

Lepidocyrtus mariani sp. n., a new springtail species from Hungary (Collembola: Entomobryidae)

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Abstract. *Lepidocyrtus mariani* sp. n. is described from Hungary. The new species is close to *Lepidocyrtus flexicollis* Gisin, 1965 sensu Mateos, 2008 but differs in the interocular chaetotaxy by the presence of the seta q and by the high number of setae on the manubrial plate: 10–18 in *L. flexicollis*, about 30 in the new species.

INTRODUCTION

In the course of the third „Hungarian Biodiversity Day” on May 31, 2008, springtails of the Bakony Mts. were sampled around the Village of Porva. Among the springtails collected, a relatively large *Lepidocyrtus* specimen of unusual appearance was found which proved to represent a species new to science.

Lepidocyrtus is one of the largest genera within the order Collembola. On the global scale Bellinger *et al.* (1996–2007) listed 225 species, and another one was added by Mateos (2008b). The European fauna contains 26 species (Mateos 2008b). Among the 15 species recorded for Hungary (Dányi & Traser 2008) two have the locus typicus in this country (Traser 2000, Traser & Christian, 1992).

Taxonomic features of the genus *Lepidocyrtus* have been discussed by several authors (e.g. Mari Mutt 1986, Snider, 1967, Soto-Adames 2000). Just recently, Mateos (2008a, 2008b) reviewed the conventional and introduced several new diagnostic characters. By means of these a number of ignored species will probably be brought forward.

MATERIAL AND METHODS

On May 31, 2008, soil, litter and moss samples were collected in the neighbourhood of Porva, Bakony Mts., and subsequently Berlese-extracted into 75% ethanol. For microscopic inspection Collembola were embedded in Gisin’s medium (lactic

acid:gelatin = 100:8). Drawings were made with a camera lucida.

We use terms and codes in the sense of Mateos (2008b): Dorsal macrochaetae and labial chaetotaxy according to Gisin (1963, 1964a, 1964b), except for head macrochaetae row A (following Barra 1975), and head macrochaetae R1s (following Wang *et al.* 2003). Dorsal chaetotaxy of thorax and abdomen according to Szeptycki (1979), except for seta d2 (abd. II) (following Snider 1967), seta m7a (abd. III) (following Wang *et al.* 2003), and seta p8p (abd. III) (following Mateos 2008a, 2008b). Abbreviations: ant. = antennal segment; abd. = abdominal segment; cx. = coxa; I–VI = segment numbers.

Lepidocyrtus mariani sp. n.

(Figs. 1–23, Tab. 1)

Material examined. Holotype: Male, collected on May 31, 2008 in Porva, mounted on two slides in the collection of the senior author at the Institute of Silviculture and Forest Protection at the University of West Hungary (Nr. B–11: trunk; Nr. B–12: legs and head).

Locus typicus. Hungary, Bakony Mts., Porva, moss on the trunk of an alder tree near the stream Hódos-ér (47°18'42"N, 17°47'30"E).

Diagnosis. A relatively large (>3mm) pale *Lepidocyrtus* species with strongly protruding mesothorax. Dorsal head and body macrochaetae as R₀R₁--1/00/0101+3s. Praelabral setae smooth,

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labial (basomedial) setae all ciliated: M₁*M₂R*E L₁L₂ (asterisked setae shortened). The new species resembles *L. flexicollis* Gisin, 1965 in chaetotaxy and body shape; differential characters are summarised in Table 1.

Description. Holotype body length 3.5 mm (without head nor furca). Mesothorax strongly protruding, head posture orthognathous (Fig. 1). Colour pale, except the dark ocular areas and some blue shade on the coxae. Scales, mostly light brown in alcohol, densely cover head and trunk, the legs to the claws and the antennae to the basal part of the 4th joints (Fig. 2). Ant. 4 without apical bulb (Fig. 3). Antennae 1.94 times longer than the cephalic diagonal.

Ratio of the four antennal joints = 1:1.7:1.5:2.3 (Fig. 2). 8+8 eyes as in Fig. 4.

