

A REVISION OF THE PHEROLIODIDAE, FAM. N. (ACARI: ORIBATEI)

RESUMO. A nova família aqui descrita, Pheroliodidae, inclui os seguintes gêneros e espécies: *Pheroliodes* Grandjean (em cuja sinonímia vai incluído *Pedrocortesia* Hammer), com as seguintes espécies: *casabranquensis*, sp. n. (Brasil, São Paulo, Casa Branca), *pellitus*, sp. n. (Brasil, São Paulo, Piracicaba), *nemoricultricus*, sp. n. (Brasil, São Paulo, Piracicaba), *wehnekei* (Willmann) (Guatemala, Venezuela), *roblensis* Covarrubias (Chile), *mirabilis* (Hammer), n. comb. (Argentina); *Pedrocortesia elegans* Hammer, *P. intermedia* Hammer, ambas do Peru, *P. fissurata* Balogh & Mahunka (Mongólia), *inaequalis* Balogh & Mahunka (Mongólia), *franzi* Balogh (Chad), *P. africana* Balogh (Quênia), *P. vermicularis* Balogh (Nova Guiné) e *P. sculpirata* Aoki (Coreia) são consideradas *incertae sedis*; *Lopholiodes*, gen. n., inclui as espécies *micropunctatum*, sp. n., espécie-tipo (Brasil, São Paulo, Anhumas) e *macropunctatum*, sp. n. (Brasil, São Paulo, Piracicaba); *Octoliodes*, gen. n., inclui as espécies *luteomarginatus* (Hammer), n. comb., a espécie-tipo (Nova Zelândia) e *rotoruensis* (Hammer, n. comb. (Nova Zelândia); e *Licnoliodes* Grandjean, com as espécies: *andrei* Grandjean, espécie-tipo (Espanha e Argélia), *adminensis* Grandjean (Marrocos, Argélia, Espanha) e *apunctatus* Mahunka (Grécia).

ABSTRACT. The new family Pheroliodidae, herei nproposed, includes the following genera and species *Pheroliodes* Grandjean (in whose synonymy *Pedrocortesia* Hammer is placed), with the species: *casabranquensis*, sp. n. (Brazil, São Paulo, Casa Branca), *pellitus*, sp. n. (Brazil, São Paulo, Piracicaba), *nemoricultricus*, sp. n. (Brazil, São Paulo, Piracicaba), *wehnekei* (Willmann) (Guatemala, Venezuela), *roblensis* Covarrubias (Chile), *mirabilis* (Hammer), n. comb. (Argentina); *Pedrocortesia elegans* Hammer, *P. intermedia* Hammer, both from Peru, *P. fissurata* Balogh & Mahunka and *P. inaequalis* Balogh & Mahunka, both from Mongolia, *P. franzi* Balogh (Chad), *P. africana* Balogh (Kenya), *P. vermicularis* Balogh (New Guinea) and *P. sculpirata* Aoki (Corea) are considered *incertae sedis*; *Lopholiodes*, gen. n., includes the species *micropunctatum*, sp. n., the type-species (Brazil, São Paulo, Anhumas) and *macropunctatum*, sp. n. (Brazil, São Paulo, Piracicaba); *Octoliodes*, gen n., includes the species *luteomarginatus* (Hammer), n. comb., the type-species (New Zealand) and *rotoruensis* (Hammer), n. comb. (New Zealand); and *Licnoliodes* Grandjean, with the species: *andrei* Grandjean, type-species (Spain and Algeria), *adminensis* Grandjean, type-species (Spain and Algeria), *adminensis* Grandjean (Maroc, Algeria, Spain) and *apunctatus* Mahunka (Greece).

CONTENTS

Family Pherolioididae, fam. n. 358
 Key to the genera of Pherolioididae 359
 Genus **Pheroliodes** Grandjean 359
 Species **Incertae sedis** 370
 Genus **Lopholiodes**, gen. n. 371
 Genus **Octoliodes**, gen. n. 377
 Genus **Licnoliodes** Grandjean 382

Family Pherolioididae, n. fam.

Type genus: **Pheroliodes** Grandjean, 1931: 249

Characteristics - Eupheredermes, i.e., nymphs retain exuviae from previous instars; adults without exuviae or exuviae loosely held over notogastral cerotegument. Tracheal system sub-normal, i.e., trachea I missing, sejugal and trachea III present. Pycnonotics, i.e., without areae poroseae on notogaster. Body and legs covered by a thin layer of cerotegument forming or not polygonal reticula; microtubercles always present. Cuticle of notogaster, prodorsum and venter foveate or reticulate. **Apo le** absent in most cases; other prodorsal apodemata present generally; **apoc** with distinctive mammillate protuberances. **le** lateral or dorsal, away from **ro** and anterior to it; **ro** ventral; **ex** short, below and anterior to bothridium; **in** short, on strong tubercle; bothridium dorsal, oblique, very close to notogaster; **ss** pilose distally, being fusiform, clavate or leaf shaped. Centro-dorsal setae absent; with five pairs of postero-lateral notogastral setae; **ps** ventral; **psl** within or without the **hl** setae; **ps3** posterior, at the level or anterior to **r2 (lp)**. **hl** terminal or subterminal, not crossing the homologous seta at the sagittal plane; **r2** dorsal to dorsal-lateral, close to **ip** and to the notogastral margin, bent to the sagittal plane. Dorsal lyrifissures from median to large size. Notogaster flat, almost always ovate. Notogastral tectum present between lines **bng** and **lambda**. Small to median size mites, varying from 300 to 1.200u. **Apo I** complete, forming no long bar bent backward; **apo II**, **apo sj** with apodematic bonds in the shape of broad belts with anterior and posterior projections; **apo III** reduced; **apo IV** with an apodematic bond resembling a hat over genitalia. Epimeral chaetotaxy 3: 1: 3: 3; epimeral neotrichy absent; epimeral setae of equal size. Genital aperture square to slightly circular; anal aperture pyriform; genital and anal apertures contiguous, joint or not one to the other, with or without ornaments. Seven pairs of genital setae in only one longitudinal row close to inner margin, or six pairs of genital setae forming an arch on the plate; **ag** lateral to genitalia; three pairs of anal setae in only one longitudinal row; three pairs of adanal setae; **adl** latero-posterior or posterior to the anal plate. Tectopedia absent; pedotectal tooth **p** present; lateral carenae present: cotyloid and integument of acetabula I, II forming a blunt structure. Leg articulations with proximal sockets, i.e., sockets on proximal ends of tarsi, tibiae and gennua; femoral and trochanteral tracheae present; distal apophyses present on Ts I, II; Tb I apophysis generally short, covering the proximal portion of tarsus only; trochanter and Tr- Fe articulations outside acetabula; proximal orientation of femora straight; tarsi pedicels short and straight; legs tridactylous, the claws small or of median size, the laterals smaller than the median one; free famulus or famulus enclosed in Ts I.

The following common characteristics of leg chaetotaxy were observed in **Pheroliodes**, **Lopholiodes** Paschoal, (Paschoal, 1984b) and **Octoliodes** Paschoal, (Paschoal, 1984c): **ft''** Ts I anterior to **ft'**; **pv''** Ts I at the same level or little anterior

to **s** and (**a**); **v''A** - Ts I anterior to **v'A**; **omega** I larger than **omega** 2 on Ts I; **v'**, **v''** at the same level on Tb I; **fi** I Tb I long, antiaxial, **fi** 2 short, paraxial; (**l**), **v'** Ge I at proximal half of the segment; **sigma** Ge I very close to **d**; Fe I, II with one **d** long, one **l'**, one **l''**, and two **v''**; **ft''** Ts II anterior and away from **ft'**; **pl'** Ts II, III, IV absent; **fi** Tb II at distal end, close to **d**; **v'** Ge II close to **l'**; **sigma** Ge II, III close to **d**; **ft''** Ts III anterior and away from **ft'**; **pl''** Ts III, IV absent; **fi** Tb III close to **d**; Fe III with one **d** long, one **l'**, one **v'**; **ft''** Ts IV at half of the segment; **ft'** absent on Ts IV; (**it**) absent or present on Ts IV. Leg chaetotaxy: Ts.19(2) - 16(2) - 15 - 14 or 12; Tb.4(2) - 5(1) - 4(1) - 4(1); Ge. 4(1) - 4(1) - 3(1) - 3; Fe. 5 - 5 - 3 - 2; Tr. 1 - 1 - 2 - 1.

Key to the genera of Pherolioidae

- 1 - Prodorsal apodemes absent or reduced; **ss** leaf shaped; **hl** away from its homologous seta, bent forward; six pairs of genital setae forming an arc on genitalia; with femoral crests **Licnoliodes** Grandjean
- Prodorsal apodemes present, well developed; **ss** clavate; **hl** close to its homologous seta, bent backward; seven pairs of genital setae close to inner margin of genitalia; with or without femoral crests **2**
- 2 - **ps2**, **ps3** close together and distant from **psl**; **ps3** anterior to **r2**; **hl** not very close to its homologous seta; **r2** at notogastral margin; (**it**), (**tc**), (**u**) on apophysis; free famulus on Ts I **Octoliodes** Paschoal
- **ps2**, **ps3** close to **psl**; **ps3** posterior to **r2** generally; **hl** very close to its homologous seta; **r2** dorsal, away from notogastral margin; (**it**), (**tc**), (**u**) not on apophysis; famulus enclosed in Ts I. **3**
- 3 - Adults bearing exuviae on notogaster; **le** lateral; bothridium not coiled; notogaster with no deep posterior furrow; three small claws; without femoral crests; (**it**) absent on Ts IV **Pheroliodes** Grandjean
- Adults bearing no exuviae on notogaster; **le** dorsal; bothridium coiled; notogaster with deep posterior furrow; three median size claws; with femoral crests; (**it**) present on Ts IV. **Lopholiodes** Paschoal

Genus **Pheroliodes** Grandjean

Pheroliodes Grandjean, 1931: 249; Grandjean, 1964: 383; Balogh, 1965: 24; Covarrubias, 1968: 692; Balogh, 1972: 58; Paschoal, 1979: 102. Type-species, **Cymbaremaeus Wenhcke** Willmann, 1930.

Pedrocortesia Hammer, 1958: 40 NEW SYNONYMY
Type species - Pedrocortesia mirabilis Hammer, 1958.

Pheroliodes was erected new genus by Grandjean (1931) for **Cymbaremaeus wekncke** Willmann a species from Guatemala. In doing so, Grandjean attributed no generic characteristic to the new taxon, so that **Pheroliodes** remained practically unknown until Grandjean (1964) redescribed the type species ascribing some generic features to it. The new genus was placed provisionally in Plateremaeidae, being very close to **Pedrocortesia** Hammer, a genus which could be considered a synonym of **Pheroliodes** according to him. Balogh (1966) recognised **Pedrocortesia** and **Pheroliodes** as distinct genera, the main difference being, provisionally as he

stated, the presence of two pairs of anal setae in the former genus and of three pairs in the later one. Covarrubias (1968) described **Pheroliodes roblensis**, a new species from Chile, using the same detailed descriptive criterium after Grandjean (1964); The species was referred to be very close to **Pedrocortesia rotoruensis**, from New Zealand, and the author agreed with Grandjean (1964) in the possible synonym of **Pedrocortesia** to **Pheroliodes**. Balogh (1972) considered **Pheroliodes** in Plateremaeidae. Paschoal (1979, 1984a) in reviewing the Plateremaeidae excluded **Pheroliodes** from this family and placed it in Pherolioididae.

A complete survey of the litterature concerning the Plateremaeidae was given by Paschoal (1984a).

Diagnosis - **Pheroliodes** is close to **Lopholiodes** Paschoal, (Paschoal, 1984b) from which it differs mainly by the following characteristics: adults bearing exuviae on notogaster; **le** lateral, not on apophysis; bothridium not coiled; notogaster ovate; dorsal lyrifissures of large size; **psl** between or at the same level of **hl**; **ps3** posterior to **r2** (**lp**); with no deep posterior furrow on notogaster; genital and anal apertures partially joint together; with three small claws; tarsi pedicels short, about one fourth of the segment; femoral crests absent; **pl''** Ts I anterior to **pl'**; **d** Tb I at the same level of **l'**; (**l**) Fe I, II at distal end; (**it**) absent on Ts IV; with twelve setae on Ts IV.

