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**A NEW SPECIES OF THE SILVERFISH GENUS *ALLACROTELSA*
SILVESTRI, 1935 (ZYGENTOMA: LEPISMATIDAE) FROM CRIMEA**

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Summary. *Allacrotelsa taurica* sp. n. is described from Crimea. New species is most similar to the Mediterranean *A. kraepelini* (Escherich, 1905) but differs from latter by the body size, morphological peculiarities of the structure of labial palps, pronotum, prosternum, legs, and ovipositor. New species is characterized by body length 8–11 mm (vs. about 14 mm in *A. kraepelini*), ratio of length to width of apical article of labial palp 1.8–2.0 (vs. about 2.4), pronotum with 5 + 5 lateral trichobotria (vs. 3 + 3 trichobotria), ratio of length to width of prosternum 1.10 (vs. 0.80), ratio of length to width of hind coxa of legs about 1.6 (vs. 1.3), and ovipositor of new species includes 31–32 articles (vs. 35–38 articles in *A. kraepelini*).

Key words: *Heterolepismatinae*, taxonomy, morphology, distribution, Mediterranean region.

В. Г. Каплин. Новый вид щетинохвосток рода *Allacrotelsa* Silvestri, 1935 (Zygentoma: Lepismatidae) из Крыма // Дальневосточный энтомолог. 2023. N 471. С. 19-28.

Резюме. Из Крыма описан новый вид *Allacrotelsa taurica* sp. n., наиболее близкий к средиземноморскому *A. kraepelini* (Escherich, 1905), от которого отличается размерами тела, морфологическими особенностями строения губных щупиков, переднеспинки, простернума, ног, яйцеклада. Длина тела *A. taurica* 8–11 мм, а у *A. kraepelini* до 14 мм. Отношение длины к ширине последнего членика губного щупика *A. taurica* 1.8–2.0, у *A. kraepelini* около 2.4, простернума, соответственно 1.1 и 0.8, заднего тазика ног – 1.6 и 1.3. Боковые края переднеспинки *A. taurica* с 5 + 5 трихоботриями, а у *A. kraepelini* с 3 + 3 трихоботриями. Яйцеклад *A. taurica* включает 31–32 членика, тогда как яйцеклад *A. kraepelini* состоит из 35–38 члеников.

INTRODUCTION

The family Lepismatidae consists of about 40 genera and more than 300 described species in six subfamilies: Acrotelsatinae Mendes, 1991; Ctenolepismatinae Mendes 1991; Heterolepismatinae Mendes, 1991; Lepismatinae Mendes, 1991; Mirolepismatinae Mendes, 1991, and Silvestrellinae Mendes 1991: (Mendes, 1991; Smith, 2017). The genus *Allacrotelsa* Silvestri, 1935 is most likely included in the subfamily Heterolepismatinae. This subfamily

consists of four genera, namely *Heterolepisma* Escherich, 1905 with 28 described species, most of them are distributed in Australia; *Maritisma* Smith et Mitchell, 2019 with two species from islands of the Pacific Ocean; *Visma* Smith, Mitchell et Molero-Baltanas, 2021 with ten species from Australia, and three species of *Allacrotelsa* (= *Stachisma* Wygodzinsky, 1942) from the Mediterranean region, Baltic Amber, and Western and Southwestern United States (Escherich, 1905; Silvestri, 1935; Wygodzinsky, 1942, 1952, 1961; Smith, 2017; Smith & Mitchell, 2019; Smith *et al.*, 2021). The genus *Allacrotelsa* is characterized by macrochaetae smooth, urotergites I and VIII with 2 + 2, II–VII with 3 + 3, IX and X with 1 + 1 bristle combs, urosternites with median and 1 + 1 lateral combs; parameres of male well developed and articulated. According to Wygodzinsky (1942, 1952, 1961) *Allacrotelsa kraepelini* (Escherich, 1905) is common in Mesopotamia, Syria, Palestine, Turkey, Greece, and in the Balears. A new species of *Allacrotelsa* is found in Crimea and described below.

The holotype (male) and three paratypes (one male and two females) were dissected and mounted on glass microscope slides in Berlese fluid. Figures were made using a microscope and a drawing projector. The types of the new species are deposited in the collection of the All-Russian Institution of Plant Protection, Russian Academy of Sciences, St. Petersburg (VIZR).

