REVISTA BRASILEIRA DE ZOOLOGIA

Revista brasileira de Zoologia, S. Paulo 3 (6): 385 – 395

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

Adilson D. Paschoal

RESUMO. A Família Pedrocortesellidae, fam. n., inclui os seguintes gêneros e espécies: ***Pedrocortesella*** *Hammer, com as espécie : **pulchra** Hammer (Peru) e **gymnonota** Hammer (Nova Zelândia) que são redescritas;* ***Pedrocortesella africana*** *Pletzen (África do Sul),* ***P. parva*** *Pletzen (África do Sul), e* ***P. hardyi*** *Balogh (Nova Guiné) são consi eradas* ***incertae sedis;*** *e* ***Hexachaetoniella****, gen. n., com as espécies* ***sexpilosa*** *(Hammer), n. comb., a espécie-tipo, e* ***japonica*** *(Aoki & Suzuki), n. comb. (Japão).*

*ABSTRACT. The family Pedrocortesellidae, fam. n., includes the following genera and specie : **Pedrocortesella** Hammer, with the species:* ***puchra*** *Hammer (Peru) and* ***gymnonota*** *Hammer (New Zealand), which are redescribed;* ***Pedrocortesella africana*** *Pletzen (South Africa),* ***P. parva*** *Pletzen (South Africa) and* ***P. hardyi*** *Balogh (New Guinea) are considered* ***incertae sedis****: and Hexachaetoniella, gen. n., with the species* ***sexpilosa*** *(Hammer), n. comb., the type-species, and* ***japonica*** *(Aoki & Suzuki), n. comb. (Japan).*

CONTENTS

Family Pedrocortesellidae, fam. n.

Type-genus: **Pedrocortesella** Hammer, 1961: 38

Characteristics - Eupheredermes, i.e., nymphs retain exuviae of preceding instars; adults without exuviae or with exuviae loosely held on body. Tracheal system sub-normal, i.e., trachea I missing. Pycnonotics, i.e., without areae porosae on notogaster. Body and legs covered by a thin layer of cerotegument, with or without

Departamento de Zoologia, Escola Superior de Agricultura Luiz de Queiroz, Universidade de São Paulo, Piracicaba, SP.

reticula forming microtubercles; notogastral, prodorsal and ventral cuticle foveate or reticulate. **Apo le, apo bo** present or absent; all other apodemata generally present, poorly developed medianly; **apo in** platelike. Prodorsum with a median furrow. **le** lateral to dorsal, anterior to **ro; ro** ventral; **ex** lateral, below and ahead of bothridium; **in** short, spiny; bothridium dorso-lateral, oblique, opened laterally, with a wide ventral salience, turned backward; **ss** pilose, slightly expanded distally forming a small club or no club at all. Centro-dorsal setae absent on notogaster, with five or six pairs of notogastral setae; **psl** ventral, almost at the same level of **hl,** slightly anterior to it; **ps2, ps3** dorso-lateral to dorsal, at notogastral margin or away from it, both anterior to **r2; hl** terminal, close to notogastral margin, or dorsal, away from the margin and from the homologous seta; **r2 (lp)** latero-ventral or sub-dorsal; **r3 (lm)** present or absent. Dorsal lyrifissures of median size. Notogaster flat, ovate, the posterior margin invaginate. With notogastral tectum between **bng, lambda** lines. Small to median size species, around 500u. **Apo** I complete, with no long bar bent backward; other apodemata incomplete, without strong apodematic bonds; epimeral chaetotaxy 3 : 1 : 3 : 3; epimeral setae of equal size. Genital and anal apertures parcially fused, the contours still visible at the contact area, plates foveate or reticulate; genitalia almost square; anal opening pyriform; seven pairs of genital setae on a sole longitudinal row or arranged in a semicircle; **g1 - g2** further apart than the other setae which are almost equidistant; **ag** lateral to genitalia; two pairs of anal setae on a sole longitudinal row; three pairs of adanal setae. Tectopedia absent; pedotectal tooth **p** present; lateral carenae present; acetabula I, II cotyloid and integument forming an obtuse structure. Leg articulations on proximal sockets, i.e., sockets on proximal end of tarsi, tibiae and genua; femoral and trochanteral tracheae present; tarsi I, II distal apophyses present; tibia I apophysis long to median, covering proximal end of tarsus; Tr and Fe - Tr articulations outside acetabula; femora proximal orientation after articulation with trochantera almost straight; tarsi pedicels short, narrow; with three small claws, the medial one strong, the laterals slender; Ts I famulus enclosed; **ft"** Ts I at the same level or anterior to **ft'; pv"** Ts I anterior to **pv'; pl", pl'** Ts I at the same level; **v"A** Ts I anterior to **v'A; omega** 1 Ts I paraxial, larger than **omega** 2; **d** Tb I at the same level of **l'; fil** Tb I long, antiaxial, **fi2** short, paraxial; **sigma** Ge I setiform, very close to **d;** Fe I, II with **d, l', l"** distal, plus two **v"; ft"** Ts II, III anterior and away from **ft'; pl'** Ts II, III, IV absent; **pv"** Ts II very close and posterior to **pv'; omega** 1 close to **omega** 2 on Ts II; **fi** Tb II away from **d; sigma** Ge II, III setiform, short, close to **d; pl'** Ts III, IV absent; **fi** Tb III close to **d**; Fe III with **d** long, **l'** distal, **v'** proximal; **ft"** Ts IV at half the segment; **ft', (it)** absent on Ts IV. Leg chaetotaxy: Ts. 19(2) - 16(2) - 15 - 12; Tb. 4(2) - 5(1) - 4(1) - 4(1); Ge. 4(1) - 4(1) or 3(1) - 3(1) or 2(1) - 3 or 2; Fe. 5 - 5 - 3 - 2; Tr. 1 - 1 - 2 - 1.

