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EUSTIGMAEUS BRYONEMUS, SP. N., A MOSS-FEEDING MITE FROM BRASIL (ACARI, PROSTIGMATA: STIGMAEIDAE) [1]

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ABSTRACT

Eustigmaeus bryonemus, *sp. n., is described and figured. It was found in Campinas, SP, feeding on mosses. The karyotype, determined on embryonic tissue of squashed eggs, is* $2n = 8$ $(n = 4)$.

INTRODUCTION

The present knowledge of members of the family Stigmaeidae Oudemans, 1931 in South America is restricted to Gonzalez-Rodriguez's (1965) study of representatives from Chile, Peru, Ecuador and Argentina; to Chaudhri (1965), who described new species from Chile (and from El-Salvador, Panama and the U.S.), and to Flechtmann (1968, 1981), who reported a few Raphignathoidea from Brasil.

In relation to feeding habits of Stigmaeidae, members of the genera *Agistemus* and *Zetzellia* are known to be predacious (Krantz & Lindquist, 1979). *Agistemus exsertus* Gonzalez preys on the citrus red mite, *Panonychus ulmi* (Koch) and also feeds on eggs of the red spider mite *Tetranychus kanzawai* Kishida (Ehara, 1962). *Agistemus longisetus* Gonzalez preys on Tetranychid mites in deciduous orchards, but was also observed to feed on plant tissue in the laboratory (Gonzalez-Rodriguez, 1965). *A. fleschneri* Summers and *Zetzella mali* (Ewing) feed on all stages of spider mites and rust mites (Tetranychidae and Eriophyidae) and are considered important in integrated control programs of plant feeding mites (Croft, 1975). Vitzthum (1931) informed that *Ledermuelleria patria* Berlese (syn. of *L. rhodomela* Koch) goes into the water and that *L. maculata* (Schrank) (also syn. of *L. rhodomela*) parasitizes only the crane-fly *Dicranomyia modesta*. Chaudhri (1965) described 3 species of *Ledermuelleria* associated with sandflies, *Phlebotomus* spp.

Members of the genus *Eustigmaeus* are adapted for bryophagy; they live and reproduce on mosses and possibly on lichens (Gerson, 1969, 1972; Wood, 1972).

In this paper the first species of a moss feeding Stigmaeid in the genus *Eustigmaeus* from Brasil is described and figured and some remarks on its biology are given. Setae designation are according to Grandjean (1944), Summers & Price (1961) and Gonzalez-Rodriguez (1965). All measurements are given in micrometers.

Eustigmaeus bryonemus, sp. n.
(Figs. 1-9)

Female: A robust species. Dorsal plates well developed, ornamented with minute dimples; a few larger, differentiated subcircular areas, as figured. One pair of eyes located in between setae be and ce. Dorsal setae of a rather uniform diameter, bearing minute lateral barbules; distal portion in a hyalin sheath. Setae he, le and e displaced ventrally. Lengths of setae: ae 48; be 68; ce 10; de 54; he 34; a 65; b 71; c 78; la 61; lm 71; li 61; le 34; e 41. Pedipalp coxae (maxillicoxae) smooth; setae n sligthly longer than m; ri

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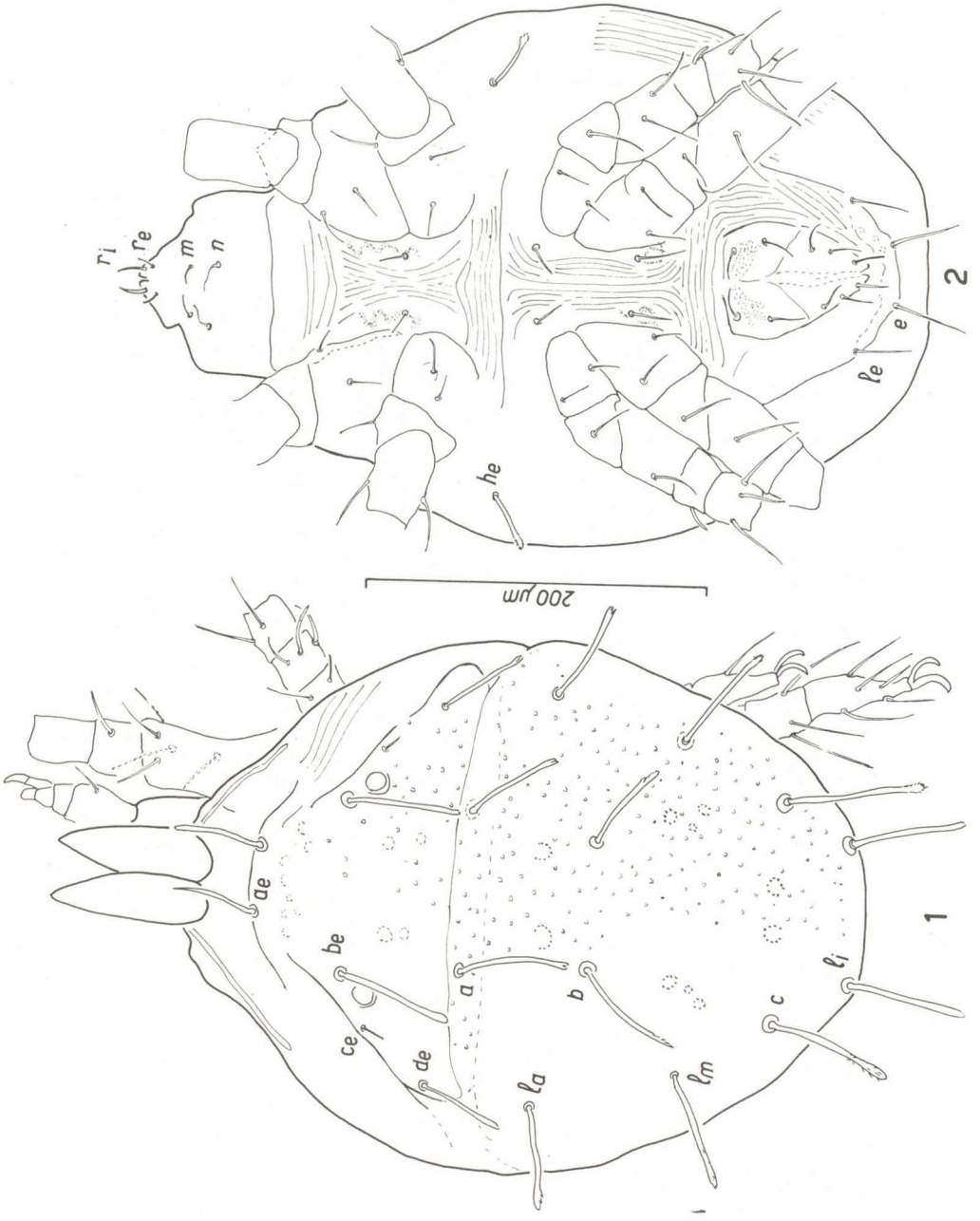