DESCRIPTION OF NEW SPECIES

Family Lepismatidae Latreille, 1802

Subfamily Heterolepismatinae Mendes, 1991

Genus *Allacrotelsa* Silvestri, 1935

Type species: *Ctenolepisma kraepelini* Escherich, 1905.

Allacrotelsa taurica Kaplin sp. n.

<https://zoobank.org/NomenclaturalActs/7593858E-BDB5-48A4-831F-403F372CD596>

Figs 1–28

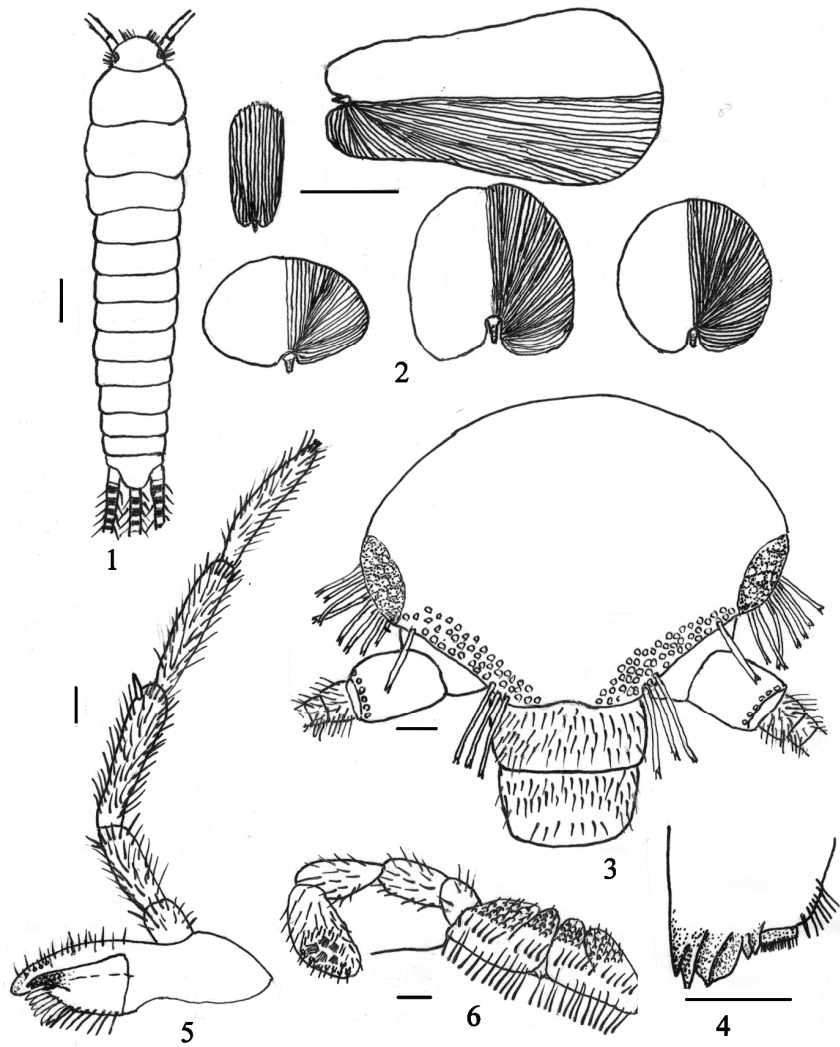
TYPE MATERIAL. Holotype – ♂ (in slides), **Crimea**: Noviy Svet: 44°50' N, 34°55' E, h = 110 m, in leaf litter among stones under *Quercus pubescens*, *Juniperus oxycedrus*, and *Carpinus orientalis* forest, 24.V 2021, leg. V. Kaplin (VIZR) (in slides). Paratypes: 3♀, 2♂, same locality, data and collector as for holotype [2♀ and 1♂ in slides, 1♀ and 1♂ in 75% ethanol] (VIZR).

DESCRIPTION. Appearance: Medium-sized silverfish (Fig. 1), scales on the upper side of the body grayish-brown, on the lower side light brown.