Praelabral/labral setae smooth and in typical arrangement: 4/5,5,4 (Fig. 7). Labrum with apical 'V' shaped intrusion. Prelabral setae more curved than labral setae, their tips are bent down (Fig. 7). Lateral labral papillae smooth and bigger than the slightly armed median papillae. 3 sublobal and 3 hyaline setae on both sides. On the labial triangle, the setae of the 'a' row (a₁–a₅) smooth and the setae in the posterior row ciliated, as M₁*M₂R*EL₁L₂. M₁ and R shortened, about half as long as M₂ (Fig. 9). Labral papillae (Fig. 7) unequal in size, the lateral ones wider than the medial two.

Labial appendage with 5 papillae (Fig. 8). Ventral cephalic groove with 4+4 ciliated macrochaetae and with 4+4(5) scales (Fig. 9).

Dorsal macrochaetae formula R₀R₁--S₀/00/0101+3s. Number of R setae between the ocular areas about 18+18. Paired apical setae in front of R₀. Intraocular area with ciliated setae s, t, p, q and 3–4 scales. Chaetotaxy of abd. II–III as in Figs. 15–17, of abd. IV as in Fig. 18–22. On abd. IV T6 thin ciliated macrochaeta, E3 inserted below F2. Ratio of C1–B4 setae distance and B4–

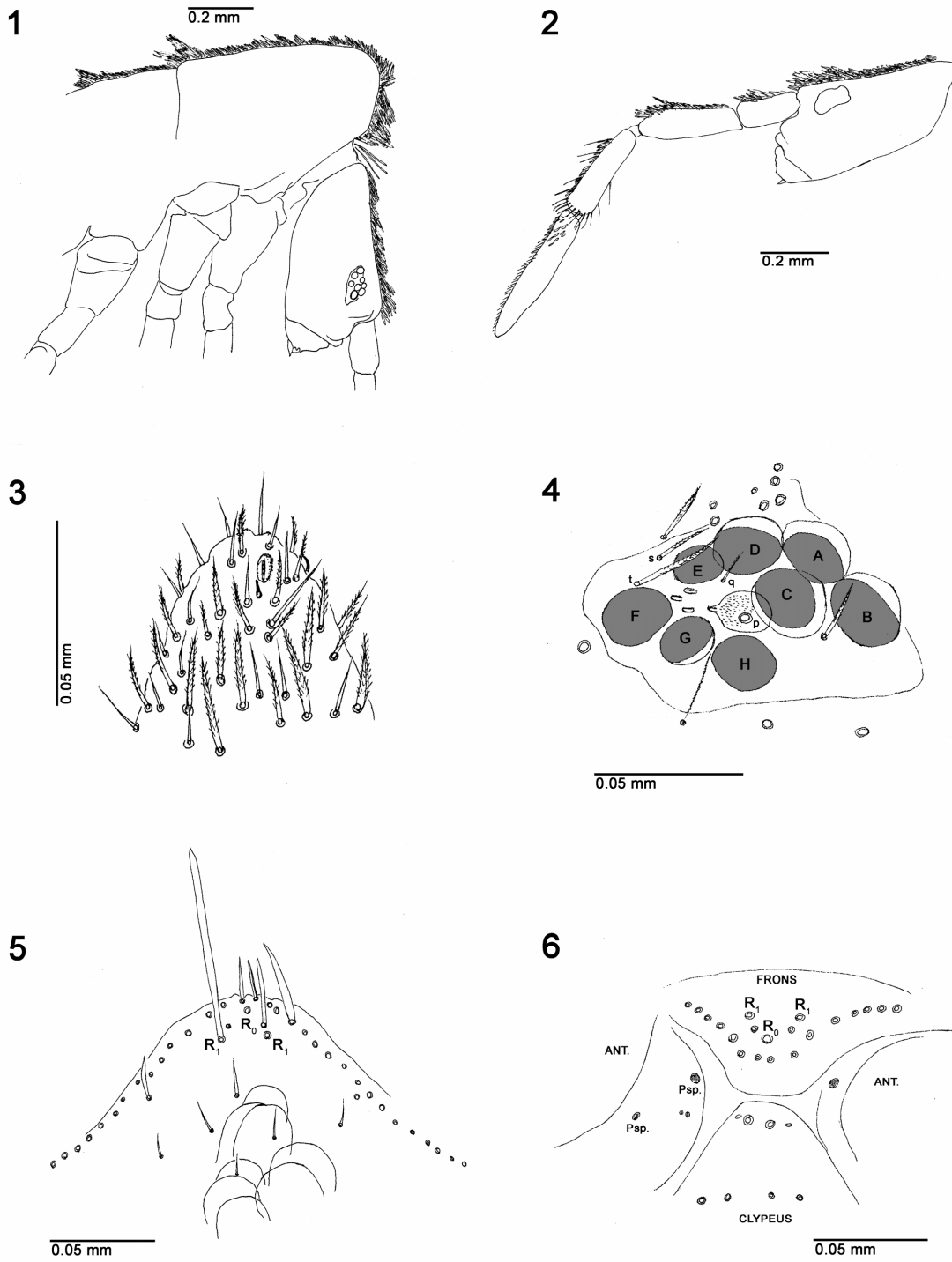
B6 setae distance about 0.47 on abd. IV. No additional pseudopori on abd. IV. Trichobotrium T2 of abd. IV with accessory fan-shaped seta s. The dorsal macrochaetae of abd. IV B4, B5, C1, D3, E2, E3, E4, F1, F2 and F3 strong, with big insertion; T6, T7, D2, De3, D3p, E1, E4p, Fe4 and Fe5 shorter or longer, but always thinner and with smaller insertion.