Key to the genera of Pedrocortesellidae

1 - **le** dorsal; **r3** absent; **r2** close to **ip; hl** away from notogastral margin; **ps2, ps3** dorsal, away from the margin; genital setae arranged in a semicircle; **(tc), (it)** not on apophyses . . . . . **Pedrocortesella.**

\- **le** lateral; **r3** present; **r2** away from **ip; hl** at notogastral margin; **ps2, ps3** dorso-lateral, well at notogastral margin; genital setae close to inner margin, arranged in a longitudinal row; **(tc), (it)**on apophyses . . . **Hexachaetoniella.**

Genus Pedrocortesella Hammer

Pedrocortesella Hammer, 1961:38; Balogh, 1961:268, 24: 1968:262; 1970:58; Pletzen, 1963:438; Hammer, 1966:47; Aoki & Suzuki, 1970:117; Paschoal, 1975:36; 1979:282.

Type species: Pedrocortesella pulchra Hammer, 1961.

Diagnosis - Pedrocortesella is close to **Hexachaetoniella** Paschoal from which it differs mainly by the following characteristics: **apo le, apo bo** present; **le** dorsal; **ss** clavate, **r3 (lm)** absent; **r2(lp)** sub-dorsal, close to **ip; hl** dorsal, away from the margin; **ps2, ps3** dorsal, away from the margin; genital setae arranged in a semicircle; **ag** at a height equivalent to half the genital plate; **p** serrulate; tarsi pedicel shorter; **(tc), (it)** not on apophyses; **ft"** Ts I anterior to **ft'; d** Tb II anterior to **(l); v'** Ge II, III, IV present.

Description - Body and legs of clarified specimens covered by cerotegument with small microtubercles. Notogastral, prodorsal, ventral cuticle reticulate or foveate. Legs not foveate, with reticula forming cerotegument. Exuviae held loosely by adults. **Apo le** present; **apo bo, apo c,** present or absent; prodorsum with a deep median furrow at tooth **p** area; **le** dorsal; **in** not on strong tubercle; bothridium leaned against notogaster, with a long, pointed, ventral salience directed obliquely to the rear; **ss** of median size, reclinate, slightly expanded distally, forming or not a small club covered by short spines. **psl** at a lower level than **hl,** slightly anterior to it; **ps2, ps3** dorsal, well anterior to **r2(lp); hl**, long, dorsal, away from notogastral margin and from the homologous seta; **r2(lp)** almost at the same plane as **ip,** close to it; **r3 (lm)** absent. Lyrifissures of median size. Notogaster ovate. Median size mites, ranging from 500u to 600u. Epimeral apodemata without apodematic bonds generally, except **apo** I; epimeral chaetotaxy 3 : 1 : 3 : 3. Genital and anal openings contiguous, parcially fused, the contours still visible at the contact area; plates reticulate or foveate; **apo ag, apo ad** absent. Genitoanal chaetotaxy 7 - 1 - 2 - 3; genital setae forming a semicircle on genital plate; **g1, g2, g3** further away from each other than the other setae; **ag** lateral to genitalia, at a height equivalent to half or to the distal third of genitalia; **adl** posterior to anal plate; **ad3** furthest from the sagital plane. Pedotectal tooth **p** with dentate borders. Ts I famulus enclosed; Tb I distal apophysis long, forming a transparent collar circulating **fi** bases; tarsi pedicels narrow, short, about one fourth the length of the segment; with three small claws, the medial one strong, the laterals slender; **ft'** Ts I close to **ft"; d** Tb II well ahead of **(l),** at distal end; **v'** Ge II, III present; other chaetotaxic features as for the family. 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.

Pedrocortesella pulchra Hammer

Pedrocortesella pulchra Hammer, 1961: 38, fig. 30.

Types - Female lectotype nº 711, collected by Marie Hammer in Sillustani, near Puno, Peru, from dry moss on a slope; four paralelotypes (one dissected), same as above. Depository: Zoologisk Museum, Copenhagen, Denmark.

Diagnosis - P. pulchra is close to **P. gymnonota** Hammer, 1966, from which it differs mainly by the following features: microtubercles abundant; cuticle reticulate on body and legs; **apo bo, apo c** present; **ss** clavate; prodorsal furrow deep; notogastral distal margin slightly invaginate; notogastral setae long; **r2** subdorsal; a little larger species; apo **III, IV** without apodematic bonds; genital and anal apertures further apart; **d** Tb II a little ahead of **(l),** away from **fi; l'** Ge I, II not on strong tubercle; **v'** Fe III proximal.

