

TWO NEW SPECIES OF *PACHYSEIUS* BERLESE, 1910 FROM SPAIN
(ACARI, MESOSTIGMATA : PACHYLAELAPIDAE).

BY M. L. MORAZA *

TAXONOMIE SUMMARY : Two new pachylaelapid species, *Pachyseius iraola* and *Pachyseius morenoi*,
PACHYSEIUS are described from litter and soil of forests in Navarra, northern Spain. A diagnostic
SPAIN key is given for the known species of *Pachyseius* occurring in Europe.

TAXONOMIE RÉSUMÉ : Deux nouvelles espèces de pachylaelapides, *Pachyseius iraola* et *Pachyseius*
PACHYSEIUS *morenoi*, ont été trouvées dans la litière et le sol minéral des forêts de Navarra, au
ESPAGNE Nord de l'Espagne. Une clef est donnée pour les espèces de *Pachyseius* d'Europe.

INTRODUCTION

Among the mesostigmatic mites collected for soil ecological and taxonomic studies in Navarra, two unknown species of *Pachyseius* were found. This genus was proposed by BERLESE (1910) and until now was represented in Europe by the type species *Pachyseius humeralis* Berlese, 1910, *P. angustiventris* Willmann, 1935 and *P. angustus* Hyatt, 1956 (HYATT, 1956, KARG, 1971, KOROLEVA, 1977). The original description of the genus was completed by HYATT (1956) but since no males and immatures were found until now, a new description taking them into account is done. New information about this genus was given in a former paper (MORAZA & JOHNSTON, 1990). The aim of this paper is to give further details about dorsal and ventral chaetotaxy, poroidotaxy and adenotaxy. The nomenclature for the setae is based on LINDQUIST & EVANS (1965).

Pachyseius Berlese, 1910

Cheliceral digits bidentate. Male with spermatodactyl long, and projecting dorsally. Parholaspidid-

type tectum. Corniculi short, bladelike. Palp with tibio-tarsus slightly enlarged and palp claw three-tined. Dorsal shield with 30 pairs of setae : *j1-j6*, *z1*, *z2*, *z4-z6*, *s2*, *s4-s5*, *r2-r5*, *J1*, *J3-J5*, *Z1-Z5*, *S2-S4* ; setae *r6* and *R1-R5* on soft cuticle. Female with free peritrematal shields extending beyond coxa IV. Presternal shields present or absent. Sternal shield extends to level of middle of coxa III and is not fused to endopodal III ; *st4* and *iv3* on small metasternal shields. Endopodal not continuous with exopodal sclerites. Parapodal sclerites not abutting genital shield. Metapodal sclerites elongated, well developed. Genital shield rectangular, truncate, with *st5*. Ventrianal shield lying close to the genital shield with two or three pairs of opisthoventral setae. *Macrocheles*-type spermatheca opening on coxa IV. Male with sternigenital region separated from free ventrianal shield. Tarsus II with attenuate distal apophysis and *p11* and *p12* spur-like setae. Femur I with four ventral setae. Genu and tibia I 2-2/3 2/1-2. Genu II and IV with two *a1* setae. Deutonymph without lateral incisions in dorsal shield.

* Departamento de Zoología, Facultad de Ciencias, Universidad de Navarra, Pamplona 31080, Navarra, España

Pachyseius iraola n. sp.

FEMALE.

Idiosoma length 804.90 μm ; width 273.75 μm .

Gnathosoma. Chelicera (Fig. 7). Fixed digid with two small apical teeth and pilus dentilis well developed. Movable digit with two teeth. Dorsal seta short and arthrodistal coronet present.

Subcapitulum (Fig. 5). Corniculi short and laterally compressed. Hypostosomal seta 3 long; hypostosomal 1, 2 and subcapitular setae short. Deutosternum with five rows of denticles. Tectum (Fig. 2, 3).