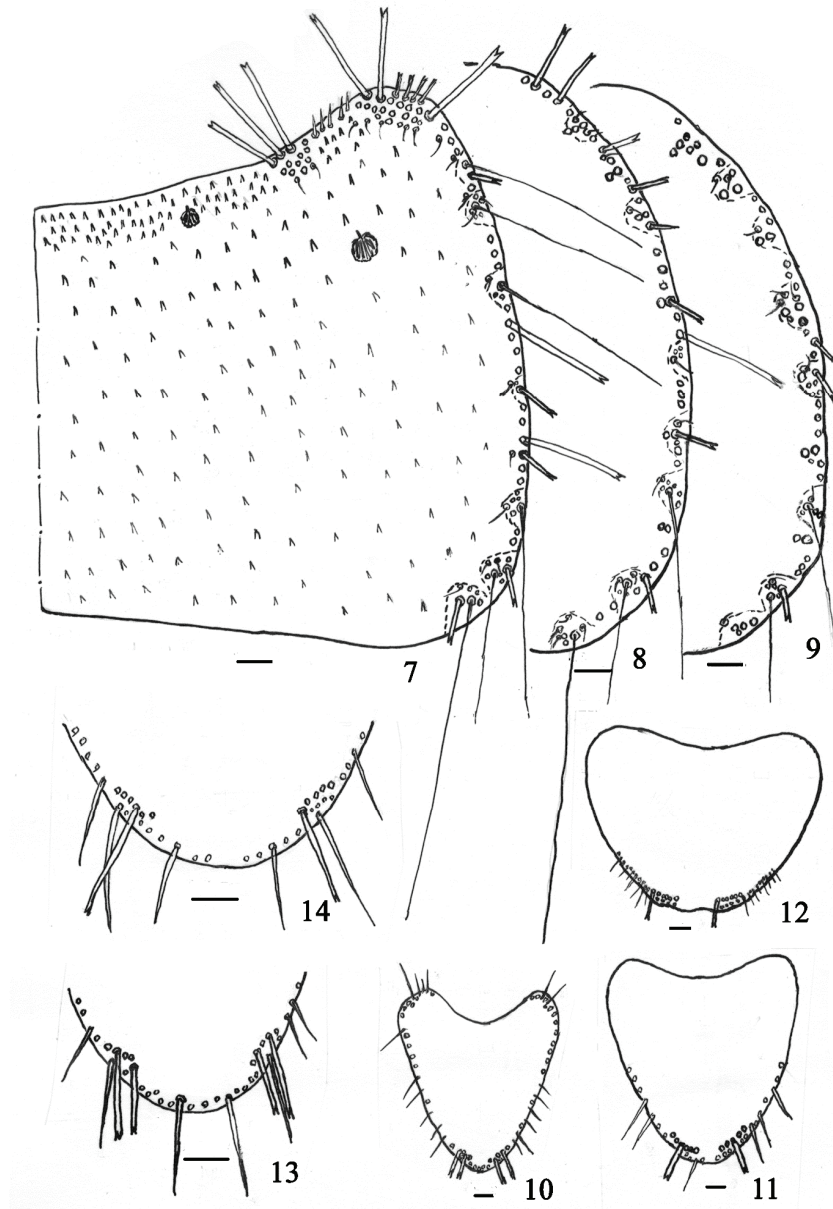
Body length (including head) 7.8–8.5 mm (♀), 9.8–11.3 mm (♂); ratio lengths of head to body about 0.07–0.08, thorax to body about 0.31–0.32. Width of head about 1.3 mm (♀), 1.4 mm (♂); width of thorax, respectively, about 2.35 mm and 2.65 mm, urite IX about 1.3 mm and 1.4 mm. Antennae damaged in all specimens, maximum preserved length of antenna 6.3 mm (or 0.81× body length) (♀), 8.3 mm (0.79× body length) (♂); terminal filaments damaged in all specimens, maximum preserved length of cercus 5.8 mm (or 0.75× body length) (♀), 7.3 mm (0.70× body length) (♂). Body neither elongate nor broad, thorax slightly wider than abdominal segment I.

Pigment light purple-chestnut-brown in alcohol-preserved specimens, stronger on the first tarsomere, tibia and femur; on maxillary and labial palps; labium, mandible, on head surrounding the eyes; pedicel and abdominal stylets. Urites IX and X with dense pigmentation

in paraprocts and epiproct, cerci and median dorsal appendage with strong dark rings of pigmentation. Weaker pigment on clypeus, labrum, maxilla, trochanter, coxa, urotergites I–VIII, male genital appendages.