Description - Integument - Cuticle of clarified specimens covered by a thin layer of cerotegument, formed by isolated microtubercles; notogastral and prodorsal microtubercles rounded, as high as wide at the base, mostly lateral; some microtu-

bercles inside reticulate cavities; epimeral and genitoanal microtubercles large, abundant. Notogastral, prodorsal and genitoanal cuticle forming hexagonal, large, well sclerotized reticula; notogastral reticulum with large central cavities and small lateral cavities; rostral reticulum well developed on rostrum between **apo ro** and the rostral loop; genitoanal reticulum large, the microtubercles margin reticular cavities; epimeral and infracapitulum reticula irregular; leg reticula polygonal formed by cerotegument. Exuviae adeherent to adult body, easily detached during slide mounting. **Prodorsum - Apo le** present, as an oblique bar bearing **le; apo ro** a well sclerotized bar laterally, with a back turned extention forming a loop; **apo c** a weakly sclerotized bar of undulated contours; **apo ex** a well sclerotized bar originated on bothridium, pointed anteriorly to **apo ro** loop; **apo in** a irregular plate linked to **apo c; apo bo** a strong bar linking bothridia. With a deep furrow at tooth **p** area, between legs I, II. **le** anterior to **ro,** dorsal, not on apophysis, bent to the sagital plane; **ro** lateral, posterior to **le**, bent to the sagital plane; **ex** short, lateral, ahead and below bothridium on **apo ex; in** thick, spiny, short, up turned, not on strong tubercle; bothridium dorso-lateral, oblique, salient, leaned against notogaster, opened laterally, with a long pointed salience directed obliquely backward; distance between bothridia 82.1u(M), 96.4u(F); **ss** of median size, reclinate, forming a median size club covered by short spines; **ss** length 96.4u(M), 100u(F). Prodorsum length 151.2u(M), 161.2u(F), width 165u(M), 170u(F). **Notogaster** - Dorsum flat, notogaster ovate, long. With notogastral tectum between lines **bng, lambda**. Five pairs of median size lyrifissures, **ia** parallel, **im** perpendicular, **ip** oblique to the sagital plane; **ih, ips** a little smaller than the dorsals'. Notogaster posterior margin shallowly invaginated. Latero-abdominal gland opening posterior to **im**. With five pairs of long notogastral setae; **r2(lp)** not on tubercle, subdorsal, close to **ip,** slightly inferior to **hl** plane, bent laterally to the sagital plane; **hl** away from its homologous seta, dorsal, bent downward and to the side; **psl** at a lower plane than **hl,** long , bent down and backward; **ps2, ps3** well anterior to **r2**, being dorsal, away from notogastral margin, bent backward and to the side. Notogaster length 385u(M), 426.2u(F), width 275u(M), 309.4u(F); length/width 1.40(M), 1.38(F). **Epimeral region - a, m** short, smooth; labio genal apodeme well sclerotized; **h** slender; mentotectum narrow. **Apo I** complete, well developed close to acetabulum I, forming a curved bar linked to the homologous part; **apo** II incomplete, as large trapezoidal blades, with no apodematic bond between homologous parts; **apo sj** incomplete, well sclerotized on coxal region, with no apodematic bond on epimeral region; **apo** III reduced to small blades, also without apodematic bonds; **apo** IV poorly developed, as a very short blade, with no apodematic bond on epimeral region. Epimeral chaetotaxy 3 : 1 : 3 : 3; epimeral setae short, on small apophyses. **Genitoanal region** - Genital and anal openings close together, parcially fused, the contours still visible at the contact area: genitalia almost square; anal aperture pyriform; genitalia proximal margin at the level coxae IV. Genitalia length 82.1u(M), 92.8u(F); width 67.8u(M), 75u(F); anal aperture length 124.9u(M), 139.2u(F); width 89.2u(M), 103.5u(F). Genitalia inner margin weakly sclerotized; anal plate inner and outer margins, and genitalia outer margins well sclerotized, **apo ag, apo ad** of irregular contours; anal and genital plates reticulate. Genitoanal chaetotaxy 7 - 1 - 2 - 3; genital setae arranged in semi-circle on genital plate; **g1,g7** closet to the sagital plane; **g3, g4** furthest to this plane; genital setae not equidistant, the closest being **g6 - g7,** and the furthest **g1 - g2**; anal setae on a sole longitudinal row, each seta in an invagination of the plate inner margin; **ag** lateral, at a height equivalent to half of the genital plate; **ad3** furthest from the anal plate; **ad2** at a height equivalent to the third of the anal plate; **adl** posterior to the plate **Lateral features** - Tectopedia absent; pedotectal tooth **p** of serrulate borders, resembling a true pedotectum when seen from above, being not auriculiform however. Lateral carenae present. Acetabula I, II integument 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, genua. Femoral and trochanteral tracheae present. Dorso-distal apophyses with enclosed famuli on Ts I, II; Tb I distal apo-