Dorsum. Dorsal shield (Fig. 1) with a reticulate and punctate ornamentation. This shield with 30 pairs of slightly spatulated setae (except *il* and *z1*, which are simple and shorter): *j1-j6*, *z1*, *z2*, *z4-z6*, *s2*, *s4-s5*, *r2-r5*, *J1*, *J3-J5*, *Z1-Z5*, *S2-S4*. Setae *r6* and *R1-R7(R8)* on the soft cuticle. Podonotum with seven pairs of lyrifissures (*idj1*, *idj3*, *idj6*, *idz4*, *idz6*, *ids4* and *ids6*) and four pairs of glands (*gdj2*, *gdj4*, *gds4* and *gdz6*); opisthonotum with nine pairs of lyrifissures (*idJ1*, *idJ2*, *idJ3*, *idJ4*, *idJ5*, *idZ4*, *idS2*, *idS3*) and two pairs of glands (*gdZ1* and *gdZ4*).

Lateral region (Fig. 4). Peritrematal shields completely free from podal shields and fused with the dorsal shield anteriorly; this shield bears 3 pairs of lyrifissures and two pairs of glands. Peritrema normal, with two associated glands.

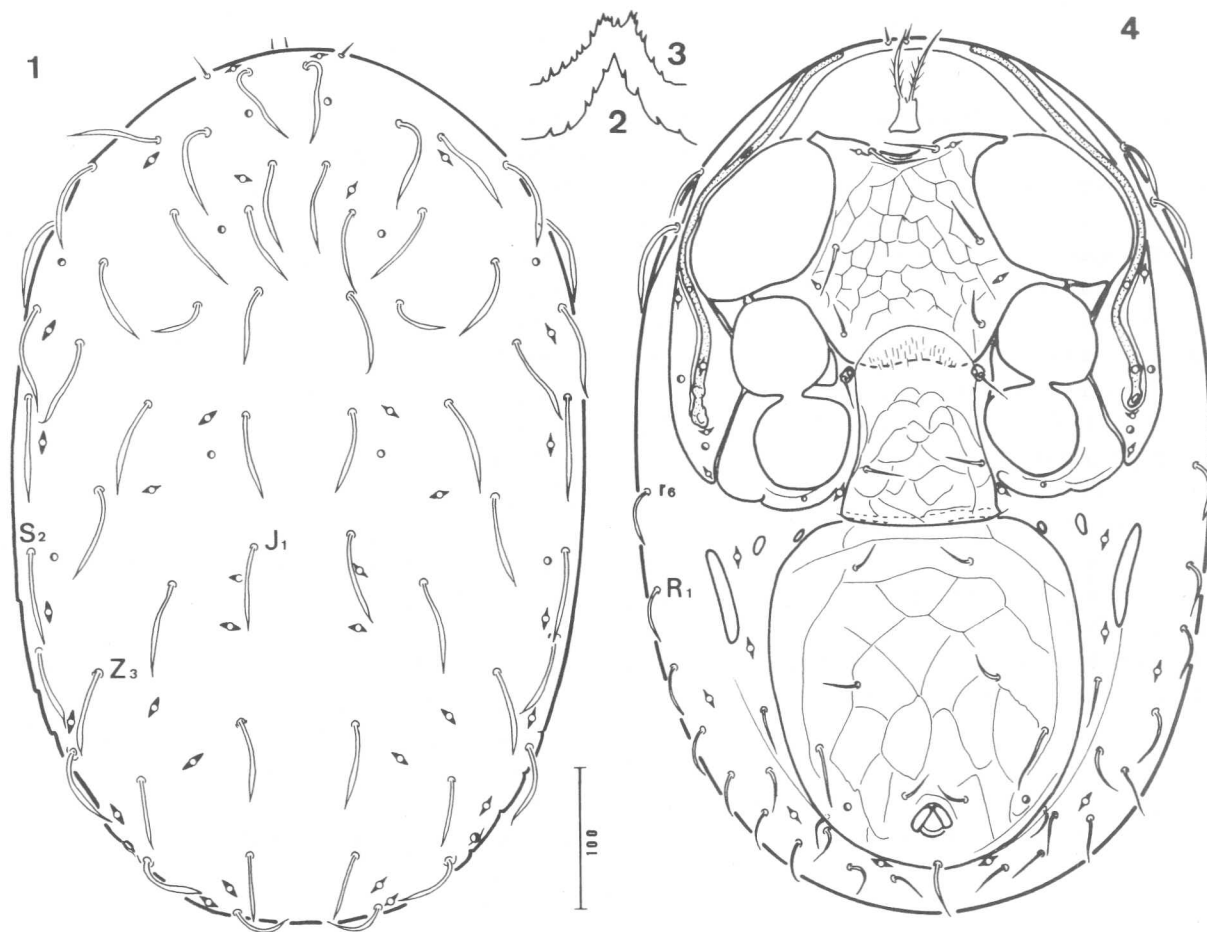


FIG. 1-4 : *Pachyseius iraola* n. sp., female.

1. — Idiosoma dorsal; 2, 3. — Tectum; 4. — Idiosoma ventral.