Description - Body and legs covered by a thin layer of cerotegument forming microtubercles of small to large size, isolated or grouped together at the bases, figuring polygonal reticula or not. Notogastral, prodorsal and ventral cuticle foveate or reticulate; legs with or without cuticular foveae. Exuviae loosely adherent to adult body. **Apo le** absent; **apo ro** well sclerotized on coxal region forming two prominent loops on lateral prodorsum and a transversal bar or a nervure medianly; **apo c** mammillate protuberances; **apo ex** a short bar, originated on bothridium, joint to **apo c**; **apo in apo bo** present; **le** lateral, anterior and at a higher level than **ro**; **in** spiny, short, thick; bothridium dorsal to dorso-lateral, leaned against notogaster; **ss** clavate, covered by short spines; **psl** inferior and almost at the same transversal plane of **hl**; **ps2**, **ps3** ventral at a lower plane than **psl**; **ps3** posterior to **r2** (**lp**); **hl** very close to its homologous seta, subterminal, close to notogastral margin, bent backward and downward; **r2** dorsal, very close to **ip** and the notogastral margin, bent backward and downward. Dorsal lyrifissures large. Notogaster ovate. Genital aperture almost square; genital and anal apertures contiguous, partially joint together, the contours still visible at the contact area; genitalia proximal margin at the level of coxae IV; genital and anal plates foveate generally; with or without **apo ad**, **apo ag**. Genitoanal chaetotaxy 7 - 1 - 3 - 3; genital setae on just one longitudinal row close to inner margin of genitalia, almost equidistant except for **gl** - **g2**; **ag** lateral, very close to genitalia external posterior margin; **ad3** further away from the sagital plane than **ad2**, **adl**; **adl** postero-lateral to the anal aperture. Famulus enclosed in Ts I; tarsi pedicels short, narrow, about one fourth the length of the segments; three claws, the median one being the strongest; **ft'** Ts I close to **ft''**; **pv''** Ts I in normal position, at the same level of **s** or well anterior to the level of (**a**); **pl''** Ts I anterior or at the same level of **pl'**; **d** Tb I at the same level of **l'**; Fe I, II with **d** long, antiaxial, **l'**, **l''** at distal end, and two **v''**, one proximal, one median; **pl''** Ts II at the same level or anterior to (**pv**); **pv''** Ts II posterior to **pv'**; **omega** I Ts II a little larger than **omega** 2; **d** Tb II, III well anterior to (**l**); **pv'** Ts III between **pv''**, **ft'**; Fe III with **d** **l'** distal and **v'** proximal; **ft'**, (**it**) absent on Ts IV; **pv'** Ts IV lightly anterior to **pv''**; Fe IV with **d**, **v'** on median segment. Ley chaetotaxy: Ts. 19(2) - 16(2) - 15 - 12; Tb. 4(2) - 5(1) - 4(1) - 4(1); Ge. 4(1) - 4(1) - 3(1) - 3; Fe. 5 - 5 - 3 - 2; Tr. 1 - 1 - 2 - 1.

Pherliodes casabranquensis sp., n.

(Figure 01)

Types - Female holotype N^o 878, collected in Casa Branca, S.P., Brazil, from tropical rain forest litter at the Municipal Park, by A.D. Paschoal, in October 1978; 35 paratypes with the same data. Depository: Departamento de Zoologia, E.S.A. "Luiz de Queiroz", Universidade de São Paulo, Piracicaba, Brazil.

Diagnosis - *P. casabranquensis* is close to *P. pellitus* - Paschoal n. sp. from which it differs mainly by the following characteristics: foveae absent on rostrum, epimeral region, anterior genitoanal region and genital plate; reticula absent on rostrum and anal plate; **apo ro**, **apo c**, **apo in** with no transversal bar; smaller species; **apo ll**, **apo sj** apodemetic bonds of regular contours due to the absence of epimeral foveae; genitalia inner margin well sclerotized; anal plate foveae close to outer margins only; **pl'''** Ts II at the same level of **pv'**.

Description - **Integument** - Cuticle of clarified specimens covered by granular cerotegument, with isolated microtubercles covering all body. Microtubercles smaller and closer together on notogaster and on ventral body than on prodorsum. With no polygonal reticulum formed by microtubercles on rostrum. With cerotegument polygonal reticula on femora. Foveate cuticle on proximal and central notogaster (but not laterally) and on genitoanal region posterior to genitalia (laterally inclusive); foveae large and set apart on notogaster and large and close together on genitoanal region; anal plate foveate; genital plate not foveate; epimeral region and rostrum with no foveae. Exuviae adherent to adult body, easily detached on slide mounting, arranged in four concentric layers; last nymphal instar layer normally adherent to adult body. **Prodorsum** - **Apo le** absent; **apo ro** lightly behind **ro**, originated on acetabulum I, forming an arch on proximal prodorsum, the median portion being poorly sclerotized; **apo ro** with a well sclerotized chitinous projection turned backward and to the homologous part from the other side, forming two loops standing out laterally; **apo c** a well sclerotized bar originated laterally, turned to the **apo ro** loop, ended by a small mammillate protuberance, presenting no transversal bar linking the homologous parts. **Apo ex** a short bar arising from bothridium, joint to **apo c** at the proximal portion; **apo in** more sclerotized between **in**; **apo bo** a well sclerotized bar linking bothridia, with sinuous outlines. **le** anterior, away and at a higher level than **ro**; **le, ro** lateral, smooth, not on apophyses, with no adherent cerotegument, bent to the sagittal plane, the homologous setae not crossing each other; **ex** curved, with adherent cerotegument, lateral, ahead and below bothridium, between lateral carenae: **in** thick, spiny, short, reclinate, on strong tubercle; bothridium dorso-lateral, oblique, salient, leaned against notogaster, opened laterally; distance between bothridia 78.5u (M), 85.7u (F); **ss** of median size, reclinate, oblique, forming a small spiny club; **ss** length 74.5u (M), 75u (F). Prodorsum length 123.7u (M), 137.5u (F); width 165u (M,F). **Notogaster** - Dorsum flat; notogaster ovate; five pairs of large lyrifissures; **ia** parallel to the sagittal plane, **im** perpendicular and **ip** oblique to this plane. Lateral lyrifissures **ih**, **ips** small. Latero-abdominal gland opening between **im ip**. Five pairs of notogastral setae; **r2 (lp)** not on tubercle, smooth, short, bent back and downward, very close to notogastral margin and to **ip**; **hl, r2** close to posterior notogastral margin and to their homologous setae; **psl, ps2, ps3** ventral, not on tubercles, ventrally curved, **psl** being the largest but still smaller than **hl**; **psl** at a lower level than **hl**, almost at the same transversal plane of it; **ps2, ps3** close together and at the same level, lower than the one for **psl**, both posterior to **r2**. Notogaster length 288.7u (M), 302.5u (F); width 226.8u (M). 247.5u (F); length/width 1.27(M), 1.23 (F). **Epimeral region** - **a, m** short smooth, **m** pointed to its homologous seta; labio-genal apodeme narrow, well sclerotized; **h** strong, perpendicular to the

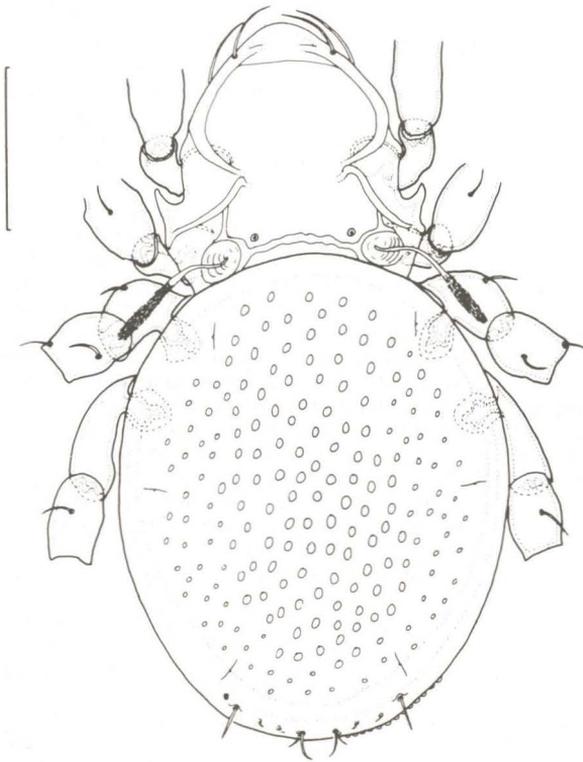


Figure 01 - *Pheroliodes casabranquensis* sp. n., Female holotype, dorsal, Casa Branca, S. P, Brazil
Scale = 100u

body; mentotecto intermediate. **Apo I** complete, well developed at coxal portion, forming a curved bar of almost parallel sides linking the homologous parts; **apo II** incomplete, forming large trapezoidal blades away from the sagittal plane; with an apodemetic bond between homologous parts, in the shape of a broad transversal belt, of regular contour, linked anteriorly to **apo I** and posteriorly to **apo sj**; **apo sj** incomplete, well sclerotized on coxal region, with an apodemetic bond on epimeral region, equal to the one for **apo II**, presenting one anterior and one posterior projection linked to **apo II** and **apo III** respectively; **apo III** reduced to small blades extended to the direction of distal margin of genitalia by a tegumental fold delimiting epimeral furrow III; **apo IV** slightly sclerotized at coxal region forming a blade extended to genitalia, delimiting epimeral furrow IV, also with a well sclerotized apodemetic bond of undulating outlines, resembling a hat over genitalia. Epimeral chaetotaxy 3: 1: 3: 3; epimeral setae short, smooth, of equal size, on small apophyses.

Genitoanal region - Genital and anal apertures contiguous, partially joint, the contours still well delimited at the contact area; genital aperture almost square, a little wider anteriorly; anal aperture pyriform; proximal margin of genitalia anterior to the level of coxae IV. Genitalia length 64.3u (M), 78.5u(F); width 57.1u (M), 71.4u (F); anal aperture length 96.4u (M), 107.1u(F); width 71.4u (M), 78.5u (F). Genital and anal plates inner and outer margins narrow, well sclerotized; both plates with **apo ag apo ad** in the shape of undulating bars to the side of the plates; - genitalia with no ornaments but cerotegument; anal plate foveate close to outer margins. Genitoanal chaetotaxy 7 - 1 - 3 - 3; genital setae a sole on longitudinal row, almost equidistant cept for **gl I g2; g7** very close to of genitalia; anal setae on just one longitudinal row; nitoanal chaetotaxy 7 - 1 - 3 - 3; genital setae a sole one longitudinal row, almost equidistant except **for gl - g2; g7** very close to proximal margin of genitalia; anal setae on just one longitudinal row; **ag** lateral, leaned against posterior margin of genitalia; **ad** setae not on tubercles; **ad3** further away from sagittal plane than the others; **ad3 a** at height equivalent to the anterior third of anal plate, and **ad2** at the posterior third of it; **ad1** postero-lateral to the anal plate. **Lateral characteristics** - Tectopedia absent; pedotectal tooth **p** present, similar to a true pedotectum when seen from above, but not auriculiform; lateral carenae present on proterosoma; sejugal apophysis absent; acetabula I, II integument and cotyloid forming a blunt structure. **Legs** - Ts - Tb, Tb - Ge - Ge, Ge - Fe articulations with proximal sockets, i. e., sockets on proximal ends of tarsi, tibiae and genua. Trochanteral and femoral tracheae present. Tarsi I, II dorso-distal apophyses with enclosed famuli. Trochanter and Fe - Tr articulations of all legs outside acetabula; proximal orientation of femora straight; tarsi pedicels short and narrow of almost one fourth the length of the segments; three small claws. Leg cerotegument forming polygonal to irregular reticula; leg foveae less common and regular than body foveae. Ventral setae, tarsi proralis, iterals and tectals with long secondary branchings; all the others with short spines; **p** Ts I is an eupathidium. **Ts I - ft''** dorsal, a little behind **omega**; **ft''** a little behind it and **(a): pv''** anterior to **pv'**, well anterior on the segment, at the same level of **(a)**; **pl''** ventro-lateral, anterior to **pl'**, both posterior to **pv'**; **omega I** paraxial, larger than **omega 2**, both on dorsal antiaxial tarsus apophysis, close and behind a large apophysis bearing the enclosed famulus; Ts length 68u (M), 75u (F). **Tb - I - I'' (d), v''** almost at the same level of **I', v'** respectively; tibial apophysis short, covering proximal portion of tarsus only, being dorsal, antiaxial; **fi I** long, antiaxial; **fi 2** short, paraxial; Tb length 57.2u (M), 64.3u (F). **Ge I - I'', I', v'** on proximal half, at almost the same level; **d** antiaxial on proximal half; **sigma** slender, small, setaceous, very close to **d**; Ge length 32u (M), 35.7u (F). **Fe I - d** long, antiaxial; with two lateral setae on distal half of the segment, one axial, one antiaxial; two ventral antiaxial setae; Fe length 82u (M), 89.2u (F). **Tr I** - one seta; Tr. length 30.3u (M), 32.2u (F). **Ts II - ft''** anterior and away from **ft'**; **pl'** absent; **pl''** aligned with **pv'**; **pv''** posterior to **pv'**; **omega 1** close to **omega 2**, paraxial, a little larger than it; Ts length 58.9u (M), 60.7u (F). **Tb II d** antiaxial, well ahead of **I', I''**; **(v)** little behind **(I)**; **(I)** at the same level; **fi** close to **d**, antiaxial, long,