physis long, forming a transparent collar circling **fi** bases. Tr and Fe - Tr articulation of all legs outside acetabula. Femora proximal orientation after articulation with trochantera almost straight. Tarsi pedicels short, narrow, about one fourth the segments. With three small claws, the medial one much larger then slender laterals. Ts **(v), (pr), (it), (tc)** with long branches; other setae with short spines. Ts, Tb, Ge solenidia inside the transparent collars. **Ts. I - ft"** dorsal slightly behind **omega; ft'** close to **ft"**, a little behind it and **(a),** being dorso-lateral; **pv'** posterior to **pv"; pv"** behind **s; pl"** lateral, at the level of **pl'; v"A** anterior to **v'A,** both posterior to **v'; omega** 1 paraxial, larger than **omega** 2; solenidia on dorsal, antiaxial apophysis a little behind another salience bearing the enclosed famulus; Ts length 78.5u(M) (F). **Tb.I - l", l'** at the same level; **v', v"** at the same transversal plane; tibial apophysis of median size, covering proximal end of tarsus only, being dorsal, antiaxial; **fil** long, antiaxial; **fi2** short, paraxial; Tb length 75u(M), 78.5u(F). **Ge. I - l', l", v'** at proximal half, almost at the same transversal plane; **d** antiaxial, short, at proximal end; **sigma** slender, setiform, small, very close to **d**; Ge length 39.3u(M), 42.8u(F). **Fe. I - d** long, antiaxial; **l', l"** at distal end, anterior to **d;** one **v'**; Fe length 107.1u(M), 110.7u(F). **Tr.I** - one seta; Tr length 35.7u(M), 36.7u(F). **Ts. II - ft"** anterior to **ft',** away from it; **pl'** absent; **pl"** ahead of **(pv); pv"** posterior to **pv',** very close to it; **omega** 1 close to **omega** 2, paraxial, larger than it; Ts length 71.4u(M, F). **Tb. II - d** antiaxial, ahead of **(l); (v)** ahead of **(l),** at the same level as **d; l', l"** at the same transversal plane; **fi** away from **d,** antiaxial, short, on a small apophysis at distal end, Tb length 42.8u(M), 46.4u(F) **Ge. II - d** median, antiaxial; **l', l"** at the same level; **v'** present; **sigma** setiform, short, antiaxial, close to **d;** Ge length 35.7u (M, F). **Fe. II - d** long; **l', l"** distal; two **v",** one medial, one proximal; Fe length 78.5u(M), 82,1u(F). **Tr. II** - one sole seta, ventral; Tr length 32.1u(M), 35.7u(F) **Ts. III - ft'** present, lateral, away from **ft"; pl', pl"** absent; Ts length 75u(M), 78.5u(F). **Tb. III - d** antiaxial, anterior to **l',** at distal end; **v', v"** at the same level; **fi** antiaxial, short, close to **d;** Tb length 60 7u(M), 71 4u(F). **Ge III - d** antiaxial; **v', l'** close together, **sigma** short, antiaxial, close to **d;** Ge length 35.7u(M, F) **Fe III - d** well developed; **v'** proximal, **l'** distal; Fe length 67.8u (M, F) **Tr. III - l', v'**; Tr length 57.1u(M, F) **Ts. IV - ft', (it), pl', pl"** absent; **pv'** slightly anterior to **pv"**; solenidia absent; Ts length 88 5u(M), 89.2u(F) **Tb. IV** - as in Tb III; Tb length 75u(M), 78.5u(F). **Ge IV** - as in Ge III; solenidium absent; Ge length 39 3u(M, F) **Fe IV - d** long; **v'** median; Fe length 89 2u(M, F) **Tr. IV** - one sole seta, ventral; Tr length 67.8u(M, 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 - Sillustani, Peruvian Andes, in dry moss on a slope.

Discussion - In describing **P. pulchra,** Hammer (1961) did not designate the holotype among the five studied specimens. In 1979, three slides labeled **P. pulchra** by Hammer, were sent on loan from the Zoologisk Museum, Copenhagen, being used to redescribe the species and to characterize the genus. The female nº 711 (side mounted with a male) was designated lectotype, and the others paralectotypes. **P. pulchra** was only incompletely described by Hammer, which caused many unrelated species to be impropely included it the genus, even species described by her. **Pedrocortesella** was firstly placed in Gymnodamaeidae. For a complete revision see Paschoal (1975, 1979, 1984) and Paschoal & Johnston (1982).

Pedrocortesella gymnonota Hammer

Arthrodamaeus gymnonotus Ramsay, 1962:5 (unpublished)
Pedrocortesella gymnonotus (Ramsay, 1962) Hammer, 1966:47, fig.59

Pedrocortesella gymnonota Hammer, 1966; Aoki & Suzuki, 1970:117.

Types - Female lectotype nº 272, collected by Hammer in Milford, New Zealand, from humid moss on dead branches; paralectotypes same as above. Depository: Zoologisk Museum, Copenhagen, Denmark.

Diagnosis - P. gymnonota is close to **P. pulchra** Hammer, from which it differs mainly by the following characteristics: microtubercles reduced, conferring a smooth aspect to cuticle; body cuticle foveate with large, rounded to ovate forming reticula foveae; each foveae with a small clear central point; leg cuticle smooth, covered by cerotegument which forms no reticulum; **apo c, apo bo** absent; **ss** slightly expanded distally forming no club; prodorsal furrow shallow; prodorsum length 165u(F); width 178.7u(F); notogastral distal margin deeply invaginated; notogastral setae short, **r2** subdorsal to dorsal; notogaster length 398.7u(F); width 288.7u(F); length/width 1.38(F); **apo** III with a weak apodematic bond; **apo IV** with apodematic bond in the shape of a tegumental fold, of irregular contour, extending from acetabulum IV to genitalia anterior margin; genital and anal apertures closer together; **ag** at a height equivalent to the posterior third of the genital plate; **d** Tb II well ahead of **(l)**, at distal end, very close to **fi; l'** Ge I, II on strong tubercle; Fe III with **l', v'** distal; Ts I, II with antero-dorsal salience around solenidia.