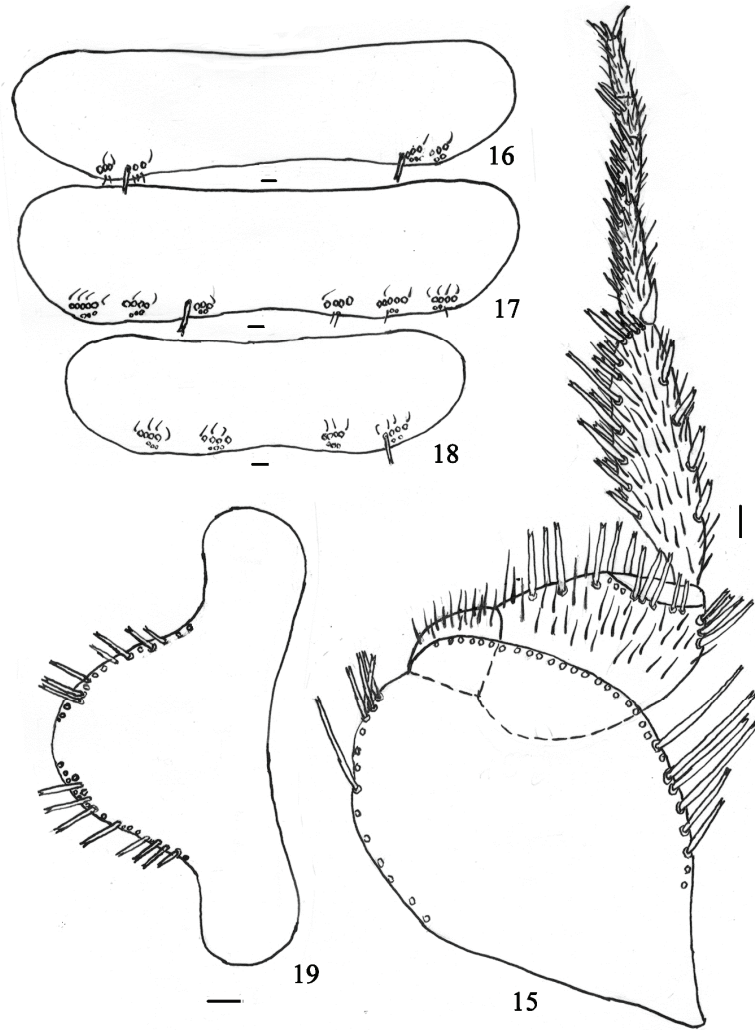
Figs 1–6. *Allacrotelsa taurica* sp. n., holotype ♂ (2, 3, 5, 6) and paratype ♂ (1); paratype ♀ (4). 1 – habitus; 2 – scales; 3 – head, front view; 4 – distal part of mandible; 5 – maxillary palp, with maxilla; 6 – labial palp, with labium. Scale bars = 0.1 mm.



Figs 7-14. *Allacrotelsa taurica* sp. n., holotype ♂. 7 – pronotum; 8 – mesonotum; lateral part; 9 – metanotum, lateral part; 10 – prosternum; 11 – mesosternum; 12 – metasternum; 13 – prosternum, distal part; 14 – mesosternum, distal part. Scale bars = 0.1 mm.