on apophysis; Tb length 48u (M), 50u (F). **Ge II - d** long, antiaxial; (**I**) at the same level; **I'** almost dorsal; **v'** present; **sigma** setaceous, short, antiaxial, close to **d**; Ge length 32u (M), 35.7u (F). **Fe II - d** long; **I'**, **I''** on distal femur; two ventral antiaxial setae, one anterior, one median; Fe length 75.3u (M), 78.5u (F). **Tr II** one ventral seta; Tr. length 30.3u (M), 32u (F). **Ts III - ft'** present, posterior and well apart from **ft''**; **pl'**, **pl''** absent; **pv'** between **ft'**, **pv''**; solenidia absent; Ts length 64.8u (M), 67.8u (F). **Tb III - d** antiaxial, anterior to **I'**, at distal tibia; **I'** anterior to (**v**); **v'**, **v''** at the same level; **fi** antiaxial, long, close to **d**; Tb length 50u (M), 53.5u (F). **Ge III - d** antiaxial, **I'**, **v'** close together; **sigma** small, antiaxial, close to **d**; Ge length 32u (M), 35u (F). **Fe III - d** well developed; one **v'** proximal, one **I'** distal; Fe length 65.4u (M), 67.8u (F). **Tr III** two setae, one lateral, one ventral; Tr length 60.1u (M), 64.3u (F). **Ts IV - ft'**, (**it**), (**pl**) absent, **pv'** a little ahead of **pv''**; solenidia absent; Ts length 68u (M), 71.4u (F). **Tb IV -** as in Tb III; Tb length 59.6u (M), 64.2u (F). **Ge IV -** as in Ge III: solenidium absent; Ge length 32u (M), 32.1u (F); **Fe IV - d** long; **v'** median; Fe length 67.8u (M), 75u (F). **Tr IV -** one seta, ventral; Tr length 73u (M), 82u (F). **Leg chaetotaxy:** Ts. 19(2) - 16(2) - 15 - 12; Tb. 4(2) - 5(1) - 4(1) - 4(1); Ge. 4(1) - 4(1) - 3(1) - 3; Fe. 5 - 5 - 3 - 2; Tr. 1 - 1 - 2 - 1.

Geographical distribution and habitat - Casa Branca, S.P., Brazil, from tropical rain forest litter.

***Pheroliodes pellitus* sp. n.**

(Figure 02)

Types - Male holotype N^o 2-III-78-4, collected in Piracicaba, S.P., Brazil, from tropical rain forest litter at the "Escola Superior de Agricultura "Luiz de Queiroz", by D.E. Johnston, in March 1978; 20 paratypes, same data as above. Depository: Departamento de Zoologia, E.S.A. "Luiz de Queiroz". Universidade de São Paulo, Piracicaba, SP, Brazil.

Diagnosis - *P. pellitus* is close to *P. casabranquensis* - Paschoal, from which it differs mainly by the following characteristics: Rostrum, epimeral and genitoanal regions, genital and anal plates intensively foveate; rostrum and anal plate reticulate; **apo ro** with a well sclerotized transversal bar; **apo c**, **apo in** with transversal bars; **apo II**, **apo sj** apodemetic bonds irregular and undulate due to epimeral foveae; genitalia inner margins poorly sclerotized; anal plate totally foveate; **pl''** Ts II anterior to **pv'**.

Description - Observation - Due to the great similarity of *P. pellitus* to *P. casabranquensis*, which was fully described anteriorly, only the distinguishing features will be described in this section. **Integument** - Rostrum microtubercles anastomosed forming well delimited polygonal reticulum; notogastral cuticle foveate, with small foveae set apart one from the other, reaching lateral margins of notogaster; rostrum foveae large, all linked together by well sclerotized cuticle thickenings, covered by microtubercles; lateral notogaster, genitoanal and epimeral regions intensively foveate, the foveae large with well sclerotized and anastomosed outlines, forming reticula; infracapitulum with a few small foveae; genital and anal plates also foveate. **Prodorsum** - **Apo ro** as a transversal, well sclerotized bar, originated laterally, forming a short arch on anterior prodorsum; integument around **apo ro** salient, undulating; **apo c** with curved transversal bar of undulating sides linking the homologous parts; **apo in** as wide bar of irregular outlines, pointing abliquely to the **apo c** transversal bar, to which it joins. **le** setae crossing each other at sagital plane; distance between bothridia 85.7u (M), 92.8u (F); **ss** length 78.5u (M), 85.7u (F). Prodorsum length 123.7u (M), 137.5u (F); width 165u (M); F). **Notogaster** - Length 261.2u (M), 288.7u (F); width 233.7u (M), 261.2u (F). **Epimeral region** - **Apo II**, **apo sj** with an apodemetic bond in the shape of a wide transversal belt, of irregular and undulating

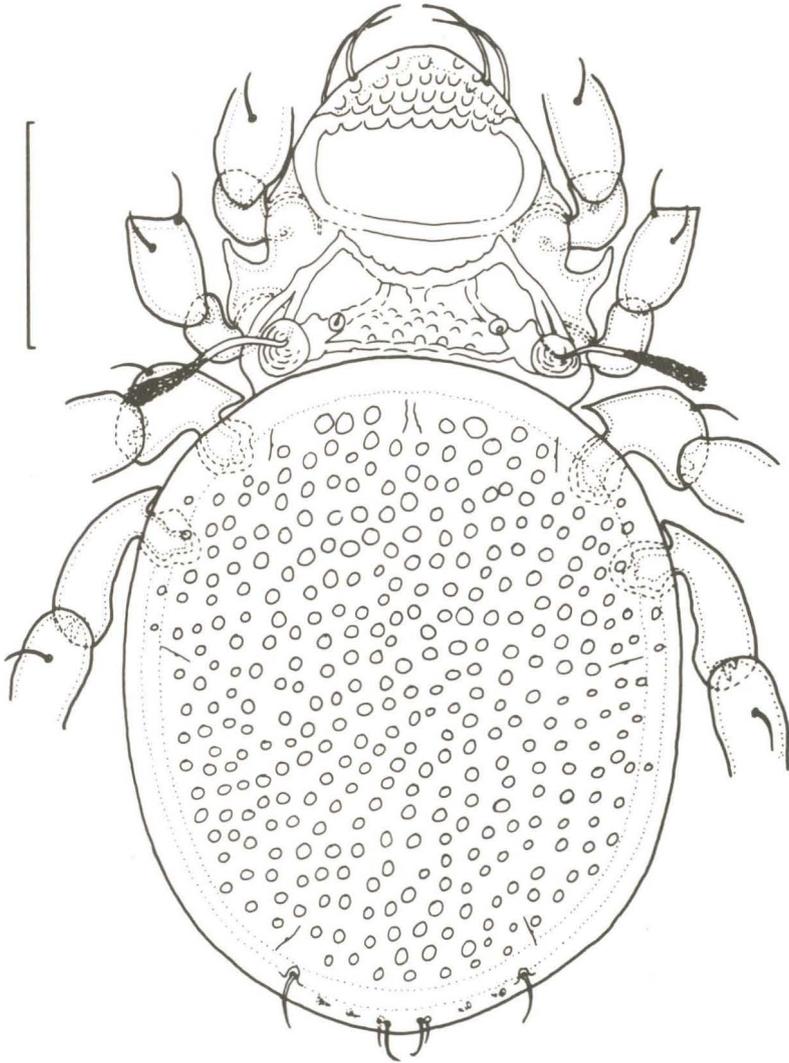


Figure 02 - *Pheroliodes pellitus*, sp. n., Female paratype, dorsal, Piracicaba, S. P, Brazil.
Scale = 100u.

sides due to foveae. **Genitoanal region** - Genitalia length 71.4u (M), 82.1u (F); width 57.1u (M), 67.8u (F). Anal aperture length 96.4u (M), 107.1u (F); width 69.6u (M), 78.5u (F); inner and outer margins well sclerotized on anal plate, poorly sclerotized on genital plate; genital and anal plates with apodemata **apo ag**, **apo ad** forming undulating bars; genital plate slightly foveate; anal plate with reticulum around foveae. **Legs** - segment length from leg I through IV: **Tarsi** - 67.8u (M), 71.4u (F); 60.7u (M), 64.3u (F); 64.2u (M), 64.3u (F); 67.8u (M), 71.4u (F); **Tibiae** 57.1u (M), 60.7u (F); 46.4u (M), 46.5u (F); 43.8u (M), 53.5u (F). 57.1u (M), 60.7u (F); **Gennua** - 32.1u (M), 35.7u (F); 32, 1u (M), 34.2u (F); 25.3u (M), 26.1u (F); 25u (M;F); **Femora** - 82.1u (M), 83.3u (F); 71.4u (M), 78.5u (F); 57.1u (M;F); 53.2u (M), 57.1u (F); **Trochantera** - 28.6u (M), 32.2u (F); 28.7u (M), 29.5u (F); 56.1u (M), 57.1u (F); 71.4u (M;F); **pl''** Ts II anterior to (**pv**).

All other characters as in *P. casabranquensis*.

Geographical distribution and habitat - Piracicaba, S.P., Brazil, from tropical rain forest litter.

***Pheroliodes nemoricultricus* sp. n.**
(Figure 03)

Types - Female holotype N^o 879, collected in Piracicaba, S.P., Brazil, from a tropical rain forest litter at the E.S.A. "Luiz de Queiroz", by A.D. Paschoal, in February 1979; 4 paratypes with the same data as above. Depository: Departamento de Zoologia, E.S.A. "Luiz de Queiroz", Universidade de São Paulo, Piracicaba, S.P., Brazil.

Diagnosis - *P. nemoricultricus* is close to *P. pellitus* - Paschoal from which it differs mainly by the following characteristics: reduced microtubercles, little salient; notogaster with microtubercles on lateral and posterior margins only; prodorsum without microtubercles; notogaster reticulate with large cavities, reaching notogastral margins; distal end of rostrum smooth, presenting no reticulum; ventral foveation reduced; genitoanal reticulum well developed; genital and anal plates weakly reticulate; with no microtubercles on foveae outlines; **apo ro** without transversal bar and lateral loops; **apo c** reduced; **apo ex** strong, long; **apo in** resembling an anvil; **le** on small salient apophysis; **ex** on **apo ex**; bothridium dorsal, opened upward; **ss** turned laterally; **lp** on small depression of notogastral margin; larger species; **apo sj** structure and shape; proximal margin of genitalia at the level of coxae IV; **apo ag**, **apo ad** poorly developed; **ft'** Ts I anterior to (**a**); **pv''** at normal position, little behind **s**; **pl''**, **pl'** at the same level; leg segments larger.