Dorsal surface of coxae as in Figs 10a–c. Cx. I with 1 pseudoporus and 9 smooth macrochaetae. Cx. II with 3 pseudopori and 14+10 smooth macrochaetae in two rows. Cx. III with 2 pseudopori and 17 smooth macrochaetae.

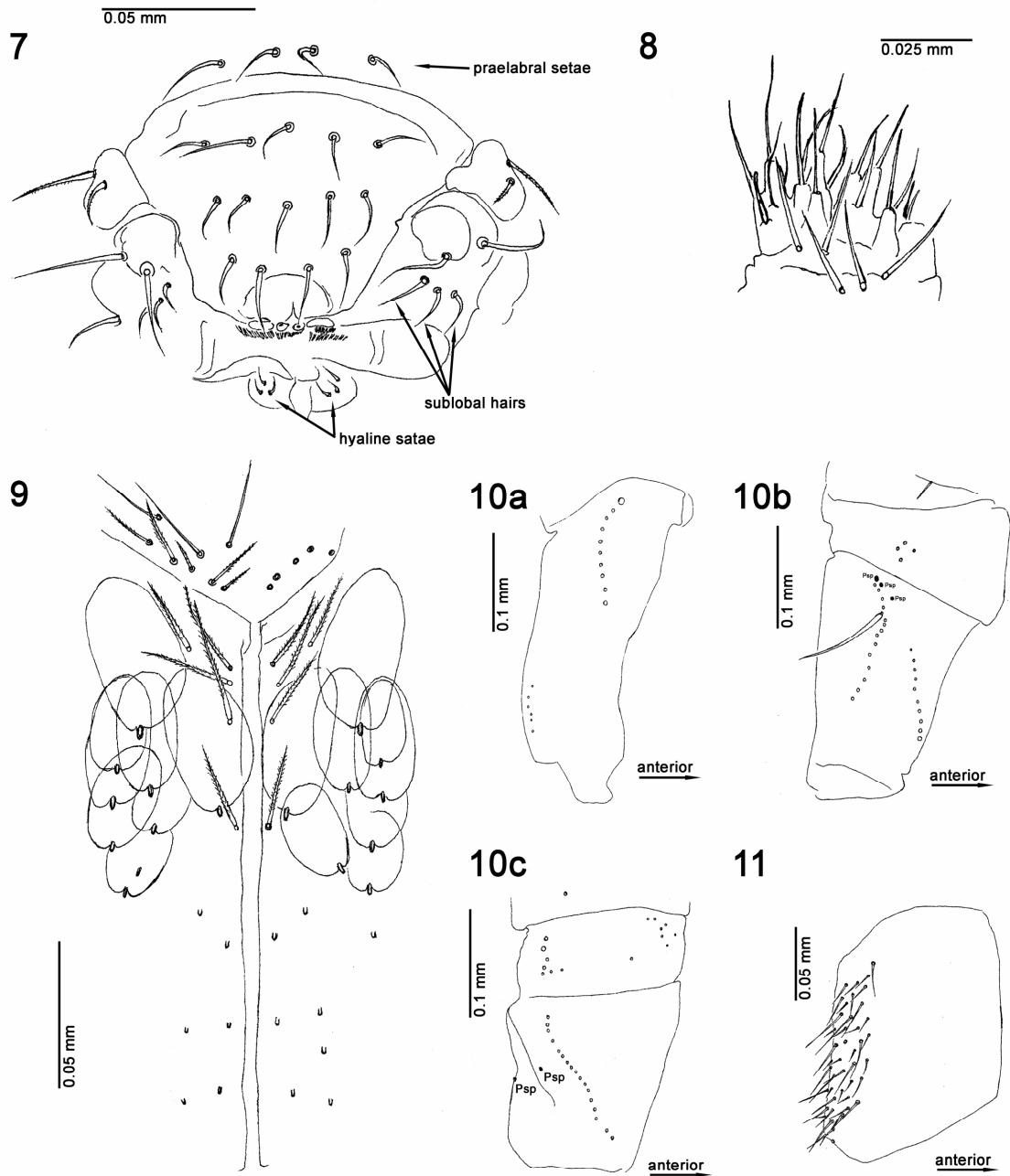
Trochanteral organ with about 40 smooth straight setae arranged in a rectangular field (Fig. 11). Unguis with paired basal teeth, one inner tooth in subapical position but without apical tooth. The big external tooth of the dorsal side with small basal appendage. Lateral teeth each with an external denticle (Fig. 12). Unguiculus lanceolate with smooth outer margin. Spatulate tibiotarsal tenent hair as in Fig. 12. Furca with scales on dorsal and ventral surfaces (Figs 13a–b). Ratio manubrium:dens:mucro = 23:21:1. Manubrial plate with 2(3) inner setae, about 30 external setae and 3 pseudopori (Fig. 14).

Etymology. The new species is named in honour of the old Scout and zoologist Dr Miklós Marián (born in Szeged, 1914), who was the first teacher in zoology of the senior author showing the way to his studies. Dr Marián contributed much to the discovery of the herpetofauna of the Bakony Mountains during the 1980ies.