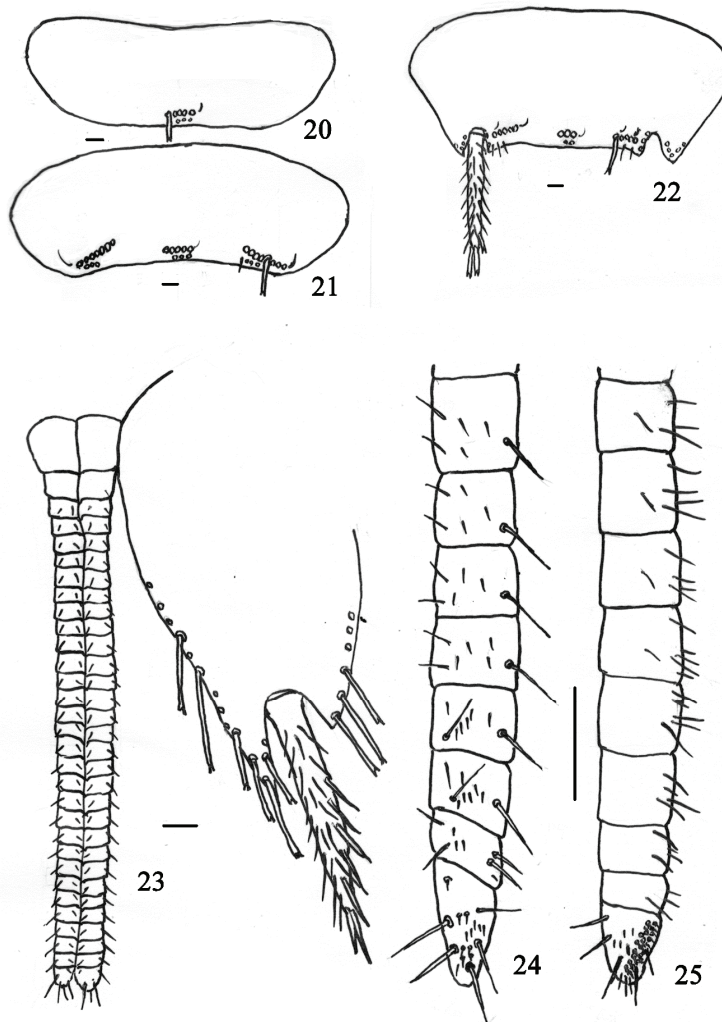
Macrochaetae smooth, bifid apically, hyaline or slightly straw-coloured. Scales multiradiate of variable shape, rounded, oval, suboval, fan-shaped (Fig. 2); absent from flagellum, maxillary and labial palps, styli, caudal appendages.

Head wider than long, eyes dark well developed, composed of about 12 ommatidia, their diameter about 0.20–0.25 mm. Macrochaetae along the anterior and lateral margins of the head well developed, relatively large, bifid apically. Anterior part of frons slightly concave,



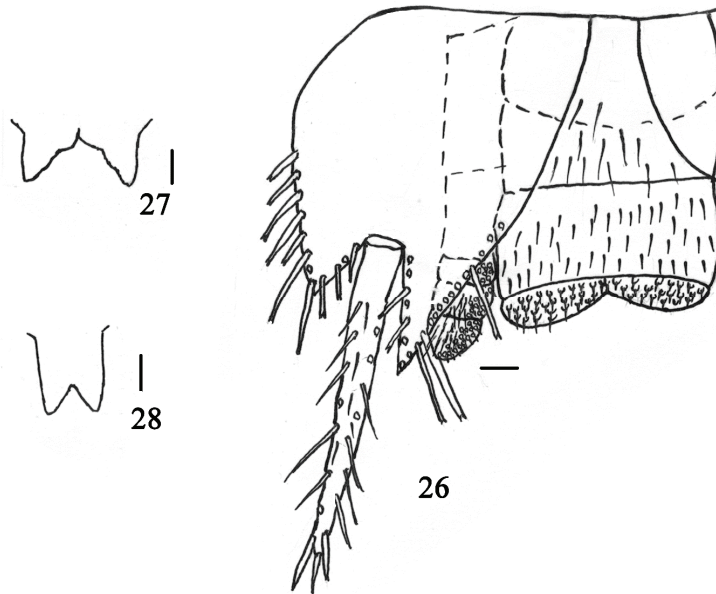
Figs 15–19. *Allacrotelsa taurica* sp. n., holotype ♂ (15–17) and paratype ♀ (18, 19). 15 – hind leg; 16 – urotergite I; 17 – urotergite II; 18 – urotergite VIII; 19 – urotergite X. Scale bars = 0.1 mm.

anterolaterally and laterally with large, apically bifid macrochaetae, such chaetae absent from concave area (Fig. 3). Postclypeus with numerous medium-size, simple chaetae; anteclypeus glabrous. Posterior part of labrum with numerous smaller simple chaetae, anterior part of labrum with several chaetae forming an uneven row. Mandibles with well-developed



Figs 20–25. *Allacrotelsa taurica* sp. n., holotype ♂ (22) and paratype ♀ (20, 21, 23–25). 20 – urosternite I; 21 – urosternite II; 22 – urosternite VIII; 23 – urocoxite IX, with anterior gonapophyses; 24 – anterior gonapophysis, distal part; 25 – posterior gonapophysis, distal part. Scale bars = 0.1 mm.