Description - Observation - Due to the great similarity of *P. nemoricultricus* to *P. pellitus* Paschoal and to *P. casabranquensis* Paschoal, only the distinguishing features will be given in its description. All other characters are the same described for the two previous species. **Integument** - Cuticle, from clarified specimens, covered by granular cerotegument composed by inexpressive microtubercles, restricted to some body areas only; notogastral microtubercles limited to lateral and posterior borders; prodorsum with only a cerotegumental mass concentrated on rostrum edges and apex; notogastral cuticle polygonal reticulated in general appearance, limiting large cavities and reaching the margins of notogaster; prodorsum reticulum well developed at posterior and median regions only; distal rostrum smooth; lateral notogaster, genitoanal and epimeral regions less reticulate; anal and genital plates slightly reticulate; cavities edges with no visible microtubercles. **Prodorsum** - **Apo ro** reduced, as a nervure directed forward, with weakly sclerotized bonds pointing backward and to homologous apodeme, forming no loops; **apo ro** with two apode-

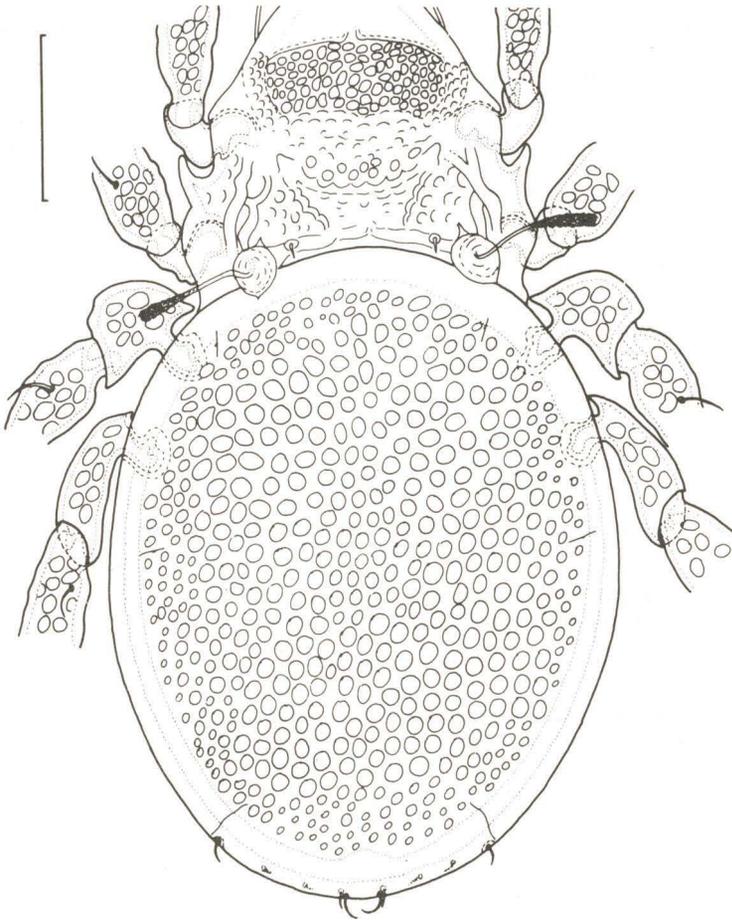


Figure 03 - *Pherliodes nemoricultrix*, sp. n., Female holotype, dorsal, Piracicaba, S.P., Brazil. Scale 100 μ .

matic bonds in the shape of two well sclerotized paralel bars, of irregular margins, delimiting small cavities, originated close to the **apo ro** bond; **apo c** weakly developed, only the mammillate protuberances visible; **apo ex** a long, strong, undulate bar, originated on bothridium, pointed to **apo ro**; **apo in** a broad bar of irregular contour, joint to the transversal bar of **apo c**, forming a structure resembling an anvil; **apo bo** a well sclerotized bar, of irregular and undulate edges linking bothridia together; **le, ro** not crossing the homologous setae at sagital plane; **le** on small apophysis, salient on proximal prodorsum; **ex** short, smooth, on **apo ex**, ahead and below bothridium; bothridium dorsal, salient, oblique leaned against notogaster, the opening turned upward; distance between bothridia 100u (M), 114.2u (F); **ss** of median size, directed to the side, forming a small spiny club distally; **ss** length 89.3u (M), 90.1u (F). Prodorsum length 137.5u (M), 165u (F); width 192.5u (M), 227.1u (F). **Notogaster - r2 (lp)** on a small depression of integument very close to notogastral margin and to **ip**, being smooth, short, bent to the side and then backward and downward. Notogaster length 336.8u (M), 385u (F); width 275u (M), 323u (F). **Epimeral region - Apo sj** divided at basal portion forming a wide furrow covering one third of its length; **apo sj** with a longitudinal integumental thickening; **apo IV** with an undulate bond resembling a hat over genitalia. **Genitoanal region** - Proximal margin of genitalia at the level of coxae IV. Genitalia length 80.3u (M), 107.1u (F); width 71.4u (M), 89.2u (F). Anal plate length 121.4u (M), 142.8u (F); width 92.8u (M), 107.1u (F). **Apo ag, apo ad** present, little sclerotized. **Legs - ft'** Ts I close to **ft'** almost at the same transversal plane of it, anterior to (**a**); **pv''** Ts I little behind **s**; **pl''** Ts I ventro-lateral, at the same level of **pl'**. Segments lengths from leg I through IV: **Tarsi** - 96.4u (M), 103.5u (F); 85.7u (M), 96.4u (F); 92.1u (M), 96.5u (F); 93u (M), 110.7u (F). **Tibiae** - 67.8u (M), 78.5u (F); 60.7u (M), 68u (F); 72.5u (M), 83.8u (F); 75.1u (M), 89.2u (F). **Gennua** - 42.8u (M), 46.4u (F); 39.3u (M), 42.8u (F); 39.2u (M), 42.8u (F); 42.8u (M,F). **Femora** - 103.5u (M), 132.2u (F); 90.1u (M), 92.8u (F); 90.3u (M), 96.1u (F); 100u (M), 117.8u (F). **Trochantera** - 39.3u (M), 42.8u (F); 35.7u (M), 42.8u (F); 70.2u (M), 71.4u (F); 89.3u (M), 100u (F).

Geographical distribution and habitat - Piracicaba, S. P., Brazil, in litter from tropical rain forest.

Other Described species in the genus *Pheroliodes*

Pheroliodes wehncke (Willmann)

Cymbaeremaus wehncke Willmann, 1930: 243, fig. 5-6.

Pheroliodes wehncke (Willmann, 1930) Grandjean, 1931: 249;

Grandjean 1964: 353, fig. 1-8; Paschoal, 1979: 138.

Geographical distribution and habitat - Guatemala, in mosses and lichens under trees (Willmann, 1930); Puerto Cabello, Venezuela, in litter (Grandjean, 1964).

Pheroliodes roblensis Covarrubias

Pheroliodes roblensis Covarrubias, 1968: 657, fig. 1-10;

Paschoal, 1979: 138.

Geographical distribution and habitat - Cerro el Roble, Santiago, Chile, in litter.

Pheroliodes mirabilis (Hammer), n. comb.

Pedrocortesia mirabilis Hammer, 1958: 41, fig. 41

Types - Female lectotype N^o 202 by subsequent designation, collected in the Atuel River valley, El Angulo, Argentina, by Marie Hammer, in December 1954, from ground vegetation, 3.400 meter high; 7 paralectotypes, same as above. **Depository** - Zoologisk Museum, Copenhagen, Denmark.

Diagnosis - *P. mirabilis* is close to *P. wehnckei* (Willman) from which it differs mainly by the following characteristics: leg cerotegumental reticulum absent; small foveae on central notogaster; large foveae on lateral notogaster; median prodorsum strongly reticulate; anal and genital plates strongly foveate with rounded foveae; microtubercles uniformly spread all over body, not restricted to foveae; **apo in** with strong sclerotized areas between **in** setae, forming no bar; **apo bo** as a strong bar linking bothridia; bothridium opened obliquely forward, **ss** lateral, club large and black; **apo sj** with apodemetic bond in the shape of a transversal well sclerotized bar; larger species; **pv''** Ts I at the same level of **s**; **v'** present on Ge II, III.

Description - Observation - *P. mirabilis* is described in comparison with *P. wehnckei* (Willmann) (redescribed by Grandjean, 1931) and *P. casabranquensis* Paschoal (described in the present paper). Only the distinguishing features are presented in the description below; All the others are common characters to these two species needing not to be repeated. **Integument** - Cerotegument forming no reticulum on legs; small foveae on central notogaster and large foveae laterally; prodorsum strongly foveate medianly; cerotegumental mass uniformly distributed on body. **Prodorsum Apo in** with well sclerotized areas between **in**; **apo bo** a well sclerotized bar linking bothridia; bothridium dorsal, salient, leaned against notogaster, the opening directed obliquely forward; distance between bothridia 125u (F); **ss** short, lateral forming a strong black spiny club; **ss** length 64.3u (F). Prodorsum length 178.7u (F); width 233.7u (F). **Notogaster** - Length 495u (F); width 343.7u (F); length/width 1.4 **Epimeral region** - **Apo sj** incomplete, well sclerotized at coxal portion, forming a well sclerotized bar at epimeral portion. Genitalia length 114.2u (F); width 89.3u (F); anal aperture length 178.5u (F); width 122.4u (F). Genital and anal plates foveate, with circular foveae. **Legs** - Reticula and foveae absent on legs; **pv''** Ts I in normal position, at the same level of **s**; **v'** present on Ge II, III. **Segments lengths from leg I through IV** (F): **Tarsi** - 103u; 93u; 110.7u; 114u. **Tibiae** - 110.7u; 89.2u; 92.8u; 107u. **Gennua** - 53.5u; 46.4u; 42.8u; 42.8u. **Femora** - 171u; 153.5u; 121.4u; 142.8u; **Trochantera** - 39.3u; 36.5u; 85.7u; 107.1u. **Leg chaetotaxy** - Gennua 4(1) - 4(1) - 3(1) - 3.

Geographical distribution and habitat - Atuel River Valley, El Angulo, Argentina, from ground vegetation 3.400 meters high.

Discussion - Hammer (1958) in her original description did not designate the species holotype. As a consequence all the eight specimens studied by her are to be considered syntypes. In 1979 two females of *P. mirabilis* were obtained on loan for this study from the Zoologisk Museum in Copenhagen. The redescription of *P. mirabilis* was based on the two females one of which was chosen as the lectotype; All the others became, then, paralectotypes. Hammer (1958) reported erroneously that *P. mirabilis* had only two pairs of anal setae instead of the normal three pairs found in all species of the genus.

Species Incertae sedis

All the species cited below were referred to the genus **Pedrocortesia** synonymized with **Pheroliodes** in the present publication. Their incomplete descriptions and drawings do not permit, however, to precise their exact taxonomic position. They are "Incertae sedis" until further studies.

Pedrocortesia elegans Hammer

Pedrocortesia elegans Hammer, 1961: 37, fig. 29; Paschoal, 1979: 149.

Geographical distribution and habitat - Machu Picchu, Peru, in moss grown on the soil.

Discussion - Hammer did not mention the number of anal setae. **P. elegans**, she said, is close to **P. dentata** differing by having larger tarsi pedicels; the mammillate structure of **apo ex** resembling blades; tibial apophysis longer; and tarsi with distal laminate projections. **P. dentata** was transferred by Paschoal (1979, 1984b) to the new genus **Andesperuviella** Paschoal.

Pedrocortesia intermedia Hammer

Pedrocortesia intermedia Hammer, 1961: 35; fig. 27; Paschoal, 1979: 150.

Geographical distribution and habitat - Machu Picchu, Bistracuche, Peru, in grass and moss.

Discussion - I studied the syntype N^o 390 from Machu Picchu, which is a poorly mounted specimen. It is apparently a **Pheroliodes** but with stronger claws.

Pedrocortesia fissurata Balogh & Mahunka

Pedrocortesia fissurata Balogh & Mahunka, 1965: 453, fig. 3-4; Paschoal, 1979: 151.

Geographical distribution and habitat - Uburchangaj aimak: Arc Bogd, Mongolia, in **Caragana** and **Prunus** litter.

Discussion - This species is certainly not a **Pheroliodes** by presenting only two pairs of anal setae; five pairs of genital setae; the **ag** seta position; notogastral setae disposition; **ss** shape; and dorsal lyrifissures lengths. It may belong to **Licnodamaeus**.

Pedrocortesia inaequalis Balogh & Mahunka

Pedrocortesia inaequalis Balogh e Mahunka, 1965: 455, fig. 5-6; Paschoal 1979: 152.

Geographical distribution and habitat- Uburchangaj - aimak: Arc Bogd, Mongolia, from **Caragana** and **Prunus** litter.