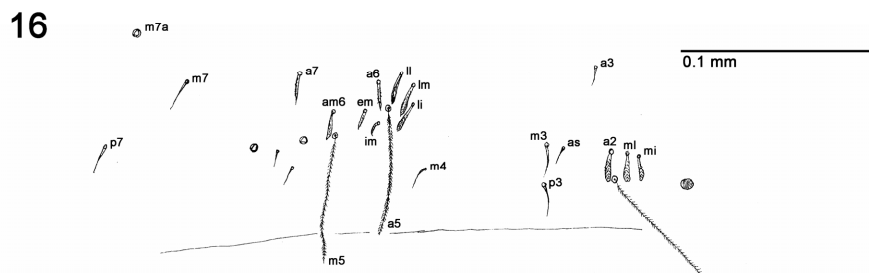
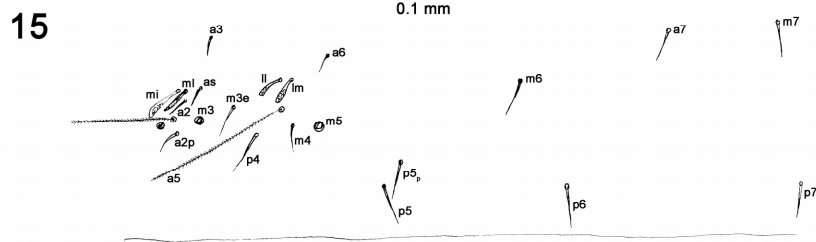
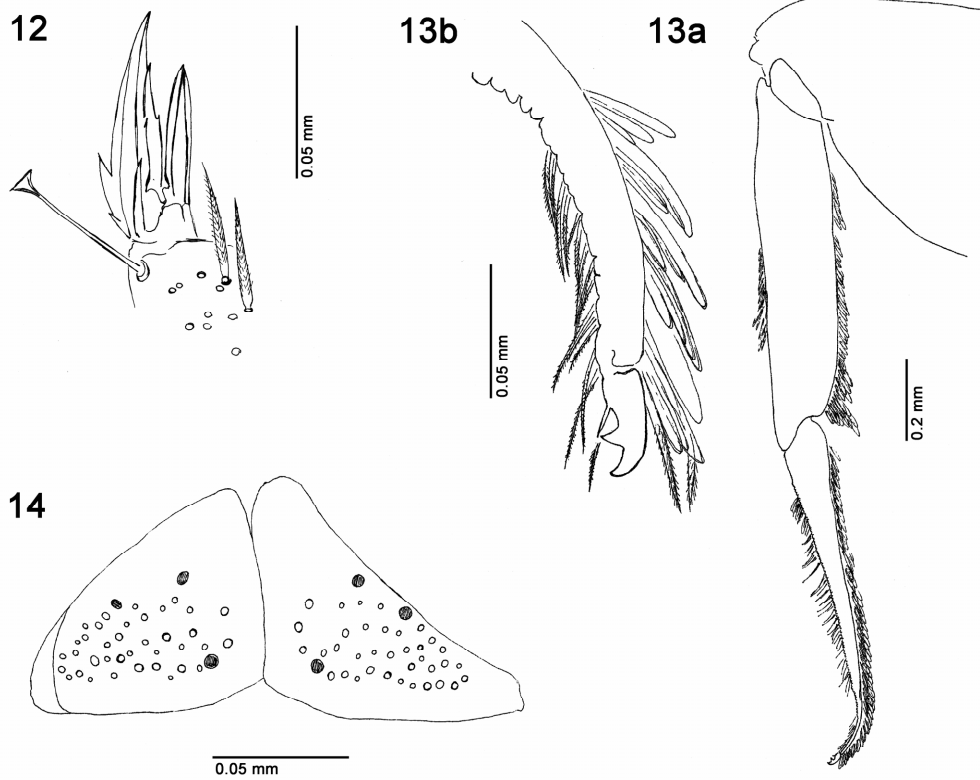
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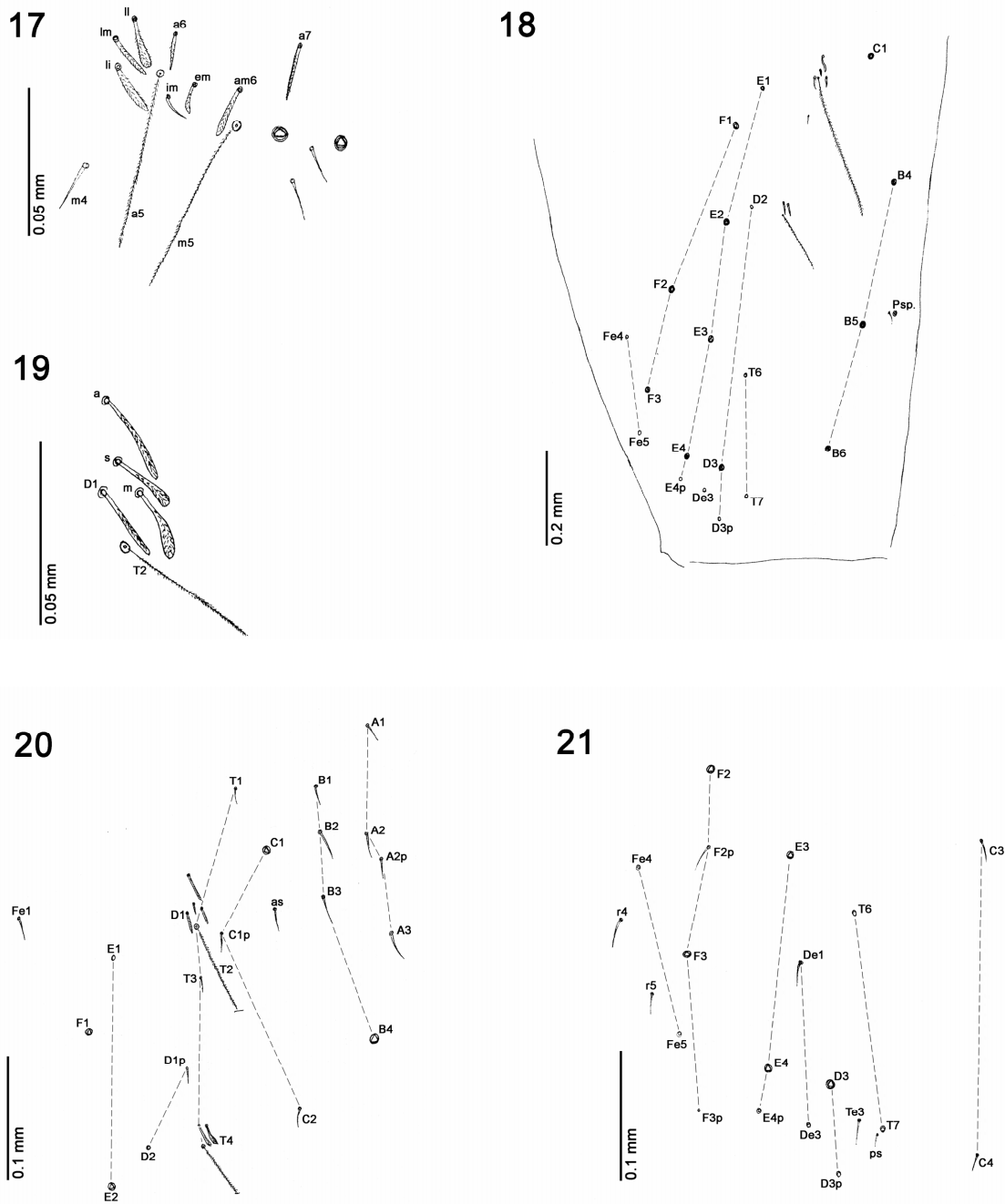
Figures 1–6. *Lepidocyrtus mariani* sp. n., 1 = shape of head and mesothorax, 2 = head and ant. I–IV, 3 = apex of ant. IV., 4 = ocular area, 5 = apex of the head, dorsal view, 6 = apex of the head, frontal view. Psp. = pseudoporus