molar and incisor areas, with 5 strong chitinized teeth (2 sharp, 1 wide and 2 small) (Fig. 4); with numerous, relatively long apically bifid macrochaetae on molar area and a row of shorter lateral chaetae including about 7 apically bifid chaetae near molar area. Maxilla without special characters, lacinia with three strong teeth, 6 lamellate processes in both sexes and a row of 8 to 10 chaetae in female and 7 simple chaetae in male. Galea with lateral row of 11–17 thin chaetae and 3–5 small sensory chaetae. Apical article of maxillary palp 1.02–1.15 times longer than penultimate article. Distal part of the third article of maxillary palp with 1 or 2 strong conical simple spines in both sexes (Fig. 5). Labial palps well developed, apical article oval with 2 + 3 papillae (Fig. 6); ratio of apical article length to width approximately 1.8–2.0 in both sexes.



Figs 26–28. *Allacrotelsa taurica* sp. n., holotype ♂. 26 – urocoxite IX, with genital appendages; 27 – paraprocts; 28 – epiproct. Scale bars = 0.1 mm.

Pronotum near the anterior margin with 1 + 1 sublateral groups of relatively long apically bifurcate macrochaetae including about 12 chaetae in both sexes. Lateral anterior corners of pronotum also with 12–16 + 12–16 such macrochaetae. Chaetal collar on the anterior margin of pronotum largely absent except for the more sublateral groups. Near the anterior margin of pronotum between these sublateral groups of macrochaetae instead of chaetal collar there is a collar formed by many scales. Lateral margins of pronotum with apically bifurcate short and long macrochaetae and 5 + 5 open trichobothrial areas each with one thin and very long trichobothrium (Fig. 7). Lateral margins of mesonotum and metanotum as pronotum with a row of apically bifurcate macrochaetae. Lateral margins of mesonotum also with 8–9 + 8–9 bristle combs, metanotum with 6–7 + 6–7 combs of such macrochaetae including mainly two chaetae, but the first and last combs with 3 or 4 macrochaetae and with respectively 3 + 3 and 2 + 2 open trichobothrial areas in their posterior half with one long trichobothrium (Figs 8, 9).

Posterior margins of thoracic nota concave, without macrochaetae and any bristle combs. All thoracic sterna with hyaline scales. Prosternum and mesosternum sub-triangular, longer than wide at its base, metasternum semi-oval rounded apically and reaching almost to the end of the coxa (Figs 10–12). Ratio of its length to width respectively about 1.10, 1.05 and 0.77. Lateral and apical margins of prosternum, distal half of mesosternum, distal quarter of mesosternum with relatively long simple chaetae. About 9 or 10 larger, apically bifid chaetae in basal corners of prosternum. Preapical parts of all sterna also with 1 + 1 combs including 4–6 bifid apically macrochaetae (Figs 13, 14). Legs fairly long (Fig. 15), increasingly longer from front to back. Ratio total length of PII to PI about 1.1, PIII to PII 1.2, PIII to PI 1.3 in male and respectively 1.2, 1.3 and 1.7 in female. All femora and coxae widened in both sexes (Table 1). Tibia on dorsal margin and in distal part with 2 or 3, on ventral margin with 4 or 5 (foreleg), 5 or 6 (middle leg) and about 8 (hind leg) strong, stout, apically bifid macrochaetae. Femur on ventral surface with 6–12 apically bifid macrochaetae on distal part, with 2 or 3 apically bifid macrochaetae and 2 or 3 simple large, strong macrochaetae in both sexes. Trochanter lacking scales, only with chaetae. Coxa of all legs covered with hyaline scales and with numerous large and strong bifurcate macrochaetae along the outer margins. Tarsus with four articles. On ventral surface of tarsomeres two rows of hyaline simple spines. First, second and third tarsomeres respectively with 4–12, 4–6 and 2 spines, absent on the last tarsomere. Pretarsus with long curved lateral claws and a strong curved shorter medial claw.

Table 1. Ratios of length to width (=1) of main leg segments of *Allacrotelsa taurica* sp. n.