Discussion - This species is also not a **Pheroliodes**. It seems to have only two pairs of anal setae; six pairs of genital setae; notogaster with an anterior projection, being truncated posteriorly; and five pairs of notogastral setae posterior to **ip**. A new genus may be required for it.

Pedrocortesia franzi Balogh

Pedrocortesia franzi Balogh, 1966: 70, fig. 1; Paschoal, 1979: 152

Geographical distribution and habitat - Polders von Guini, Chad, from litter.

Discussion - Species with two pairs of anal setae and seven pairs of genital setae; notogastral setae short (four pairs?) at notogastral margin. It seems to be not a **Pheroliodes** nor a **Pedrocortesella**.

Pedrocortesia africana Balogh

Pedrocortesia africana Balogh, 1966: 70, fig. 2; Paschoal, 1979: 153.

Geographical distribution and habitat - Kenya Mountain, Kenya, East Africa, from bamboo - **Podocarpus** litter.

Discussion - Species with two pairs of anal setae and seven pairs of genital setae; notogastral setae short and posterior (three pairs?); **ss** very short.

Pedrocortesia vermicularis Balogh

Pedrocortesia vermicularis Balogh, 1970: 295; Paschoal, 1979: 154

Geographical distribution and habitat - Wilhen Mountain, New Guinea, from mosses.

Discussion - The incomplete description of this species only permits to remove it from the genus.

Pedrocortesia sculptrata Aoki

Pedrocortesia sculptrata Aoki, 1974: 234, fig. 1-2; Paschoal, 1979: 155.

Geographical distribution and habitat - Prov. South Phenan, Corea, in false acacia litter.

Discussion - The incomplete description also only permits the removal of this species from the genus.

GENUS Lopholiodes gen. n.

Type Species: *Lopholiodes micropunctinatum*

Diagnosis - **Lopholiodes** is close to **Pheroliodes** Grandjean, from which it differs by the following features: adult body without exuviae; **le** dorsal, **on** small apophysis; bothridium exhibiting a coiled compartment; notogaster ovate or rounded; dorsal lyrifissures of median size; **ps1** anterior to the level of **h1**; **ps3** anterior

or posterior to **r2**; notogaster with a deep posterior furrow; larger species; genital and anal apertures completely joint together; three median size claws; tarsal pedicels as long as one third the length of the segment; femoral crests and chitinous strengths present on tarsi; **p1'**, **p1''** at the same level; **d** Tb I anterior to **1'**; **(I)** Fe I, II at distal end, not too close to the margin; **(it)** present on Ts IV; the Ts IV setae arrangement.

Description - Body and legs covered by a thin layer of cerotegument, forming small to large microtubercles, isolated or anastomosed at the bases, presenting polygonal reticula on dorsum but not on venter, where the cerotegument confers a velvety aspect; femora with hexagonal shape reticula. Notogastral cuticle foveate; all other parts smooth. Notogaster with a long deep furrow distally to the side of which are the **hl** setae. Exuviae absent from adult body. **Apo le** present or absent; **apo ro** with a lateral extension forming two loops joint together by a weak bar or a well sclerotized arc; **apo c** ending by a mammillate salience; **apo ex** as an oblique bar pointed to **apo ro** base; **apo in** reduced; **apo bo** as a strong bar linking bothridia. **le** dorsal, on small apophysis, anterior and away from **ro**; **in** short, lanceolate; bothridium dorsal, leaned against notogaster, forming a double coiled compartment; **ss** claviform bearing short spines. **psl** ventral, anterior and at a lower level than **hl**; **ps2** **ps3** ventral at a lower level than **psl**; **ps3** posterior or anterior to **r2** (**lp**); **hl** close to its homologous seta, subterminal, turned back and downward; **r2** dorsal, close to notogastral margin and to **ip**. Dorsal lyrifissures of median size. Notogaster rounded or ovate. Median size mites, between 600 - 700 μ . Genital aperture almost square, completely joint with the anal aperture; genitalia anterior margin to the level of coxae IV; genital and anal plates having no ornaments; **apo ag**, **apo ad** present. Genitoanal chaetotaxy 7 - 1 - 3 - 3; genital setae on a sole longitudinal row, close to inner margin of genitalia, being almost equidistant except for **g1** - **g2**; **ag** lateral, well at posterior external margin of genitalia, **ad3** well apart from sagittal plane, much more than **ad2**, **ad1**; **ad1** postero-lateral to the anal aperture. Ts I famulus enclosed; tarsal pedicel of median size, as large as one third the length of the segment; with three median size claws, the medial one being the strongest; femora with strong ventral crests; tibiae with two parallel ventral crests; tarsi with chitinous strengths; dorsally **pv''** Ts I well anterior, at the level of **a**; **p1'**, **p1''** Ts I at the same level; **d** Tb I slightly anterior to **1'**; Fe I, II with **d** long, **1'**, **1''** at distal end, **2 v'** one anterior one posterior ly set; **p1''** Ts II a little ahead of **pv'**; **omega** I Ts II larger than **omega** 2; **d** Tb II, III well anterior to **(I)**; **pv'** Ts III aligned with **ft'**, anterior to **pv''**; Fe III with **d**, **1'**, **v'** close together; **ft'** Ts IV absent; **(it)** Ts IV present; **pv'** Ts IV in front of **pv''**, Fe IV with **d** posterior to **v'**. Leg chaetotaxy: Ts. 19(2) - 16(2) - 15 - 14; Tb. 4(1) - 5(1) - 4(1) - 4(1); Ge. 4(1) - 4(1) - 3(1) - 3; Fe. 5 - 5 - 3 - 2; Tr. 1 - 1 - 2 - 1.

Discussion - *Lopholiodes* (gr *lophus* + *liodes*) means "liodes" with crests, referring to the femoral and tibial crests. The genus is masculine in gender.

Lopholiodes micropunctinatum, sp. n.

(Figure 01)

Types - Female holotype N^o 1879, collected by Prof. Adiel Zamith, at Anhumas, SP, Brazil, from tropical forest litter at the bankside of Tiete River, on March 1979; 34 paratypes with the same data. Depository: Departamento de Zoologia, E.S.A. "Luiz de Queiroz"; Piracicaba, S.P., Brazil.

Diagnosis - *L. micropunctinatum* is close to *L. macropunctinatum* sp. n, from which it differs mainly by the following characteristics: notogastral microtubercles anastomosed, forming hexagonal shaped reticula around cuticular cavities; reticula also present on notogastral margins; anastomosed reticulum on prodorsum; genitoanal region showing hexagonal reticulum; notogastral cuticular cavities small, set apart one from the other; with no cuticular anterior depression on notogaster; **apo le**

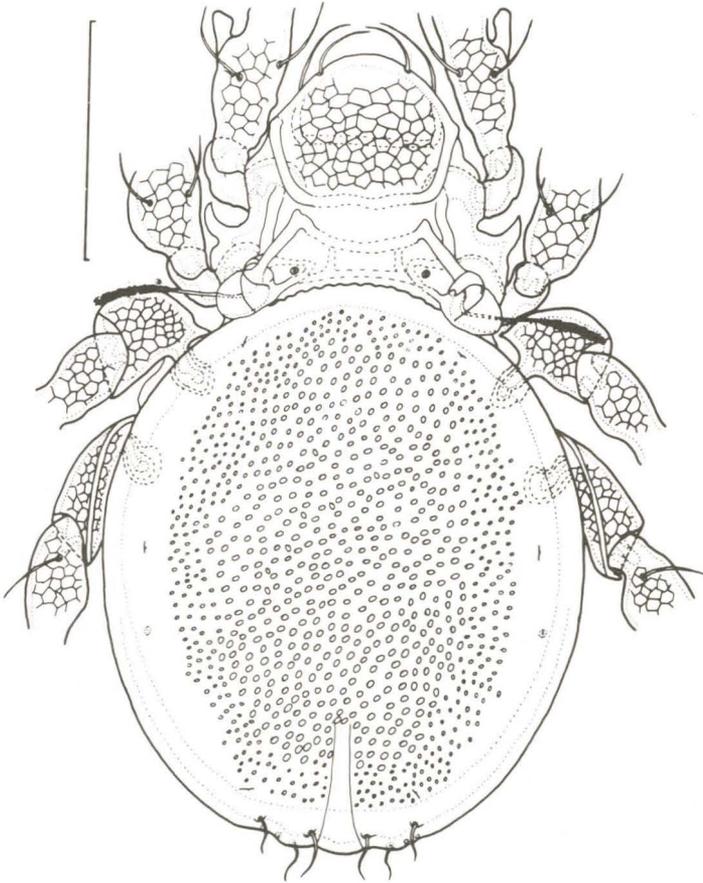


Figure 01 - *Lopholiodes micropunctinatum*, sp. n. Female holotype, dorsal, Anhu-
mas, S.P. Brazil,
Scale = 200u.

present; **apo ro** weak; **apo in** reduced; **le** on **apo le**; notogaster rounded; **r2 (lp)** on small apophysis, slender, with no adherent cerotegument; **hl** slender, setaceous; **ps3** anterior to **lp**; smaller species. **Apo II**, **apo sj**, anterior projections not united to **apo I**, **apo II** respectively; **apo III** without projections; anal plate inner margins broad; paradanal apodeme absent; tactile leg setae with short branches.

Description - Integument - Cuticle of clarified specimens covered by abundant cerotegument, formed by isolated microtubercles. Notogaster microtubercles anastomosed, forming hexagonal shaped reticulum around cuticle cavities; cerotegumental reticulum of irregular shape present on the margins of notogaster. Prodorsum microtubercles also anastomosed, with hexagonal reticulum, extended to the border of notogaster. Femora with hexagonal reticula; all other leg segments with only abundant and irregular cerotegument high in size; leg setae with adherent cerotegument. Ventral cerotegument velvety on infracapitulum and epimeral region, and reticulate on anal region. Notogaster cuticle foveate, with small rounded foveae set apart one from the other, not reaching notogastral margin; central foveae larger than the others. Notogaster with an elongated posterior furrow, the **hl** setae set close to it. Exuviae absent from adult body. **Prodorsum** - **Apo Ie** a well sclerotized bar joint to **apo ro**; **apo ro** reduced, with well sclerotized extensions pointed backward and to the homologous part, forming two distinct bars laterally, weakly united at sternal portion; **apo c** chitinous, forming a straight bar which ends by a mammillate salience, almost reaching the base of **apo ro** extension; at proximal end **apo c** joins bothridium and at median portion it joins weakly the homologous part; **apo ex** in the shape of a well sclerotized longitudinal bar, bearing the **ex** setae, pointing anteriorly to **apo ro** base; **apo in** reduced; **apo bo** a narrow bar linking bothridia. **le** anterior to **ro**, away from it, set on a small apophysis of **apo le**, being smooth, with no adherent cerotegument, bent to the sagittal plane, tip touching the homologous seta; **ro** lateral, smooth bent and long; **ex** slender, short, smooth, on **apo ex**, below bothridium; **in** short, lanceolate, up turned, on strong tubercle; bothridium dorsal, oblique, learned against notogaster, forming a double coiled compartment opened laterally; distance between bothridia 132.1u (M), 142.8u (F); **ss** club shaped, of median size, pointed to the side and backward, forming a small pilose head distally; **ss** length 128.9u (M), 135.6u (F). Prodorsum length 142.5u (M), 192.5u (F). **Notogaster** - Dorsum flat, rounded. Notogastral tectum between lines **bng** and **lambda**. Five pairs of median size lyrifissures; **ia**, **ip** oblique, close to notogastral margin; **im** parallel to the margin, away from it; **ih**, **ips** smaller than the dorsal ones. Latero-abdominal gland aperture at half distance between **im**, **ip**. Five pairs of notogastral setae; **r2 (lp)** dorsal, close to **ip**, on small apophysis, slender, setaceous, pointed back and downward; **hl** subterminal, on small apophysis at the rim of the posterior furrow, also pointed back and downward and close to its homologous seta; **ps1**, **ps2**, **ps3** ventral; **ps1** at a higher level than the others, being the longest, a little further apart from the homologous seta than **hl**; **ps3** close to **ps2** anterior to **r2** alveolus. Notogaster length 453.7u (M), 481.2u (F); width 358.7u (M), 426.2u (F). **Epimeral region** - Gena **a**, **m** long, smooth, slender; **m** larger than **a**, bent to the sagittal plane; labio-genal apodeme narrow, weak; mentum **h** long, slender, bent to the sagittal plane; mentotectum not too wide. **Apo I** complete, quite developed at coxal region, forming a well sclerotized bar linking the homologous parts; **apo II** incomplet, appering like trapezoidal blades away from the sagittal plane, joint to the homologous part by a broad, weak transversal belt having two extensions, one anterior one posterior, which do not reach **apo I** and **apo sj** respectively; **apo sj** incomplete, well developed and well sclerotized at coxal portion, presenting a transversal apodemetic belt on epimeral region, with an anterior extension not joint to **apo II**, and an "X" shaped strong posterior extension united to **apo IV** apodemetic projection; **apo III** reduced to a blade without any apodemetic extension; **apo IV** reduced at coxal portion, forming a well sclerotized apodemetic bond, of undulated margins, resembling a hat over genitalia. Epimeral chaetotaxy 3 : 1 : 3 : 3; epimeral setae short, almost of the same si-

