyperus involucratus* Rottb. (Cyperaceae), cultivated in greenhouses, Quillota, Comuna de Hijuelas, Valparaíso, Chile, L.

E. Peralta A., UTM East 300298, North 6371215, Datum WGS84, Zone 19, August 2010. Deposited in the Acarological Collection of Departamento de Entomologia e Acarologia, ESALQ, Universidade de São Paulo, Piracicaba, São Paulo, Brazil.



FIGURES 9–12. *Schizotetranychus tegophallos* **sp.nov.** - 9. Palpal tibia and tarsus of male; 10. Palpal tibia and tarsus of female, a, b and c “setiform” setae; 11. Tarsal appendages, in ventral and semi-lateral view; 12. Detail of peritreme.

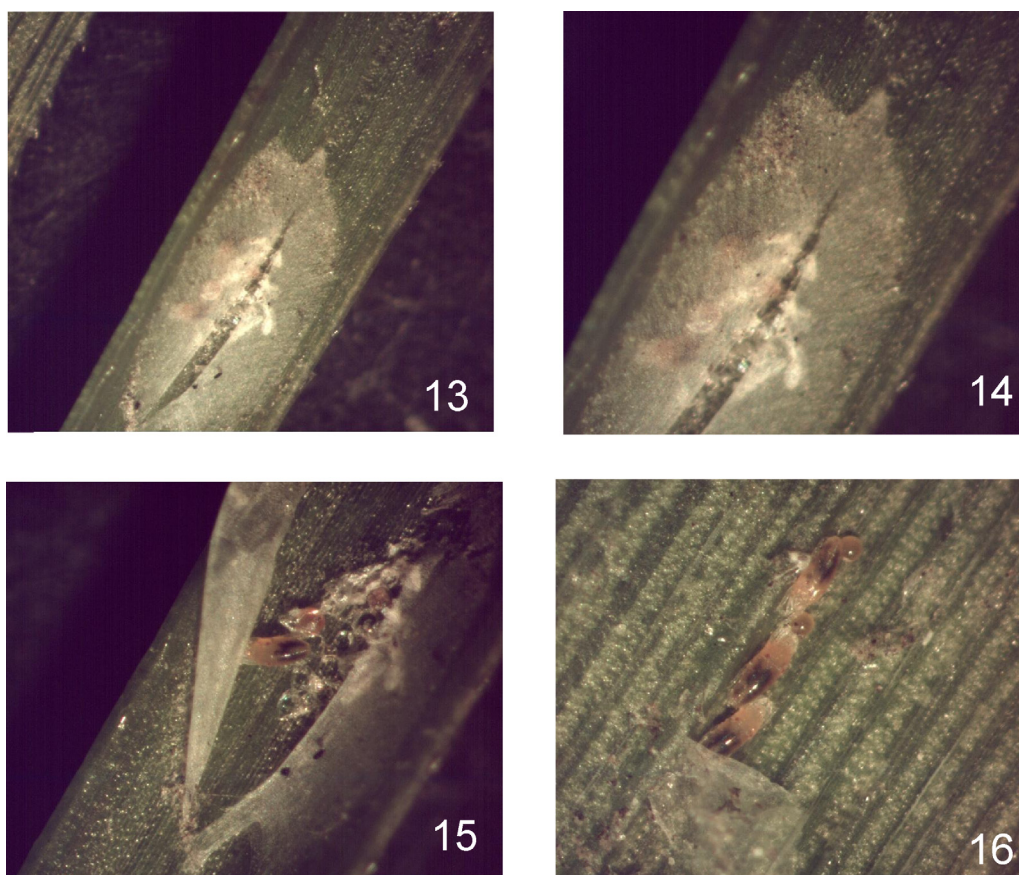
Etymology. The specific designation *tegophallos* is derived from the Latin *tego*, cover, sheath, and from the Greek *phallos*, penis, aedeagus, and refers to the ensheathed aedeagus of the male.

Biological observations. Populations of this spider mite are found under distinct “nests”, on the upper side of leaves. When the population builds up, the mites are also found on the leaf lower surface. The “nests” themselves are whitish and the orange coloured female mites (males are yellowish) can be seen through the webbing.

Remarks

Schizotetranychus tegophallos **sp.nov.** belongs to the group of *Schizotetranychus* presenting an elongate body, whose length to width ratio is higher than two, with short dorsal setae and peritremes ending in a hook, together with *S. fluvialis* McGregor, 1928, *S. freitezi* Ochoa, Gray & von

Lindemann, 1990, *S. oryzae* Rossi de Simons, 1966 and *S. vermiculatus* Ehara & Wongsiri, 1975. It is easily separated from these species by the very short dorsal setae, in addition to the characters mentioned in the diagnosis.



FIGURES 13–16. *Schizotetranychus tegophallos* sp.nov.—13, 14—“nests” on upper leaf surface of papyrus sedge; 15— idem, opened to allow better view of mites; 16—close up of deutonymphs and eggs.

The structures of the palp tarsus tactile setae *a* and *b* are peculiar, and have not been mentioned elsewhere in the literature.

Laminar structures accompanying the aedeagus were first mentioned in *S. cynodonis* McGregor, 1950 by Pritchard & Baker (1955), who called them genital stylets and stated that “they are not known to occur elsewhere in the Tetranychidae”. Later, Davis (1969) and Flechtmann & Baker (1975) observed similar stylets in *S. gahniae* and *S. sacharum*, respectively. However, in these three species the dorsal setae are longer than the longitudinal distances to the bases of the next setal row.

Of the three deutonymphs examined, two had the trochanter of legs IV bare, as usually believed to be true for all tetranychids (Lindquist, 1985), however, in one deutonymph this seta was already present, on both legs IV. Therefore, the character, absence/presence of seta on trochanter of leg IV may not afford a ready distinction between protonymphs and deutonymphs, unless several specimens in a population are examined.

Two species of *Schizotetranychus* were described from plants in the family Cyperaceae, namely *S. gahniae* Davis, 1969, from sword grass, *Gahnia aspera* (R.Br.), from Australia, and *S. rhynosperus* Flechtmann & Baker, 1970, from *Rhynosperus* sp., from Brazil. In both species the dorsal setae are longer than longitudinal distances to the bases of the setae of the next row. In *S. gahniae* the aedeagus is nearly straight with the dorsal margin downturned sharply about two thirds of the way along its length; in *S. rhynosperus* the aedeagus is sigmoid with the stem at a right angle to the shaft (at a broad, obtuse angle in the **sp.nov.**).

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