Description - As in **P. pulchra** except for the characteres presented in the diagnosis.

Geographical distribution and habitat - Milford, New Zealand, on humid moss on dead branches.

Discussion - P. gymnonota was firstly described in 1962 as **Arthrodamaeus gymnonotus**, in an unpublished doctoral dissertation by Ramsay. In 1966, Hammer published a paper in which she described and figured the species as **Pedrocortesella gymnonotus** (Ramsay). Aoki & Suzuki (1970), calling for the Rules of Nomenclature, proporly reported that the species should be named **Pedrocortesella gymnonota** Hammer, 1966 instead of **Pedrocortesella gymnonotus** (Ramsay, 1962). In describing **P. gymnonota,** Hammer did not designate the holotype among the three available specimens. In 1979 one of Hammer's exemplar of **P. gymnonota** was sent on loan from the Zoologisk Museum, Denmark being used in the present redescription; this specimen was designated lectotype. In placing **P. gymnonota** in **Pedrocortesella,** Hammer wrongly commented that it presented certain features which did not match the type species from Peru: the posterior pair of hysterosonal setae; a fold on the terminal hysterosome; the anal and genital joining openings etc. Actually no difference of this kind can be observed, which permits its inclusion with certainty in **Pedrocortesella**.

Species **Incertae sedis**

The following species were not examined on detail, and will be considered of "incertae sedis" till further studies.

Pedrocortesella africana Pletzen

Pedrocortesella africana Pletzen, 1963:439, fig. 1

Geographical distribution and habitat - Rustenburg, Bloemfontein, Willen Pretorius Game Reserve, Fouriesburg and Dordrecht, Republic of South Africa, from litter.

Discussion - The presence of two pairs of anal setae; short tarsi pedicels; the medial claw stronger than the lateral; a ventral appendix on bothridium; **le** well anterior to **ro,** are **Pedrocortesella** features. However, the notogastral setae are arranged as in **Hexachaetoniella** Paschoal, differing by having only five pairs as pointed out by Pletzen.

Pedrocortesella parva Pletzen

Pedrocortesella parva Pletzen, 1963: 440, fig. 2

Geographical distribution and habitat - Bloemfontein, Republic of South Africa, in decayed eucaliptus leaves.

Discussion - The presence of two pairs of anal setae; the arrangement of the genital setae; the deep prodorsal furrow at pedotectal tooth **p** region; the tarsi pedicel; and the **le** position are **Pedrocortesella** characteristics. The notogastral setae, however, are reduced and arranged in a different fashion resembling **Hexachaetoniella**; the bothridium is atypic; the dorsal lyrifissures are very long, and the central claw shorter than the laterals, which are alike **Hexachaetoniella.**

Pedrocortesella hardyi Balogh

Pedrocortesella hardyi Balogh, 1968: 262, fig. 9, 10

Geographical distribution and habitat - McAdam Park, Wau, New Guinea, on mosses grown on a forest soil.

Discussion - The species resembles **Pedrocortesella** by presenting two pairs of anal setae. The notogastral setae disposition (although with five pairs only) is similar to **Hexachaetoniella.**

Genus Hexachaetoniella gen. n.

Type species: Pedrocortesella sexpillosa Hammer, 1966

Diagnosis - **Hexachaetoniella** is close to **Pedrocortesella** Hammer, from which it differs mainly by the following characteristics: **apo le, apo bo** absent; **le** lateral; **ss** slightly expanded distally generally; **r3 (lm)** present; **r2 (lp)** lateral-ventral, away from **ip; hl** terminal, at notogastral margin; **ps2, ps3** dorso-lateral, well at notogastral margin; genital setae all close to genitalia inner margin, arranged on a sole longitudinal row; **ag** almost at genitalia distal margin; pedotectal tooth **p** smooth; tarsi pedicel a little longer; **(tc), (it)** on apophyses; **ft", ft'** at the same transversal level; **d** Tb II slightly behind **(l); v'** Ge II, III absent.

Description - Body and legs of clarified specimens covered by a thin layer of cerotegument without microtubercles generally, or with inexpressive microtubercles. Notogastral, prodorsal and ventral cuticle foveate or reticulate; legs with no foveae nor well defined cerotegumental reticulum. **Apo le, apo bo** absent; median prodorsal furrow shallow; **le** lateral; **in** on strong tubercle; bothridium away from notogaster, with a long ventral pointed salience, directed obliquely to the rear; **ss** short, covered by spinules distally, forming no club generally. **psl** at a lower level than **h1; ps2, ps3** dorso lateral, well at notogastral margin, anterior to **r2; hl** terminal, not too close to its homologous seta, at notogastral margin; r2 (lp) latero-ventral to dorso-lateral, away from **ip; r3 (lm)** between **im,** or below and close to it. Lyrifissures of median si-