ze. **Genitoanal region** - Genital and anal apertures contiguous, completely joint at the contact area. Genital aperture square; anal aperture pyriform. Genitalia anterior margin at the level of coxae IV. Genitalia length 107.1u (M), 117.8u (F); width 92.8u (M), 103.5u (F). Anal aperture length 142.8u (M), 149.9u (F); width 107.1u (M), 135.6u (F). Genital plate inner and outer margins narrow; anal plate inner margin broad, well sclerotized, outer margin narrow; **apo ag**, **apo ad** well developed; paradanal apodeme absent. No ornaments seen either on genitalia nor on anal plate. Genitoanal chaetotaxy 7 - 1 - 3 - 3; genital setae on just one longitudinal row, almost equidistant except for **g1** - **g2** which are at a greater distance one from the other; **g7** well at anterior margin; anal setae also on a sole longitudinal row; **ag** seta lateral to genitalia, close to its posterior margin; **ad** setae not on tubercles; **ad3**, **ad2** at a height equivalent to the anterior third and to half of anal plate respectively; **ad1** latero-posterior to anal aperture. **Lateral features** - Tectopodia absent (tutorium, pedotecta I, II and discidium). Pedotectal tooth **p** present, double, much alike a true pedotectum when seen from above, being not auriculiform however. Lateral carenae present. Sejugal apophysis absent. Tegument and cotyloid of acetabula I, II forming no pointed structure. Acetabulum I anterior tegument with two rounded elevations on each side. **Legs** - Ts - Tb, Tb - Ge, Ge - Fe articulations with proximal sockets, i.e., sockets on proximal ends of tarsi, tibiae and genua. Femoral and trochanteral traqueae present. Dorso-distal apophysis with enclosed famuli on Ts I, II. Trochanter and Fe - Tr articulation of all legs outside acetabula. Femur proximal orientation almost straight after articulation with trochanter. Tarsi pedicel narrow, of median size, as large as one third the length of the segment. Three claws, the medial one being the strongest. Femora of all legs with ventral quitinous prominent crests at distal portion, which do not project over genua; laterally the crests resemble a median size blade, originated on ventro-lateral surface of femora, being smaller than the length of these segments. Tibiae, mainly those of legs I, II, with two parallel crests extended from proximal to distal margins of the segments; laterally they appear like two well sclerotized saliences on ventral surface of tibiae. Tarsi with dorsal chitinous strengths, forming two longitudinal well sclerotized bars. Tactiles setae of legs secondarily branched with short bristles. Ts I proral seta as an eupathidium. **Ts I - ft''** dorsal, a little behind **omega**; **ft''** dorso-lateral, close to **ft''** and **(a)**; **pv''** ventro-lateral, well anterior, close to **(a)**; **pl''**, **pl'** at the same height; **v''A** slightly anterior to **v''A**, both posterior to **pv''**; **omega** I paraxial, larger than **omega** 2, both set or dorsal anti-axial apophysis of tarsus, a little behind the larger salience which encloses the famulus; Ts length 117.8u (M), 128.5u (F). **Tb I - l'' (d)** a little anterior to **l'**; **v'**, **v''** at the same transversal plane, posteriorly set; tibial apophysis short, broad, covering proximal end of tarsus only being dorsal and anti-axial; **fi** long, anti-axial; **fi2** short, paraxial; Tb length 92.8u (M), 100u (F). **Ge I - l'**, **l'' v'** on proximal half, almost at the same transversal plane; **d** dorsal, very close to **sigma**; **sigma** slender, setaceous; Ge length 53.6u (M, F); **Fe I - l'**, **l''** on distal end, at the same transversal plane; plus two **v** anti-axial. Fe length 153.5u (M), 160.6u (F); **Tr I** - one sole seta; Tr length 53.6u (M,F); **Ts II - ft''** anterior to **ft'**, away from it; **pl'** absent; **pl''** a little ahead of **pv'**; **pv''** posterior to **pv'** close to it; **omega** 1, **omega** 2 close together; **omega** I paraxial, larger than **omega** 2; Ts length 100u (M), 110.6u (F); **Tb II - d** dorsal, well anterior to **(l)**; **(v)** posteriorly set, well behind **(l)**; **l'**, **l''** at the same transversal plane; **fi** close to **d**, anti-axial, long, on small salience at distal portion of the segment; Tb length 85.7u (M,F); **Ge II - d** long, anti-axial; **v'** present; **l'**, **l''** at the same transversal plane; **sigma** setaceous, short, anti-axial, close to **d**; Ge length 53.7u (M), 57.1u (F); **Fe II - d** long, strong; **l'**, **l''** at distal portion, aligned one with the other; two **v** anti-axial, one anterior, one posterior; Fe length 139.2u (M), 142.8u (F). **Tr II** - one **v** seta; Tr length 53.6u (M,F); **Ts III - ft'** present, posterior and away from **ft''**; **pl'**, **pl''** absent; **pv'** aligned with **ft'**, anterior to **pv''**; solenidia absent; Ts length 103.5u (M), 121.4u (F); **Tb III - d** anti-axial, anterior to **l'**, at distal portion; **v'**, **v''** at the same transversal level on half the segment; **fi** anti-axial, long, close to **d**; Tb length 89.5u (M), 100u (F); **Ge III - d** anti-axial; **l'**, **v'** close together; **sigma** small,

antiaxial, close to **d**; Ge length 42.8u (M), 46.4u (F); **Fe III - d** well developed; one **V'** proximal, one **I'** distal; Fe length 110.7u (M), 117.8u (F); **Tr III** - two setae, one **I'** one **v**; Tr length 96.4u (M,F); **Ts IV - ft'** absent; (**it**) present; **pl', pl''** absent; **pv'** ahead of **pv''**; solenidia absent; Ts length 107.7u (M), 110.7u (F); **Tb IV** - as in Tb III; Tb length 117.8u (M,F); **Ge IV** - as in Ge III; solenidia absent; Ge length 42.8u (M), 45.4u (F); **Fe IV - d** long, **v'** anterior to **d**; Fe length 124.9u (M,F); **Tr IV** - one seta, ventral; Tr length 121.4u (M), 124.9u (F). Leg chaetotaxy - Ts. 19(2) - 16(2) - 15 - 14; Tb. 4(2) - 5(1) - 4 (1) - 4(1); Ge. 4(1) - 4(1) - 3(1) - 3; Fe. 5 - 5 - 3 - 2; Tr. 1 - 1 - 2 - 1.

Geographical distribution and habitat - Anhumas, S. P, Brazil, from tropical forest litter.

Lopholiodes macropunctinatum sp. n.

(Figure 02)

Types - Male holotype N^o 2 - III - 78 - 4, collected by Prof. Donald E. Johnson at Piracicaba, SP., Brazil, from tropical rain forest litter, at the bankside of Piracicamirim Creek, E.S.A. "Luiz de Queiroz", on March 1978; 10 paratypes with the same data as above. Depository: Departamento de Zoologia, E.S.A. "Luiz de Queiroz", Piracicaba, S.P., Brazil.

Diagnosis - *L. macropunctinatum* is close to *L. micropunctinatum* Paschoal, from which it differs mainly by the following features: notogastral microtubercles isolated at central portion, occurring inside cuticular cavities, and anastomosed close to notogaster margins; reticulum absent from notogaster margins; prodorsal microtubercles predominately isolated; without hexagonal reticulum on genitoanal region; notogastral cuticular cavities large, very close one to the other; with an anterior cuticular depression on notogaster; **apo le** absent; **apo ro** strong; **apo in** "J" shaped; **le** not on apodeme; notogaster ovate; **r2 (lp)** not on apophysis, thick, with adherent cerotegument; **hl, ps** strong, lanceolate; **ps3** posterior to **r2**; larger species; **apo II, apo sj** anterior expansions joint to **apo I, apo II** respectively; **apo III** with extension; genital and anal plates inner margins narrow; paradanal apodeme present; leg setae long branched.

Description - Due to the great similarity of this species with *L. micropunctinatum*, only the diagnostic characters will be described. For all other characters, presented in sequence, the reader is referred to the previous description of *L. micropunctinatum*.

Integument - Notogastral microtubercles minute at reticulate central portion, occurring inside cuticular cavities, and large and anastomosed on lateral and posterior non reticulate notogaster. Microtubercles rounded, as high as their width at the bases. Prodorsal microtubercles large, predominately isolated, higher than their width at the base, forming hexagonal reticula; close to the apex and margins of rostrum the cerotegument mass is compact and high. After being clarified most of the cerotegument disappears. Genitoanal region forming no hexagonal reticulum. Notogastral cuticle foveate, with large rounded cavities close one to the other, not reaching notogastral margins; the cerotegumental mass forms hexagonal reticula on the rims of foveae. No cavities of this kind on prodorsum, ventral body and legs. Notogaster with a shallow depression on median anterior portion and a deep furrow posteriorly. **Prodorsum** - **Apo le** absent; **apo ro** strong, behind **ro**, originated on acetabulum I, forming a well sclerotized arc across prodorsum; **apo in** weakly sclerotized, forming a "J" shaped bar linked to **apo c. le** dorsal, on small apophysis close to lateral border, smooth, tip touching its homologous seta; distance between bothridia 121.4u (M), 135.2u (F); **ss** length 124.9u (M), 139.2u (F). Prodorsum len-

gth 150.7u (M), 178.7u (F). **Notogaster** - Notogaster ovate. **r2 (lp)** dorsal, close to **ip**, not on tubercle, falciform, covered by a thick mass of cerotegument; **hl** subterminal, not on tubercle, stronger than **r2 (lp)**, lanceolate, with short and strong spines, curved back and downward; **psl**, **ps2**, **ps3** ventral, similar in shape to **hl**; **ps3** close to **ps2**, posterior to **r2**. Notogaster length 453.7u (M), 522.5u (F); width 357.5u (M), 412.5u (F). **Epimeral region** - **Apo II** with an anterior and a posterior projection linked to equal extensions from **apo I** and **apo sj** respectively; **apo sj** also with an anterior and a posterior projection linked to equal processes from **apo II** and **apo III** respectively; **apo III** reduced, as a small sclerotized blade extended to the distal margin of genitalia, delimiting **ep III** furrow. **Genitoanal region** - Genitalia length 114.2u (M), 124.9u (F); width 96.4u (M), 103.5u (F); anal aperture length 142.8u (M), 153.5u (F); width 110.7u (M), 114.2u (F). Genital and anal plates inner margins narrow, well sclerotized; paradanal apodeme strong, oblique at holovertral plate. **Lateral characters** - As in the type species. **Legs** - Tactile setae secondary branches long. Segment lengths: **Tarsi** 114.2u (M), 132.9u (F); 103.5u (M), 128.5u (F); 107.1u (M), 117.8u (F); 114.2u (M), 142.8u (F); **Tibiae** - 99.9u (M), 105.2u (F); 82.1u (M), 89.3u (F); 92.8u (M), 107u (F); 114.2u (M), 117.8u (F); **Genua** - 50u (M), 57.1u (F); 50u (u), 57u (F); 46.4u (M), 53.6u (F); 42.8u (M), 50u (F); **Femora** - 150.1u (M), 178.5u (F); 146.4u (M), 150.8u (F); 103.5u (M), 117u (F); 132u (M,F).

Geographical distribution and habitat - Piracicaba, SP., Brazil, from tropical rain forest litter.

GENUS *Octoliodes* gen. n.