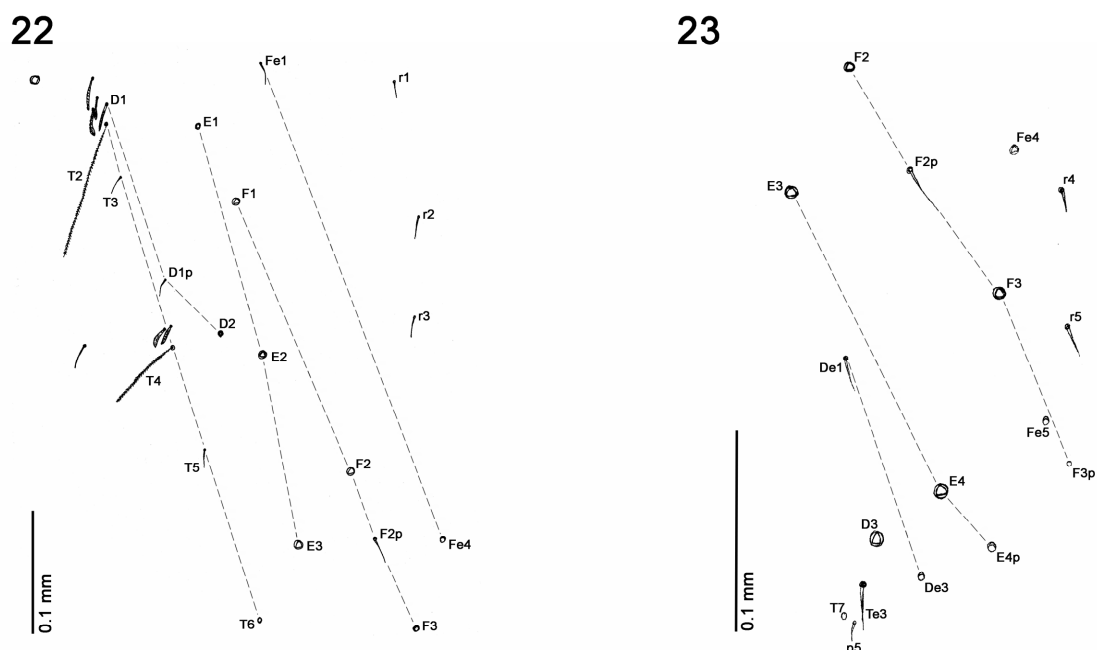
Figures 7–11. *Lepidocyrtus mariani* sp. n., 7 = mouth region in frontal view, 8 = labial appendage, 9 = labial triangle and medial cephalic groove, 10 = pattern of the macrochaetae on coxae I–III. (Figs a–c, respectively) (Psp = pseudoporus), 11 = trochanteral organ on leg III