Venter (Fig. 4). Presternal shields absent. Sternal shield with reticulate punctation, concave anteriorly and fused to endopodal I and II; the posterior margin slightly concave. Sternal shield with three pairs of setae and two pairs of liryfissures (*iv1*, *iv2*). Setae *st4* and *iv3* on small metasternal shields. Endopodal sclerites III free.

Genital shield with anterior margin poorly sclerotized and covering the posterior margin of the sternal shield. This shield bears one pair of setae (*st5*). Liryfissures *iv5* on the soft cuticle.

Ventrianal shield touching the genital shield, large and bearing three pairs of simple preanal setae (*Jv3* the longest one) and *gv3*. Anal valves nude. Four

pairs of ventral setae and five pairs of liryfissures on the soft cuticle. Metapodal shields are elongated and well-developed. Two or three platelets between the ventrianal and metapodal shields.

Legs. Chaetotaxy as follows : coxa I-IV : 2-2-2-1 ; trochanter I-IV : 6-5-5-5 ; femur I-IV : 2-3/1,2/2-2 (2-3/1,2/3-2 in *P. humeralis*) ; 2-3/2,2/1-1 ; 1-2/1,1/0-1 ; 1-2/1,1/0-1 ; genu I-IV : 2-3/2,2/1-2 ; 2-3/2,2/1-2 ; 2-2/1,2/0-1 ; 2-2/1,2/0-1 ; tibia I-IV : 2-3/1,2/2-2 ; 2-2/1,2/1-2 ; 1-1/1,1/2-1 ; 1-1/1,2/1-1.

Pretarsus with two claws and pulvillus with five lobes. Tarsus II (Fig. 8) with *pl1* and *pl2* spur-like setae.