Type species: *Pedrocortesia luteomarginata* Hammer, 1966.

Diagnosis - *Octoliodes* is close to *Pheroliodes* Grandjean, from which it differs mainly by the following characteristics: reduced cerotegument with rare microtubercles on notogaster and with no microtubercles on the other parts; **apo ro** poorly sclerotized; **apo bo** absent; **le** dorso-lateral; sensillum ending by a pilose non claviform small head; **ps2**, **ps3** close together, away from **psl**; **ps3** anterior to the level of **r2 (lp)**; **hl** on strong terminal tubercle, close to its homologous seta; **r2 (lp)** lateral, on tubercle at notogastral margin; median size mites from 750u to 850u; square genital aperture; genital and anal plates foveate or reticulate; paragenital and paradanal apodemes present; tarsi (**tc**), (**it**), (**u**) setae on apophyses; free famulus on Ts I; three claws, the median one stronger than the slender lateral; **ft'** Ts I away from **ft''**; **omega 1**, **omega 2** almost of the same size, **pv'** Ts III between **ft'**, **pv''**

Description - Body and legs covered by a thin layer of cerotegument presenting no microtubercles but on notogaster. Foveate or reticulate cuticle on notogaster, prodorsum and ventral region; genitoanal region with longitudinal, oblique and transversal cuticular thickenings. Exuviae absent from adult body. **Apo le** absent; **apo ro** with a median nervure and lateral loops with mammillate saliences; **apo c** with mammillate protuberances facing equal structure from **apo ro**; **apo ex** with a short bar linked to **apo c**; **apo in** as an arc; **apo bo** absent **le** dorso-lateral, anterior and away from **ro**, on strong tubercle; **in** setiform, short; bothridium dorso-lateral, close to notogastral margin; **ss** reclinate, at an obtuse angle, ending by a pilose non claviform head. **psl** at a lower level than **hl**, within the alveoli of these setae; **ps3**, **ps2** close together, away from **psl**; **ps3** anterior to the level of **r2 (lp)**; **hl** not very close to its homologous seta, on strong tubercle at distal notogastral margin, bent to the sagittal plane; **r2 (lp)** lateral, on small tubercle at notogastral margin, at a short distance from **ip**, bent to the sagittal plane. Dorsal lyrifissures large. Notogaster ovate. Median size mites, ranging from 750 to 850u. Genital aperture square; genital and anal openings contiguous, partially joint, the contours still visible at the contact area; genitalia proximal margin at the level of coxae IV; genital plate reticulate; anal

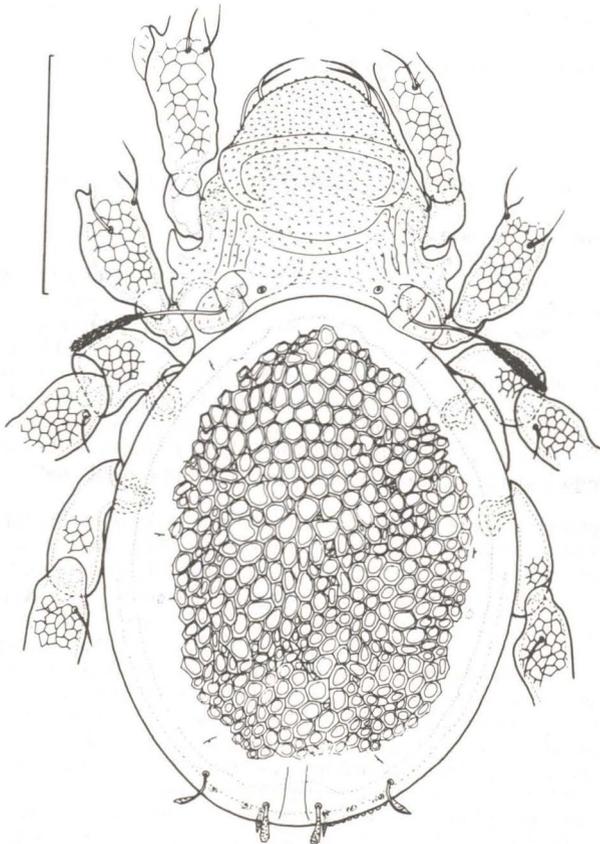


Figure 02 - *Lopholiodes macropunctinatum*, sp. n. Male holotype, dorsal, Piracicaba, S.P., Brazil. Scale = 200u.

plate with **apo an**; paragenital and paradanal apodemes present besides **apo ag** and **apo ad**. Genitoanal chaetotaxy 7 - 1 - 3 - 3; genital setae on a sole longitudinal row, close to genitalia inner margin, being almost equidistant, except for **gl** - **g2**; **ag** seta lateral, close to posterior outer margin of genitalia; **ad** seta on paradanal apodeme; **adl** latero-posterior to anal aperture. Famulus free on Ts I, being setiform; tarsi pedicels short, narrow; three claws, the laterals quite slender, the medial one being the strongest; tarsi setae, mainly (**tc**), (**it**), (**u**), on apophyses; **ft'** Ts I away from **ft''**; **pv''** Ts I on normal position, at the level of **s**; **pl''** Ts I almost at the level of **pl'**; **d** Tb I at the same plane as **l'**, **v'**, **v''**; Fe I, II with **d** long, antiaxial, **l'**, **l''** distal, at the same height as **d**, and two **v''**, one medial, one distal; **pl''** Ts II aligned with **pv''**; **pv''** Ts II anterior to **pv'**; **omega** 1, **omega** 2 Ts II almost equal in size; **d** Tb II, III at distal end, well at the articulation with tarsi; **pv'** Ts III between **pv''**, **ft'**; Fe III with **d**, **l'** distal and **v'** proximal; **ft'**, (**it**) absent on Ts IV; **pv'** Ts IV slightly ahead of **pv''**; Fe IV with **d**, **v'** medial. Leg chaetotaxy: Ts. 19(2) - 16(2) - 15 - 12; Tb. 4(2) - 5(1) - 4(1) - 4(1); Ge. 4(1) - 3(1) - 3; Fe. 5 - 5 - 3 - 2; Tr. 1 - 1 - 2 - 1.

Octoliodes luteomarginatus (Hammer), n. comb.

Pedrocortesia luteomarginata Hammer, 1966: 46, fig. 58

Types - Female lectotype n^o 272, collected by Marie Hammer from humid mosses on dead branches, in a forest in Milford, New Zealand, no date provided. Type material preserved in alcohol; 3 paralectotypes, same as above. Depository: Zoologisk Museum, Copenhagen, Denmark.

Diagnosis - **O. luteomarginatus** is very close to **Octoliodes rotoruensis** (Hammer, 1966) n. comb., from which it differs mainly by the following features: Notogaster cuticle foveate, forming no reticulum; genital plate with wide, regular foveae, forming a distinct reticulum; **ss** ending by a slightly expanded head, with long, slender spines; notogastral setae with adherent cerotegument; apo **sj** with weak apodemal bond.

Description - **Integument** - Cuticle slightly granular, covered by a thin layer of cerotegument, with very short microtubercles covering cuticular cavities of notogaster and the spaces among them as well. No microtubercles on prodorsum, ventral body or legs; cerotegument reduced on these areas. Notogaster cuticle foveate, with no reticulum; foveae large, regular, close one to other on central portion, and of lesser diameter and irregular laterally and posteriorly. On anterior prodorsum foveae are semicircular, large, forming a distinct reticulum, no foveae on medial and distal portions of prodorsum. Laterally on metapodosome, the cuticle presents no foveae, being smooth. Ventrally on epimeral region the cuticle is foveate, forming a distinct reticulum on mentum, with small circular foveae, and a irregular reticulum of large, semicircular foveae on the region between epimere I - IV. Genitoanal region foveate on genital plate, with large elongated foveae forming a reticulum on medial portion; foveae of lateral margins large, set apart one from the other, forming a weak reticulum. Genitoanal region with cuticular thickenings forming apodemata, in the shape of oblique, transversal and longitudinal bars. Anal plate without foveae and with a large longitudinal cuticular thickening on each half of the plate. Exuviae apparently absent from adult body. **Prodorsum** - Apo **le** absent; apo **ro** as a single nervure across tectum and a small lateral backturned loop ended by a mammillate salience; apo **c** a well sclerotized bar originated laterally on the base of pedotectal tooth **p**, also ended by a mammillate salience which face equal formation of apo **ro**; a concave transversal bar links the homologous parts of apo **c**; apo **bo** a short bar originated on bothridium, joint anteriorly to apo **c**; apo **in** a convex transversal bar linking the **in**

setae, being joint, by two longitudinal extensions, to the concave transversal bar of **apo c**; **apo bo** absent. **le** anterior, away from **ro**, dorso-lateral, on strong tubercle close to the border, being smooth, with no adherent cerotegument, bent to the sagittal plane, not reaching prodorsum apex; **ro** lateral, on small tubercle, smooth, with no adherent cerotegument; **ex** short, lateral, ahead and below bothridium; **in** slender, setiform, short, up turned, on strong tubercle. Bothridium dorso-lateral, oblique, salient, close to notogaster, the opening turned outward and backward; distance between bothridia 142u (M); **ss** of median size, oblique, turned backward, emerging from bothridium as a straight rod which bends in obtuse angle to the rear and to side, forming a poorly expanded head with short spines, being not club shaped; **ss** length 124u (M). Prodorsum length 247.5u (M), width 275u (M). **Notogaster** - Dorsum flat, ovate, dark brown. Notogastral tectum between **bng** and **lambda**. Five pairs of large lyrifissures; **ia** almost longitudinal; **im** transversal; **ip** oblique; lateral lyrifissures shorter than the dorsal ones. Latero-abdominal gland opening between **im**, **ip**. Five pairs of notogastral setae with adherent cerotegument. **r2 (lp)** on small tubercle, smooth, short, bent to the sagittal plane, at notogastral margin, close to **ip**; **hl** on strong tubercle at distal notogaster, not too close to its homologous seta, being smooth, short, not crossing the homologous seta; **ps** ventral, at the same level, bent ventrally, on small apophyses; **psl** at a lower level than **hl** closer to its homologous seta than to **hl**; **ps3** close to **ps2**, anterior to the level of **r2**. Notogaster length 509u (M). width 395u (M); length/width 1.27. **Epimeral region** - Gena **a**, **m** smooth, short; labio-genal apodeme well sclerotized, broad; **h** short; mentotectum not too broad. **Apo I** complete, well developed near acetabulum I; a curved bar of parallel borders links the homologous parts; **apo II** incomplete, as large lateral trapezoidal blades, with no transversal bar linking the homologous parts; **apo sj** incomplete, well sclerotized on coxal region, presenting a weak apodemetic bond between homologous parts, with a posterior extension linking it to **apo IV**, and a short anterior extension not reaching **apo II**; **apo III** reduced to a small sclerotized blade and a short bar pointed to genitalia distal margin; **apo IV** weakly sclerotized on coxal region forming a blade extended to genitalia, mixing up with cuticular thickenings, which form an irregular bar over genitalia. Epimeral chaetotaxy 3: 1: 3: 3; epimeral setae short, smooth, on small apophyses. **Genitoanal region** - Genital and anal plates contiguous, partially joint, the contours still visible at the contact area. Genital aperture square. Anal aperture pyriform, the proximal margin at the level of coxae IV. Genitalia length 124u (M), width 124u (M); anal plate length 199.4u (M), width 151.2u (M). Genitalia inner margin weakly sclerotized; genitalia outer margins and anal outer and inner margins well sclerotized. **Apo ag**, **apo ad** present, in the shape of longitudinal bars close to the plates; **apo pag**, **apo pad** also present, being oblique to the plates; presence of a transversal apodeme setting apart **apo ad**, **apo pad** from **apo ag**, **apo pag**. Genital plate reticulatè; anal plate with **apo an** as a well developed longitudinal bar. Genitoanal chaetotaxy 7 - 1 - 3 - 3; genital setae on a sole longitudinal row, almost equidistant except for **gl** - **g2**; **g7** well at proximal margin of genitalia; anal setae also on a sole longitudinal row; **ag** lateral; close to posterior outer margin of genitalia; **ad** not on tubercle, in the same oblique line on **apo pad**; **ad3** at a level equivalent to the anterior third of anal plate, being the farthest from the sagittal plane; **ad2** at a height equivalent to the posterior third; **adl** latero-posterior to the anal plate. **Lateral features** - Tectopodia absent. Presence of a pedotectal tooth **p** resembling a true pedotectum when seen from above, being not auriculiform however. Lateral carenae present on proterosoma. Sejugal apophysis absent. Acetabula I, II tegument and cotyloid forming a blunt structure. **Legs** - Ts-Tb, Tb-Ge, Ge-Fe articulations on proximal sockets, i.e. sockets on proximal ends of tarsi, tibiae and genua. Femoral and trochanteral traqueae present. Ts. I. dorsal apophysis with a free setiform famulus, as long as **omega** I. Tr and Fe-Tr articulation of all legs outside acetabula. Femora proximal orientation after trochanter articulations almost straight. Tarsi pedicels narrow, short. Three claws, the medial one strong, the laterals slender. Legs without foveae and ornaments. Tarsal setae on apophysis,