ze. Notogaster ovate. Small size mites, around 550u. Epimeral apodemata without apodematic extensions (except **apo** I), **apo** IV as a hat over genitalia; epimeral chaetotaxy 3 : 1 : 3 : 3. Genital and anal apertures parcially fused, foveate; **apo ad,** apo ag present; **apo ad** as an arc over anal aperture; genitoanal chaetotaxy 7 - 1 - 2 - 3; genital setae on a sole longitudinal row; **g1, g2** further apart from each than the other genital setae; **ag** lateral, almost at genitalia distal margin; **ad3** the furthest from the sagital plane. Pedotectal tooth **p** smooth. Famulus enclosed in Ts I; Tb I distal apophysis of median size, forming no strong transparent collar at **fi** base; tarsi pedicels narrow, about one third the segment length; with three small claws, the medial one much longer than the slender laterals; **ft', ft"** Ts I at the same level; **d** Tb II slightly behind **(l); v'** Ge II, III absent; other chaetotaxic characters as for the family (Paschoal, 1984). Leg chaetotaxy: Ts.19(2) - 16(2) - 15 - 12; Tb.4(2) - 5(1) - 4(1) - 4(1); Ge. 4(1) - 3(1) - 2(1) - 2; Fe. 5 - 5 - 3 - 2; Tr.1 - 1 - 2 - 1.

Discussion - The name **Hexachaetoniella** refers to the notogastral six pairs of setae (gr. **hex** = six + gr. **khaite** = setae).

Hexachaetoniella sexpilosa (Hammer), n. comb.

Arthrodamaeus sexpilosus Ramsay, 1962: 5 (unpublished)

Pedrocortesella sexpilosus (Ramsay, 1962) Hammer, 1966: 48, fig. 60.

Pedrocortesella sexpilosa Hammer, 1966; Aoki & Suzuki, 1970:117.

Types - Male lectotype nº 172, collected by Marie Hammer in New Plymouth, New Zealand, from **Selaginella** grown on a tree trunk; one paralectotype collected in keri-keri, New Zealand, from a mixture of mosses and ferns, close to a creek. Depository: Zoologisk Museum, Copenhagen, Denmark.

Diagnosis - **H. sexpilosa** is close to **H. japonica** (Aoki & Suzuki, 1970) from which it differs mainly by the following features: absence of microtubercles on body and legs; foveae of notogastral cuticle semi-circular close to the lateral borders and distally; foveae of this kind also on rostrum, lateral hysterosome and genital and anal apertures; **ss** slightly expanded distally forming no club; grandular opening posterior to **im; r3 (lm)** lateral to **im**, being setiform; **r2 (lp)** latero-ventral; **ps2** posterior, close to **ip**.

Description - **Integument** - Cuticle of clarified specimens covered by a thin layer of cerotegument, without microtubercles on body and legs; unclarified specimens cerotegument abundant, forming irregular reticula. Notogastral, prodorsal and genitoanal cuticle foveate, the foveae rounded, not too close one to the other, forming reticula; notogaster central foveae large, rounded; lateral and posterior foveae minute, irregular, becoming large and semi-circular at notogastral margin; prodorsum foveae large, semi-circular on rostrum and small, irregular on apex and close to notogaster, being semi-circular laterally; genitoanal foveae large and circular; genital and anal plates foveae small, semi-circular; epimere and infracapitulum foveae small, irregular. Legs with no foveae, the cerotegument forming no well delimited reticula. Exuviae absent from adult body of clarified specimens. **Prodorsum** - **Apo le** absent; **apo ro** a well sclerotized lateral bar, with a backturned extension not linked to the homologous part; **apo c** small, forming a well sclerotized loop close to apo ro loop; **apo ex** a strong bar originated on bothridium, pointed anteriorly to **apo ro; apo in** shaped like an anvil on anterior prodorsum; **apo bo** absent. Median transversal furrow shallow between legs I, II, **le** anterior to **ro**, lateral, smooth, not on tubercle, bent to the sagital plane; **ro** lateral smooth, also bent to the sagital plane; **ex** short, lateral, ahead and below bothridium; **in** thick, spiny, up turned, short, on