Figures 12–16. *Lepidocyrtus mariani* sp. n., 12 = foot complex with claw III, 13 = manubrium and micro, 14 = manubrial plate, 15 = chaetotaxy pattern of abd. II (right side), 16 = abd. III chaetotaxy (left side)



Figures 17–21. *Lepidocyrtus mariani* sp. n., 17 = abd. III chaetotaxy around a_5 – m_5 trichobothria, 18 = abd. IV chaetotaxy with the macrochaetae (left side), 19 = anterior trichobothrium on abd. IV with the sensillae, 20 = abd. IV trichobothrial complex (left side), 21 = abd. IV chaetotaxy between F_2 – D_3 macrochaetae (left side)



Figures 22–23. *Lepidocyrtus mariani* sp. n., 22 = abd. IV chaetotaxy, distally from the trichobothrial complex (right side), 23 = abd. IV chaetotaxy around E₃F₃D₃ macrochaetae (right side)

Table 1. Distinguishing characters of *Lepidocyrtus mariani* sp. n. and *L. flexicollis*

Features	<i>Lepidocyrtus mariani</i> sp.n.	<i>Lepidocyrtus flexicollis</i> Gisin, 1965 sensu Mateos, 2008a
Interocular chaetotaxy	s, t, q, p (q present)	q absent
Number of interocular scales	3–4	1–2
Edge of unguiculus	smooth	serrated
Apical tooth on the claws	absent	present
Paired medial setae behind R ₀ and in front of R ₁ on the apex of the head	ciliated short macrochaetae	smooth mesochaetae
Setae in front of R ₀ on the apex of the head	paired	unpaired
Abd. IV chaetotaxy: D3p	slim macrochaeta	mesochaeta
Abd. IV chaetotaxy: A2, A2p, B3 mesochaetae	present	absent
Abd. III chaetotaxy around a5–m5 trichobothria	a7 ciliated mesochaeta	a7 smooth mesochaeta
Abd. III chaetotaxy around a5–m5 trichobothria	a6 thin ciliated, not fan-shaped	a6 fan-shaped
Abd. III chaetotaxy around a5–m5 trichobothria	im not fan shaped	im fan-shaped
Number of the setae on the manubrial plate	more than 30	10–18
Number of the pseudopori on the manubrial plate	3	2
Geographic distribution (as known)	continental Central Europe	Mediterranean, Canary Islands and the mainland of Spain

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