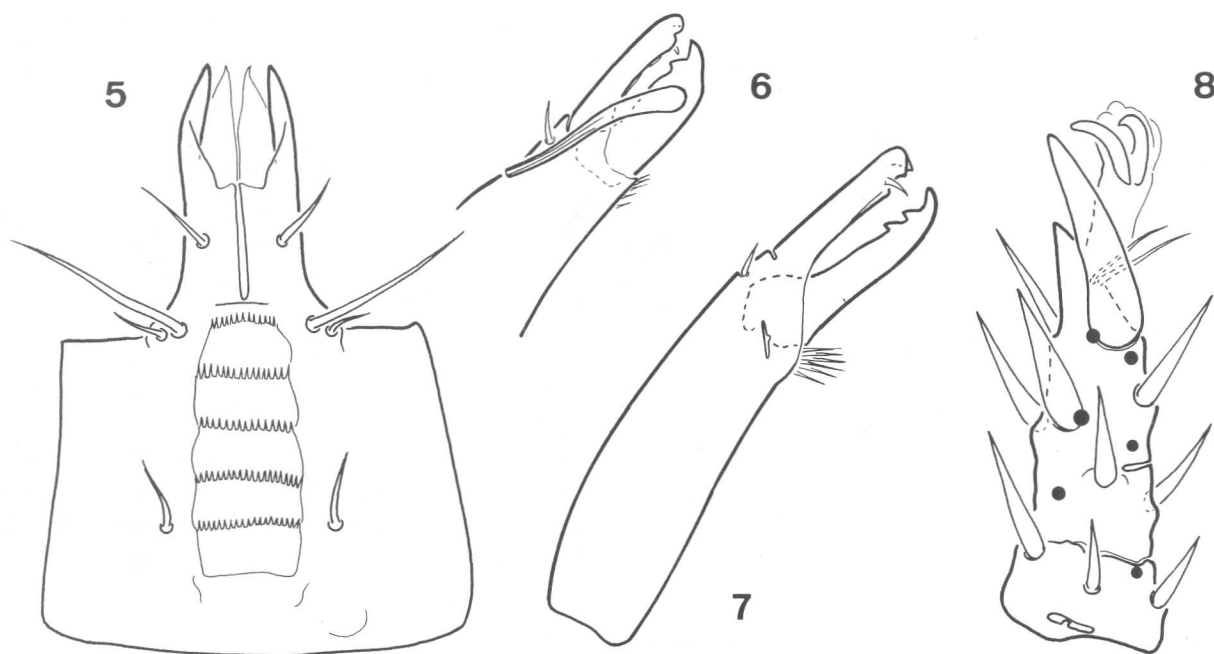


FIG. 5-8 : *Pachyseius iraola* n. sp.

5. — Female, subcapitulum ; 6.— Male, chelicera, antiaxial ; 7. female, chelicera, antiaxial ; 8. — Female tarsus II, posterolateral.

MALE.

Idiosoma length 744.60 μm ; width 237.25 μm .

Gnathosoma. Subcapitulum and tectum (Fig. 10) similar to the female. Chelicera (Fig. 6) with fixed digit apically bilobulated. Movable digit with one tooth. Spermatodactylus tubular and curved dorsal with truncated end. Arthrodistal coronet present.

Dorsum. Similar to the female.

Venter (Fig. 9). Peritrematal shields like in the female. Sternigenital shield separated from ventrianal shield and with five pairs of setae and three pairs of liryfissures.

Ventrianal shield free from the other shields, with four pairs of preanal setae, four pairs of liryfissures and glands *gv3*. Ventral soft cuticle with two pairs of ventral setae and three pairs of liryfissures.