strong tubercle; bothridium dorso-lateral, oblique, prominent, away from notogaster, the opening turned laterally, with a long ventral pointed salience turned obliquely to the rear; distance between bothridia 107u; **ss** short, reclinate, slightly expanded distally forming no club, deflected in obtuse angle after emerging from bothridium; **ss** length 82,5u(M). Prodorsum length 178.8u(M); width 213.2u(M). **Notogaster** - Dorsum flat; notogaster rounded. With notogastral tectum between **bng, lambda** lines. Five pairs of median size lyrifissures; **ia, ip** oblique, **im** perpendicular to the sagital plane; **ih, ips** smaler than the dorsals'. Notogastral posterior margin deeply invaginated. Latero-abdominal gland opening posterior and close to **im**. With six pairs of short notogastral setae; **r3(lm)** at the same transversal plane of **im**, close to it, being short, smooth, up turned, on small apophysis; **r2 (lp)** latero-ventral, slightly below the **hl** transversal plane and the notogastral margin, away from **ip**, bent to the sagital plane; **hl** terminal, not too close to the homologous seta, being short, bent to the sagital plane; **psl** at a lower level than **hl**, short, smooth, bent to the sagital plane, well at the margin of the integument invagination; **ps2, ps3** dorso-lateral, well at notogastral margin, anterior to **r2**, short, bent backward and to the side; **ps2** distal, close to **ip**. Notogastral length 412.5u(M). width 357.5u(M); length/width 1.2(M). **Epimeral region - a, m** normally developed; labio-genal apodeme broad. **Apo** I complete, well developed close to acetabulum I, forming a short bar linking the homologous parts; **apo** II incomplete, as large trapezoidal blades, with no bar linking the homologous parts; **apo sj** incomplete, well sclerotized on coxal region, forming no apodematic bond on epimeral region; sejugal furrow well delimited; **apo** III reduced to a small blade, with a weak apodematic link on epimeral region; **apo** IV poorly developed, with a narrow apodematic link extended from acetabulum IV to genitalia proximal margin, forming a small "hat" over genitalia. Epimeral formula 3 : 1 : 3 : 3 ; epimeral setae equally short, set on small apophysis. **Genitoanal region** - Genital and anal plates not too close, parcially fused, the contours well visible; genitalia almost square; anal aperture pyriform; genitalia proximal margin at the level of coxae IV; genitalia length 96.4u(M), width 92.8u(M); anal aperture length 142.8u(M), width 114.2u(M). Genitalia inner margin slightly sclerotized; anal plate inner margin and outer margins of both plates well sclerotized. **Apo ad, apo ag** present; **apo ad** linked to the homologous part forming an arc over anal plate. Genitoanal chaetotaxy 7 - 1 - 2 - 3; genital setae on a sole longitudinal row; **g1, g2** well apart; **gl** at distal end of the plate; **g2, g3** also distant one from the other; **g3, g7** close together; anal setae on a sole longitudinal row, each in an invagination of the anal plate inner margin; **ag** lateral, almost at the genital plate distal margin; **ad** setae well developed, on small apophyses; **ad2, ad1** close together, at genitalia latero-distal margin. **Lateral features** - Tectopedia absent. Pedotectal tooth **p** present, of smooth borders, resembling a true pedotectum when seen from above, being not auriculiform however. Lateral carenae present. Acetabula I, II integument and cotyloid forming a blunt structure. **Legs** Ts - Tb, Tb - Ge, Ge - Fe articulations on proximal sockets, i.e., sockets on tarsi, tibiae and genua proximal ends. Femoral and trochanteral tracheae present. Ts I, II dorso-distal apophyses with enclosed famuli. Tb I distal apophysis of median size, forming no transparent collar at **fi** bases. Tr and Fe - Tr articulation of all legs outside acetabula. Femora proximal orientation after Tr articulations straight. Tarsi pedicels narrow, about one third the length of the tarsi segments; with three small claws, the medial one much larger than the slender laterals; **(v), (pr), (it), (tc)** with long secondary branches; all other setae with short spines; **(tc), (it)** on apophyses. Ts, Tb, Ge solenidia normally set. **Ts.I - ft"** dorsal, slightly behind **omega; ft'** lateral, at the same transversal level of **ft',** (a); **pv'** posterior to **pv"; pv"** slightly behind **s; pl"** lateral, at the same height as **pl'; v"A** anterior to **v'A**, both posterior to **pv'; omega** 1 paraxial, larger than **omega** 2, both on a dorsal, antiaxial apophysis, just behind another one bearing the enclosed famulus; Ts length 71.2u (M). **Tb. I - 1"** (d), **1'** about the same level; **v", v'** at the same plane; Tb apophysis of median size, covering proximal end of tarsus only, being dorsal, antiaxial; Tb length 85.7u (M). **Ge. I - 1', 1", v'** at proximal half; **d** antiaxial, short, at the proximal half; **sigma**

slender, setiform, small, very close to **d;** Ge length 42.8u (M). **Fe. I - d** long, antiaxial, **1', 1"** at distal end, before **d;** with two **v"**; Fe length 96.4u (M). **Tr. I** one sole seta present; Tr length 46.4u (M). **Ts. II - ft"** anterior to **ft',** away from it; **ft'** latero-ventral at half of the segment; **p1'** absent; **p1"** present, posterior to **pv'; omega** 1 close to **omega** 2, paraxial, a little larger than it; Ts length 71.4u (M). **Tb. II - d** antiaxial, slightly behind **(1); (v), d** at the same level; **fi** away from **d**, antiaxial, short, on a distal apophysis; Tb length 71.4u (M). **Ge. II - d** median, antiaxial; **1', 1"** at the same transversal level; **sigma** setiform, short, antiaxial, close to **d;** Ge length 46.4u (M). **Fe II** - as in Fe I; Fe length 110.5u (M). **Tr. II** - one sole seta, ventral; Tr length 39.3u (M). **Ts. III - ft'** present, lateral, away from **ft"; p1', p1"** absent; **pv'** posterior to **pv",** solenidia absent; Ts length 78.5u (M). **Tb. III - d** antiaxial, anterior to **1',** at distal end; **v', v"** at the same level; **fi** antiaxial, short, close to **d;** Tb length 82.1u (M); **Ge. III - d** antiaxial; **1'** aligned with **d; sigma** short, antiaxial, close to **d**; Ge length 40u (M). **Fe. III - d** well developed; **v'** proximal, **1'** distal; Fe length 82.2u (M). **Tr. III - 1', v'** present; Tr length 78.5u (M). **Ts. IV - ft', (it), p1', p1",** solenidia absent; **pv'** a little ahead of **pv";** Ts length 82.3u (M). **Tb. IV** - as in Tb III; Tb length 75u (M). **Ge IV** - as in Ge III, solenidium absent; Ge length 39.3u (M). **Fe IV - d** long, **v'** medial; Fe length 75u (M). **Tr. IV** - one sole seta, ventral; Tr length 75u. Leg chaetotaxy: Ts.19(2) - 16(2) - 15 - 12; Tb. 4(2) - 5(1) - 4(1) - 4(1); Ge. 4(1) - 3(1) - 2(1) - 2; Fe. 5 - 5 - 3 - 2; Tr. 1 - 1 - 2 - 1.