Eustigmaeus bryonemus sp. n. 1 — Female, dorsal aspect; 2 — Female, ventral aspect.

Eustigmaeus bryonemus sp. n. 3 — Leg I of female; 4 — Leg II of female; 5 — Leg I of male; 6 — Leg II of male; 7 — Palp of female; 8 — Chelicera, male; 9 — Aedaeagus and "Stuetzgeruest".

robust, thick. Intercoxal plates weak, with delicate ornamentation, well separated in midline. Intercoxal setae subequal. Two pairs of paragenital setae and 3 pairs of genital setae. Legs I and II and palp chaetotaxy as figured. Palp with a terminal trifid sensillum.

Length of idiosoma (cheliceral basis to end of opistosoma) 380; greatest width 300.

Measurements of additional 7 females: 338 x 273; 364 x 286; 364 x 312; 377 x 299; 377 x 312; 377 x 312; 403 x 325.

Male: General features of dorsum as in female except for the much shorter c setae, which have about one third the length of lm. Lengths of setae: ae 34; be 44; ce 7; de 37; he 27; a 34; b 34; c 17; la 37; lm 58; li 61; le 31; e 20.

Chaetotaxy of legs I and II as figured; solenidion a ♂ well developed, robust. Chelicerae as figured, 92 long; movable digit stylet like, strong; in lateral view a small structure is present, suggesting a remnant of a fixed digit (fig. 8). Aedeagus an elongated shaft, 75 long, bifid in its terminal one third. Posterior half enclosed in a broad sheath which ends in two pointed sclerotized structures which may act as a guide or "Stuetzgeruest" (Vitzthum, 1931). Length of idiosoma: 273. Measurements of additional 7 males: 2 mounted laterally: 273 and 299; 5 oriented dorso-ventrally (length of idiosoma x greatest width): 234 x 169; 247 x 168; 247 x 169; 247 x 169; 260 x 182.

Material: Holotype female from moss, on a wall, Campinas, São Paulo, Brasil, 19 August 1982 (H. Kuniyuki). Allotype male; 7 paratype females and 7 paratype males, same data. Deposited at Dept. Zoology, ESALQ-Univ. São Paulo, Piracicaba, São Paulo, No. 1041.

Derivation of the name: *bryonemus:* Bryon (Greek, moss) + nemo (Greek, to feed, to graze).

Diagnosis: The female of this species is readily distinguished from all other in the genus in presenting the setae ce minute. This character is also present in *E. schusteri* Summers & Price, from which the n. sp. differs by the absence of the substantial callosities on the pleural membrane, lateral of the propodosomal shield. The male is distintictive in having setae ce short and by the terminally bifid aedaeagus and presence of a "Stuetzgeruest".

Remarks:

1. Karyotype: examination of embryonic tissue after squashing eggs in aceto-orcein yielded 15 metaphases with n = 4 and 18 metaphases with 2n = 8 chromosomes. *E. bryonemus* is haplo-hiploid, which is the rule for most of the Prostigmata so far studied, where n varies from 2 to 13 (Oliver, 1977).

2. Biological aspects: *E. bryonemus,* when alive, is intense red in colour; its phytophagous habit is not readily evident from the body coloration. However, during the process of clearing in Vitzthum's fluid, the red colour of the mites is rapidly cleared away and the dark green content of the gut becomes evident.

The eggs are elongate, bright red. Most eggs are laid on the middle and lower "leaves" of fresh moss shoots. As already observed by Gerson (1972) they are neither inserted in the "leaf" tissue nor glued thereon.

Other mites present in the same moss: together with *E. bryonemus* other mites were collected: 2 species of Ascidae, identified by E. E. Lindquist as *Cheiroseius* sp near *tuberculatus* (Evans & Hyatt) and *Lasioseius* sp, *termophilus* group; and a few members of the families Tarsonemidae and Cunaxidae.

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