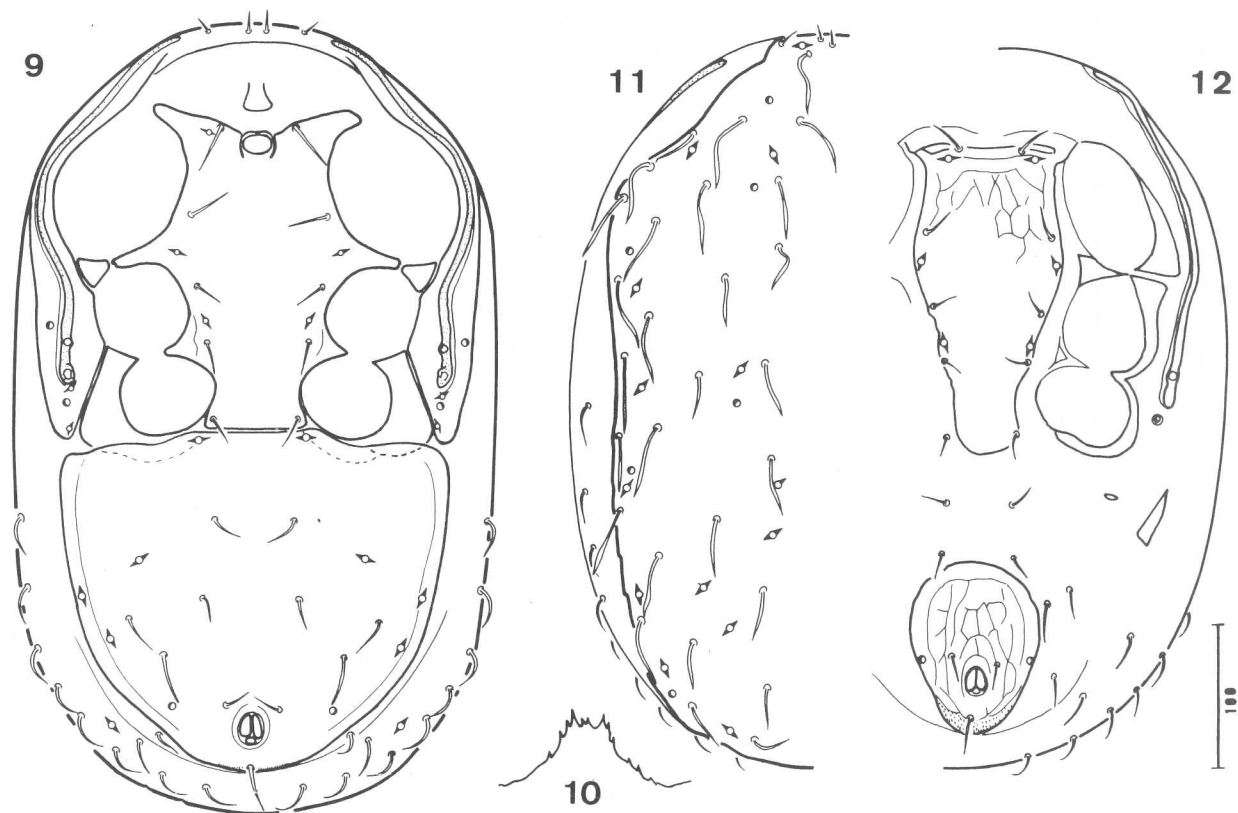


FIG. 9-12 : *Pachyseius iraola* n. sp.

9. — Male, idiosoma ventral; 10. — Male, tectum; 11. — Deutonymph, idiosoma, dorsal; 12. — Deutonymph, idiosoma, ventral.

Legs. Leg chaetotaxy similar to the female except tibia II (with *av2*) and femur II (with *av1* spur-like setae).

DEUTONYMPH.

Idiosoma length 693.5 μm ; width 237.25 μm .

Dorsum. Dorsal shield (Fig. 11) without lateral incisions. Dorsal chaetotaxy, adenotaxy and poroidotaxy as in the adult.

Venter (Fig. 12). Sternal extends beyond coxa IV and shows a reticulated pattern. Peritrematal shields absent, large gland, posterior to peritreme, and anal shield. Metapodal shields well developed.

TYPE MATERIAL.

Holotype female : Minchate, Navarra (Spain), from litter of beach forest (*Fagus sylvatica*), 10.

vii.1990. Paratype 3 females, 3 males and 1 deutonymph from the same locality and date. Holotype and paratype deposited in the Zoological Museum, University of Navarra, Pamplona, Spain.

Pachyseius morenoi sp. n.

FEMALE.

Idiosoma length 821.25 μm ; width 248.20 μm .

Gnathosoma. Chelicera, subcapitulum and tectum typical for the genus and similar to the former species.

Dorsum (Fig. 13). Dorsal shield with reticulated ornamentation and parallel lateral margins. This shield bears 30 pairs of short simple setae. Poroidotaxy and adenotaxy as in figure 13 : podonotum

with six pairs of lyrifissures and three pairs of glands, opisthonotum with nine pairs of lyrifissures and two pairs of glands. One specimen has 2 extra opisthonotal lyrifissures and in the podonotal region the lyrifissure *idz4* is replaced by a seta (as it is represented in the figure).

Peritrematal shield extending to posterior margin of coxa IV and normal poroidotaxy and adenotaxy.