Segments	Pair of legs, sex					
	fore		middle		hind	
	male	female	male	female	male	female
Tarsus	6.46	6.55	8.15	7.08	8.69	8.23
Tibia	2.73	2.95	3.46	3.23	3.85	3.76
Femur	1.76	1.84	1.65	1.72	1.62	1.69
Coxa	1.73	1.70	1.52	1.48	1.56	1.58

On abdomen urotergites I and VIII with 2 + 2 bristle combs including respectively 3 or 4 and 4 or 5 macrochaetae, urotergites II–VII with 3 + 3 combs of 3–5 macrochaetae, urotergite IX with 1 + 1 combs of 2 macrochaetae (Figs 16–18, Table 2). Urotergite X parabolic, with 1 + 1 subapical combs of 3–5 macrochaetae in both sexes (Fig. 19). Urosternites I–VII in female or I–VIII in male with one medial comb; urosternites II–VIII in male, urosternites II–VII and urocoxites VIII in female with 1 + 1 lateral combs (Figs 20–22). Number of macrochaetae in medial combs on urosternites I–VII 3–6, on VIII 3; 5–9 macrochaetae in lateral combs in both sexes.

Styli in two pairs in both sexes (VIII, IX), their apical macrochaeta simple and strong, about 0.2× length of styli. Styli IX 1.3 times as long as styli VIII. Ratio lengths of styli and coxites IX about 0.9 in male and 0.6–0.7 in female. Ovipositor (Fig. 23) not very long and thin, slightly surpassing the apex of stylus IX, composed of about 31 or 32 divisions. All divisions of anterior gonapophyses with chaetae, missing on one basal division of posterior gonapophyses. Chaetotaxy of gonapophyses as shown on Figs 24, 25. Penis typical for Heterolepismatinae with numerous glandular setae apically, each set on a protuberance. Parameres well developed, 2.2 times longer than wide, composed of five divisions with thin chaetae and inner lateral glandular formations on three distal divisions with setae apically (Fig. 26). Paraprocts with sharp-angled lateral projections (Fig. 27). Epiproct with a well-defined triangular indentation (Fig. 28).

Table 2. Number of macrochaetae per abdominal bristle comb of *Allacrotelsa taurica* sp. n.

Segments	Urotergite			Urosternite	
	lateral	sublateral	submedial	lateral	medial
I	3-4	3-4	–	–	5
II	4-5	4-5	4-5	6-8	3-5
III	4-5	4-5	4-5	5-9	5-6
IV	4-5	4-5	4-5	6-8	5-6
V	4-5	4-5	3-5	7-8	4-5
VI	4-5	4-5	3-5	7-8	4-5
VII	4-5	4-5	3-5	7-8	3-5
VIII	–	4-5	4-5	5-6	3 (male)
IX	2 (infralateral)	–	–	–	–

DIFFERENTIAL DIAGNOSIS. *Allacrotelsa taurica* Kaplin sp. n. is very similar to *A. kraepelini* in number and distribution of bristle combs on abdominal tergites (I and VIII urotergites with 2 + 2, II–VII – with 3 + 3, IX and X – with 1 + 1 combs) and abdominal sternites (I–VII urosternites in female or I–VIII in male with one median, II–VIII – in male, II–VII urosternites and VIII urocoxites in female with 1 + 1 lateral combs); two pairs of abdominal stylets (VIII and IX); well developed parameres in male. New species differs from *A. kraepelini* by the body size, morphological structure of labial palp, pronotum, prosternum, legs, ovipositor. Body length of *A. taurica* 8–11 mm, maximum length of *A. kraepelini* about 14 mm. Ratio of length to width of apical article of *A. taurica* sp. n. 1.8–2.0, *A. kraepelini* about 2.4. Pronotum of *A. taurica* sp. n. with 5 + 5, *A. kraepelini* with 3 + 3 lateral trichobotria. Ratio of length to width of prosternum *A. taurica* sp. n. 1.10, *A. kraepelini* 0.80. Ratio of length to width of coxa of hind leg of *A. taurica* sp. n. about 1.6, *A. kraepelini* 1.3. Ovipositor of *A. taurica* sp. n. includes 31–32, *A. kraepelini* 35–38 divisions.

ETYMOLOGY. The species name is an adjective referring to Taurida, an ancient name of the Crimea, where the holotype and paratypes were collected.

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