Geographical distribution and habitat - New Plymouth and Keri-Keri, New Zealand, from **Selaginella** grown on a tree trunk, and from mosses and ferns.

Discussion - H. sexpilosa was firstly described as **Arthrodamaeus sexpilosus** Ramsay, 1962, in an unpublished dissertation. Hammer, in 1966, published the description and a figure of this species as **Pedrocortella sexpilosus** (Ramsay). In calling for the Rules of Nomenclature, Aoki & Suzuki (1970) properly stated that the species should be referred to as **Pedrocortesella sexpilosa** Hammer, 1966, and not **P. sexpillosa** (Ramsay). In describing **H. sexpilosa** Hammer did not designate the holotype between the two specimens she had at hand. In 1979, and alcohol preserved specimen labeled **P. sexpillosus** (Ramsay) by Hammer was sent on loan from the Zoologisk Museum in Copenhagen, being used in the redescription of the species and in the genus characterization, in comparison with **Pedrocortesella pulchra** and **Pedrocortesella gymnonota,** being designated lectotype.

Hexachaetoniella japonica (Aoki & Suzuki), n. comb.

Pedrocortesella japonica Aoki & Suzuki, 1970: 118, fig. 1-9.

Types - Holotype NSMT - Ac 21, collected in November 3, 1969, by K. Suzuki, in Shimogamo Spa, Izu Peninsula, Shizuoka, Central Japan; nine paratypes as above. Depository: National Science Museum, Tokio.

Diagnosis - H. japonica is close to **H. sexpilosa** by presenting cuticular foveae all over the body, except on legs; prodorsal apodemata poorly developed medianly; **apo bo** absent; prodorsal furrow shallow; **le** lateral, anterior to **ro**; bothridium dorso-lateral, oblique, with a long ventral pointed salience; notogaster ovate; six pairs of notogastral setae, **r3** present; **hl** not too close to its homologous seta; **ps2, ps3** anterior to **r2,** dorso-marginal; with a deep invagination at distal notogastral margin; **apo** II, **apo sj, apo** III without apodematic bonds; **apo** IV as a hat over genitalia; genital and anal plates not too close, parcially fused; **apo ag, apo ad** present; **apo ad** as an arc over anal plate; two pairs of anal setae; **ag** lateral, almost at genitalia distal margin; the genital setae arrangement and distance. It differs from **H. sexpilosa** mainly by the following features: with body and legs microtubercles; noto-

gastral foveae circular close to lateral borders and distally; circular foveae also on rostrum, on lateral hysterosome and on genital and anal plates; **ss** well expanded forming a club; grandular opening lateral to **im; r3** posterior to **im**, sword shaped; **r2** dorso-lateral; **ps2** anterior, away from **ip.**

Geographical distribution and habitat- Izu Peninsula, Central Japan, on unrecorded substrate.

Discussion - Aoki & Suzuki description of **H. japonica** lacks the major details; the drawings, hovewer, permit to complement the description easily. The similarities of this species with **H. sexpilosa,** pointed out in the diagnosis of **H. japonica**, are conclusively enough to include it in **Hexachaetoniella.**

REFERENCES

Aoki, J. & Suzuki, 1970. A new species of the genus **Pedrocortesella** from Japan (A-cari, Cryptostigmata). **Bull. nat. Sci. Mus. Tokyo 13**(2): 117-120.

Balogh, J., 1961. Identification keys of World oribatid (Acari) families and genera. **Acta. zool. Acad. Sci. Hung. 7**(3-4): 243-344.

Balogh, J., 1965. A synopsis of the World oribatid (Acari) genera. **Ibid. 11(1-2): 5-99.**

Balogh, J., 1968. New oribatids (Acari) from New Guinea. **Ibid. 14**(3-4): 259-285.

Balogh, J., 1970. New oribatids (Acari) from New Guinea. II. **Ibid. 16**: 291-344.

Hammer, M., 1961. Investigations on the oribatid fauna of the Andes Mountains. II. Peru **Biol. Skr. dansk vidensk. Selsk. 13**(1): 1-157.

Hammer, M., 1966. Investigations on the oribatid fauna of New Zealand. Part I. **Ibid. 15**(2): 5-108.

Paschoal, A. D., 1986. A revision of the Plateremaeidae (Acari, Oribatei). **Revta. bras. Zool. 3**(6):

Paschoal, A. D. & D. E. Johnston, 1982. A numerical taxonomic revision of the Gymnodamaeidae (Acari, Oribatei). **Revta. bras. Biol. 42**(2): 439-459