Venter (Fig. 14). Sternal shield with a reticulated punctation. Anterior margin concave and posterior slightly convex. Shield with three pairs of simple setae and two pairs of lyrifissures. Setae *st4* and *iv3* on small platelets.

Genital shield with punctations and *st5*. Genital lyrifissures (*iv5*) on the soft cuticle. Ventrianal

shield long with almost parallel lateral margins or widest in the anterior half. This shield bears two pairs of preanal setae and *gv3*. Five pairs of ventral setae and five pairs of ventral lyrifissures on the soft cuticle.

Legs. Normal for the genus. In tarsus II, seta *pl2* thicker than in the former species.

MALE.

Unknown.

TYPE MATERIAL.

Holotype female : Beorburu, San Bartolome (30TXN05) Navarra (Spain), from litter of *Junipe-*

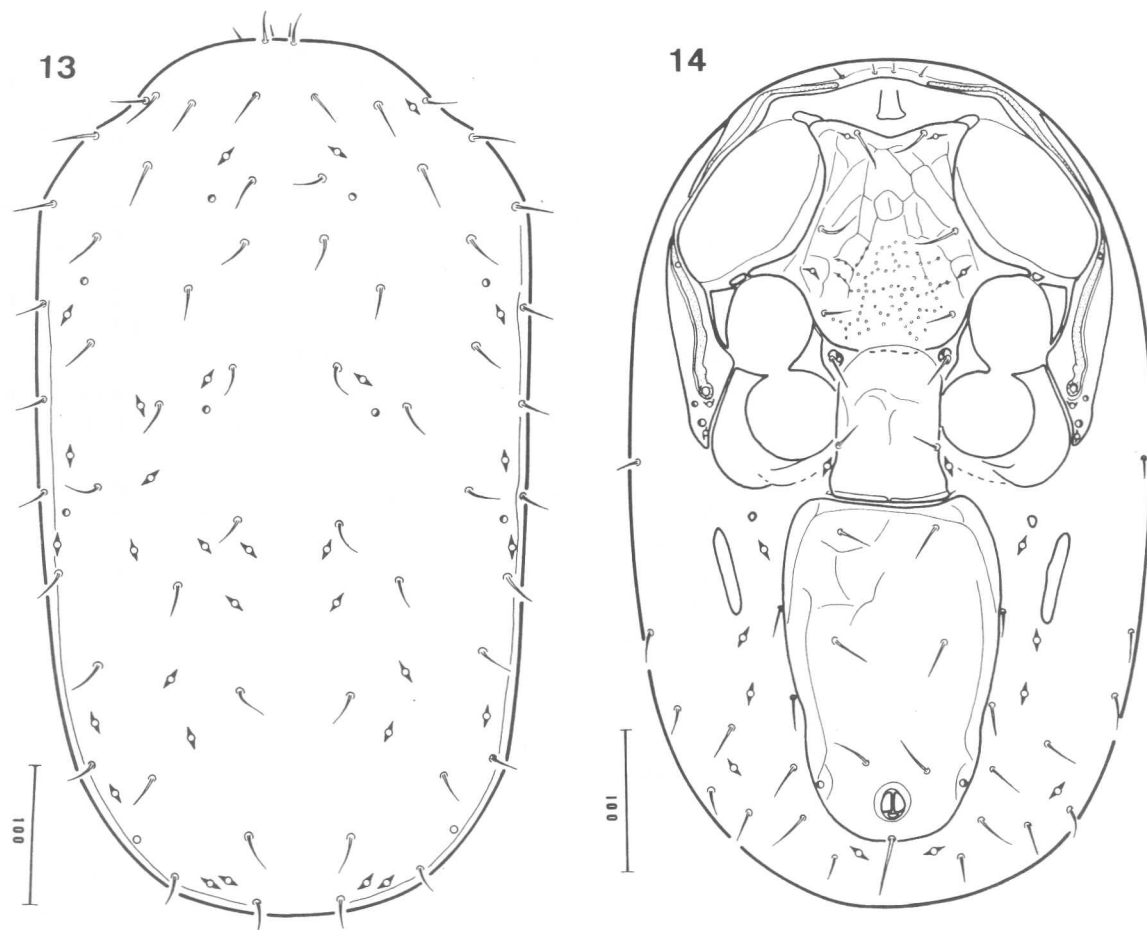


FIG. 13-14. — *Pachyseius morenoi* n. sp.
13. — Female, idiosoma dorsal; 14. — Female, idiosoma, ventral.