mainly (**tc**), (**it**), (**u**). Ts I proral seta is an eupathidium **Ts I - ft''** dorsal, behind and close to solenidia; **ft'** lateral, away from **ft''**; **pv'** posterior to **pv''**; **pl''** lateral, at the same height as **pl'**; **v'A** anterior to **v'A**, at the level of **pv'**; **omega** 1, 2 on dorsal apophysis just behind another apophysis, of larger size, bearing the setiform famulus, which is as big as **omega** I. Tarsus length 128.5u (M). **Tb I - l' (d)** at the same level as **l', v', v''**; tibial apophysis short, projecting over proximal end of tarsus only, being dorsal, antiaxial; **fi** 1 long, antiaxial; **fi** 2 short, paraxial; Tb. length 175u (M). **Ge I - l', l'', v', d** on proximal half of the segment; **d** antiaxial; **sigma** slender, setiform, small, very close to **d**; Ge length 86u (M). **Fe I - d** long, antiaxial, almost at the level of **l', l''**; two **v** antiaxial, one medial, one proximal; Fe length 196.4u (M); **Tr I** - one sole seta present; Tr. length 71.4u (M) **Ts II - ft''** anterior to **ft'**, away from it; **pl'** absent; **pl''** aligned with **pv''**; **pv''** anterior to **pv'**; **omega** 1 paraxial, as long as **omega** 2; **Ts** length 118u (M). **Tb II - d** antiaxial, at distal end very close to tarsus; (**v**), (**l**) at the same level; **fi** 1 close to **d**, antiaxial, long, on small apophysis at distal end of the segment; Tb length 125u (M). **Ge II - d** long, antiaxial; **l', l''** at the same transversal plane; **v'** present; **sigma** setiform, short, antiaxial, close to **d**; Ge length 71.4u (M). **Fe II - d** long, distal, almost at the level of **l', l''**; two **v** setae antiaxial, one medial one proximal; Fe length 150u (M). **Tr II** - one sole seta, ventral; Tr. length 53.8u (M). **Ts III - ft'** present, posterior and away from **ft''**; **pl', pl''** absent; **pv'** between **ft', pv''**; solenidia absent; Tb length 128.5u (M). **Tb III - d** antiaxial, at distal end; **v', v''** at the same level; **l'** anterior, closest to (**v**); **fi** antiaxial, long, close to **d**; Tb length 146.4u (M). **Ge III - d** antiaxial; **l', v'** not very close one to the other; **sigma** small, antiaxial, close to **d**; Ge length 64.3u. **Fe III - d** well developed; **v'** proximal, **l** distal; Fe length 157.9u (M) **Tr III** - two setae, **l', v**; Tr. length 100u. **Ts IV - ft', (it)** absent; **pl', pl''** absent; **pv'** ahead of **pv''**; solenidia absent; **Ts** length 153.5u (M). **Tb IV - d** antiaxial distal, close to **fi**; **v''** posterior to **v'**; **l'** posterior to (**v**), at half of the segment; Tb. length 174.9u (M). **Ge IV** - as in Ge III; solenidium absent; Ge length 71.4u (M). **Fe IV - d** long; **v'** medial; Fe length 178.5u (M) **Tr IV** - one sole seta, ventral; Tr. length 114.4u (M). Leg chaetotaxy - **Ts**. 19(2) - 16(2) - 15 - 12; **Tb**. 4(2) - 5(1) - 4(1) - 4(1); **Ge**. 4(1) - 4(1) - 3(1) - 3; **Fe** 5 - 5 - 3 - 2; **Tr** 1 - 1 - 2 - 1.

Geographical distribution and habitat - Milford, New Zealand, from humid mosses in a forest.

Discussion - In the original description of *P. luteomarginatus* by Hammer (1966), no holotype was designated among the 4 specimens (syntypes). In 1979, an alcohol preserved specimen labeled "type" by Hammer was sent on loan, by Dr. H. Enghoff, from the Zoologisk Museum, in Copenhagen, Denmark. The specimen was temporary slide mounted and used for redescribing the species and featuring the new genus, being designated lectotype; all the other 3 specimens are, then, paralectotypes.

Octoliodes rotoruensis (Hammer) n. comb.

Pedrocortesia rotoruensis Hammer, 1966: 45, fig. 57.

Types - Female holotype N^o 27, collected by Stagaard in Rotorua, New Zealand, in a thermal area, with no collecting data provided. Type preserved in alcohol. Depository: Zoologisk Museum, Copenhagen, Denmark.

Diagnosis - *O. rotoruensis* is very close to *O. luteomarginatus* (Hammer, 1966) from which it differs mainly by the following features: Notogastral foveae forming distinct reticulum; genital plate with narrow irregular foveae, elongated longitudinally, forming an obscure reticulum; **ss** slender, filiform, of median size, with very short spines on distal end; prodorsum length 247u (F), width 316u (M); noto-

gastral setae with no adherent cerotegument; notogaster length 605u (F), width 481.3u (F), **apo sj** with strong apodematic bond in the shape of a well sclerotized narrow bar linking the homologous parts.

Description- Besides measurements and the diagnostic features presented above no other difference was found so to justify the redescription of this species.

Geographical distribution and habitat - Rotorua, New Zealand, from unknown substrate, in a thermal area.

Discussion - *P. rotoruensis* was described by Hammer (1966) on the basis of a sole specimen (holotype). This material was also borrowed from the Zoologisk Museum being used in the redescription of the species in comparison with the type species, i. e., *O. luteomarginatus*.

Genus *Licnoliodes* Grandjean

Licnoliodes Grandjean, 1931: 234; 1933: 319; 1954: 434; Balogh, 1961: 268; 1965: 24; 1972: 58; Grandjean, 1965: 103; Pérez-Iñigo, 1969: 271; Mahunka, 1977: 908; Paschoal 1975: 6; 1979: 198; 1984a, 1984b; Paschoal & Johnston 1982: 440.

Licnoliodes was proposed by Grandjean (1931) for **Licnoliodes andrei**, a new species described by him from Algeria and Spain. The new genus was referred to be very close to **Licnodamaeus** Grandjean, differing by presenting laminar expansions on the legs. **Licnoliodes** was first placed in Eremaeidae (Baker & Wharton, 1952) and later on in Licnodamaeidae (Grandjean, 1954), and then in Plateremaeidae (Grandjean, 1965) and in Gymnodamaeidae (Balogh, 1972). Paschoal (1975) and Paschoal & Johnston (1982) removed **Licnoliodes** from Gymnodamaeidae transferring it provisionally to Plateremaeidae. Later on, in 1979, 1984a, in reviewing the Plateremaeidae, Paschoal suggested its removal from this family and its inclusion in the new family Pherolioididae. In 1984b, Paschoal presented a key for Pherolioididae in which **Licnoliodes** was compared with the three other genera. For a complete literature survey on Gymnodamaeidae and on Plateremaeidae you are referred to Paschoal 1975, Paschoal & Johnston 1982 and Paschoal 1979, 1984a respectively. For the general characteristics of Pherolioididae see Paschoal 1984b.

Diagnosis - **Licnoliodes** is close to **Pheroliodes** Grandjean differing from it mainly by the following characteristics: Prodorsal apodermata generally absent, except for the very short **apo in**, which carry the **in** seta; **le** dorso-lateral; bothridium small and cone-shaped; **ss** flat, in the shape of a well expanded leaf; **hl** marginal or submarginal, away from its homologous seta, pointed upward and forward to the direction of the sagittal plane; **r2 (lp)** marginal or submarginal also pointed forward, being anterior to **ip**; **psl** between the **hl** alveoli; genital and anal apertures contiguous, not joint; genitalia almost circular, with six pairs of genital setae on arch on the plate; **ag** not too close to the posterior outer margin of genitalia; **adl** posterior to the anal aperture; femora with large crests; tarsi with chitinous thickenings; tibial apophysis of median size.

Description - Body and legs covered by a thin layer of granular cerotegument, the microtubercles forming polygonal reticula. Notogastral, prodorsal, genitoanal (plates inclusive), epimeral and leg cuticle intensively reticulate with regular polygons. Exuviae loosely held by adults. **Apo le, apo ro, apo c, apo ex, apo bo** absent or weakly sclerotized; **apo in** short, bearing **in. le** dorso-lateral, proximal, away and at a higher level than **ro**; **in** reduced; bothridium dorso-lateral, small, cone like,

opened to the rear and to the outside, leaned against notogaster; **ss** expanded, leaf shaped, flat, short, up turned, without nervures, covered by extremely short spines. **ps1** at a lower level than **hl**, between the alveoli of these setae; **ps2**, **ps3** ventral, lower than **ps1**; **ps3** at the level or slightly posterior to **r2 (lp)**; **hl** set apart from its homologous seta, being sub-terminal, very close to notogastral margin, bent upward and forward pointing to the sagittal plane, set on small apophysis, covered by cerotegument; **r2 (lp)** sub-terminal or terminal, close to notogastral margin, anterior and close to **ip**, also bent up ward and forward, on small apophysis, covered by cerotegument. Dorsal lyrifissures of median size. Notogaster ovate. Small species, ranging from 300u to 500u. Genital opening almost circular, the proximal margin curved in arch; genital and anal apertures contiguous without being joint together; genitalia proximal margin posterior to the level of coxae IV; both apertures reticulate; **apo ad**, **apo pad** absent. Genitoanal chaetotaxy 6 - 1 - 3 - 3; genital setae in arch on genital plate; **ag** lateral, not too close to posterior outer margin of genitalia; **ad3**, **ad2** almost equidistant from the sagittal plane; **ad1** posterior to the anal plate. Ts I famulus enclosed; tarsi pedicels short, narrow; three claws, the medial one strongest; femora with three well sclerotized and salient crests; tarsi with chitinous thickenings, well developed on legs III, IV; tibial apophysis of median size.

Discussion - The genus characteristics presented above are based on the descriptions and figures of **Licnoliodes andrei** Grandjean, 1931, **Licnoliodes adminensis** Grandjean, 1933 and **Licnoliodes apunctatus** Mahunka, 1977. Leg chaetotaxy details were not provided simply because they were not included in the original descriptions.

Licnoliodes andrei Grandjean

Licnoliodes andrei Grandjean, 1931: 234

Geographical distribution and habitat - Belmez, La Carolina, Spain, in humus; Bainen, Algeria also in humus (Grandjean, 1931).

Discussion - **L. andrei** was originally described from specimens collected in Algeria (type locality). Although the species was also referred by Grandjean to occur in Spain, it was not cited by Perez-Iñigo (1969) who took it for **Licnoliodes adminensis** Grandjean, a related species also found in Spain.

Licnoliodes adminensis Grandjean

Licnoliodes adminensis Grandjean, 1933: 319, fig. 6,7; Pérez-Iñigo, 1969: 271, fig. 29-31

Geographical distribution and habitat - Admine, Sous, Taza, Maroc, from forest litter; Bainen, Algeria from litter (Grandjean, 1933); Aranjuez, Madrid, Spain (Pérez-Iñigo, 1969).

Discussion - Species very close to **L. andrei**, described from Admine Forest, Sous, Maroc, which, according to Pérez-Iñigo, is the only species in the genus occurring in Spain.

Licnoliodes apunctatus Mahunka

Licnoliodes apunctatus Mahunka, 1977: 908, fig. 1-4.

Geographical distribution and habitat - Leukas and Zante Islands, Greece, from a non referred substratum (Mahunka, 1977).

Discussion - Species described with no major details, being referred to the genus **Licnoliodes**.

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