rus sp., *Corylus avellana* and *Fagus silvatica* 45-54 years old forest, MORENO Col. One female from Minchate, Navarra (Spain, from litter of *Pinus nigra* forest, 18.VII. 1990, and one female from Beunza, Navarra (Spain), from litter of *Fagus silvatica* forest, 21.VI.1979, (B-898).

Holotype and paratypes deposited in the Zoological Museum, University of Navarra, Pamplona, Spain.

KEY TO SPECIES

The two new species are included in the following diagnostic key for the known European species of *Pachyseius* for comparative purpose.

One female of *P. humeralis* from Italy (Vallombroso) from litter in old slump has been examined. The characters of *P. angustus* and *P. angustiventris* are relying on published description and figures (HYATT 1956 and KOROLEVA, 1977).

- 1 (4). Ventrianal shield with three pairs of preanal setae.
- 2 (3). Presternal shields present; peritrematal shield flanks the exopodal shield posterior to coxa IV and posterior gland to the stigma large; simple dorsal setae (Italy, Ionian Islands, Hungary, Austria, Russia and Britain)... *P. humeralis* Berlese
- 3 (2). Presternal shields absent; peritrematal shield does not flank the exopodal shield posterior to coxa IV; dorsal spatulated setae; sternal shield with posterior margin slightly concave (Spain)..... *P. iraola* n. sp.
- 4 (1). Ventrianal shield with two pairs of preanal setae.
- 5 (6). Peritrematal shield flanks the exopodal overreaching the posterior margin of coxa IV; ventrianal shield wider in its anterior half; peritrematal shield

- acute posteriorly; posterior margin of the sternal shield slightly concave (Britain)..... *P. angustus* Hyatt
- 6 (5). Peritrematal shield does not completely flank the exopodal and extends to posterior margin of coxa IV
- 7 (8). Ventrianal shield wider in the middle portion and completely covered with a reticulated pattern; posterior margin of sternal shield strongly convex (Francia)..... *P. angustiventris* Willmann
- 8 (7). Ventrianal shield long with almost parallel lateral margins or slightly wider in the anterior half (Spain) *P. morenoi* n. sp.

REFERENCES

LINDQUIST (E.) & EVANS (G. O.), 1965. — Taxonomic concepts in the Ascidae, with a modified setal nomenclature for the Idiosoma of the Gamasina (Acari : Mesostigmata). — Mem. Ent. Soc. Canada, **47** : 1-64.

HYATT (K. H.). 1956. — British mites of the genus *Pachyseius* Berlese, 1910 (Gamasina-Neoparasitidae). — Ann. Mag. Nat. Hist., **12** (9) : 1-6.

MORAZA (M. L.) & JOHNSTON (D.), 1990. — *Pachyseius hispanicus* n. gen., n. sp., from Navarra (Northern Spain) (Acari : Mesostigmata : Pachylaelapidae). — Internat. J. Acarol., **16** (4) : 1-6.

KARG (W.), 1971. — Die freilebenden Gamasina (Gamasides), Raubmilben. — Die Tierwelt Deutschlands, **59** : 1-141.

KOROLEVA (E. V.), 1977. — Family Pachylaelapidae. — in : M. S. GHILAROV and N. G. BREGETOVA (Eds.), 1977, "Handbook for the identification of soil inhabiting mites. Mesostigmata" Nauka, Leningrad, pp. 411-183.

Paru en Avril 1993.