

NEW AND LITTLE KNOWN *SQUAMAPION* SPECIES (COLEOPTERA: APIONIDAE) FROM WESTERN PALAEARCTIC

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Abstract. — Three new species of the genus *Squamapion* are described: *S. mroczkowskii* from Ukraine, Poland and Austria, *S. oculatum* from Turkey and Armenia, and *S. latesquamatum* from Eastern Turkey and Iran. *Apion gracilitubus* (Desbrochers) rediscovered in Anatolia is redescribed and placed in the genus *Squamapion* (comb. nov.). Subdivision of the genus *Squamapion* into species groups is discussed.



Key words. — Coleoptera, Curculionoidea, Apionidae, *Squamapion*, new species, Western Palaearctic.

INTRODUCTION

The genus *Squamapion* Bokor, 1923 was placed in the supertribe Aspidapiitae and together with the genera *Kalcapion*, *Taeniapion* and *Melanapion* in the tribe Kalcapiini in recent reclassification of higher taxa of the Palaearctic Apionidae by Alonso Zarazaga (1990). It inhabits whole Palaearctic and Ethiopian regions and is poorly represented in Oriental region by species evidently closely related to Afrotropical ones, present in S India, SE China and Thailand (own, unpublished). Unique and highly specialised structure of paramerae and male 9th sternite (spiculum gastrale) in *Squamapion* indicates that the genus is the most derived among Kalcapiini. The African fauna of this group is poorly known and extremely diverse, in regard to both number of species and morphology. A thorough study of Afrotropical Aspidapiitae, and particularly the complex *Falsoconapion* group, is necessary to understand the origin and phylogeny of most of the tribes within this huge apionid group; the major problem with obscure tribal limits in the monophyletic assemblage Aspidapiini-Malvapiini-Kalcapini was earlier discussed by Wanat (1995).

In Palaearctic the genus *Squamapion*, though relatively speciose (over 30), is very uniform morphologically and causes great taxonomic problems at species level. No attempts have been made hitherto to subdivide this homogenous taxon into subgenera or species groups, though asymmetrical aedeagus and/or modified male terminal ventrite in two European species were recognised by some authors (Dieckmann 1977, Alonso Zarazaga 1990). A more detailed study on Palaearctic *Squamapion* revealed presence of two well defined groups of species, differing in a set of evident characters, though confined to male structures only. The first group comprises 3 species, including *S. elongatum* (Germar), *S. leucophaeatum* (Wencker)

and *S. latesquamatum* described in this paper. They are characterised by: 5th ventrite provided with well margined polished area or elevated longitudinal keel (*S. leucophaeatum*) at posterior margin, accompanied by more or less evident lateral depressions; metafemur not thicker than other femora; median lobe of aedeagus asymmetrical apically, without basal longitudinal keel on dorsal plate, with bases of apophyses connected with broad membrane and with long rows of spines within internal sac; tegminal plate with additional pair of strong submedian longitudinal carinae and relatively large sclerotized plates; spiculum gastrale seemingly Y-shaped, with broadly melanized arms joined with a complete transparent membrane. Members of this group, called here *elongatum* group, have relatively large (1.8–2.6 mm long) and elongate body, long rostrum in female, and two of them are known to live on *Salvia* species. The second group comprises all other Palaearctic members of the genus and is called here *vicinum* group. It is characterised by: male 5th ventrite uniform; metafemur always thicker than pro- and mesofemur (in some species, like *S. flavimanum* (Gyllenhal) or *S. delagrangi* (Desbrochers), the difference is very small); median lobe of aedeagus symmetrical, its apophyses free and dorsal plate with long median keel in basal part, internal sac with spines restricted to orificial region; tegminal plate with only one pair of median carinae along margins of longitudinal slit and sclerotized plates very small, spiculum gastrale large, scale-like, rounded, with rudimentary strut and folded margins. Species of this group vary in body size (length 1.0–2.7 mm in Palaearctic) and shape, most have compact body but in some elytra and/or rostrum are distinctly elongate. They develop on various genera of Lamiaceae, preferably *Thymus*, *Mentha*, *Origanum*, *Prunella* and *Nepeta*, but none is known to live on *Salvia*.

Considering criteria adopted for delimiting taxa of generic level in Apionidae by Alonso Zarazaga (1989, 1990)

and subsequent authors, the *elongatum* group possibly merits subgeneric rank, as it is supported by a set of well defined apomorphies. I have abandoned this idea here for two reasons. First, the Palaearctic fauna of *Squamapion* is undoubtedly the youngest phylogenetically and nothing will be known about its origin and relatives until presumably most primitive African Kalcapiini are analysed in detail. Second, male sexual characters do not serve as a solid ground for phylogenetic considerations in the Apionidae, because of easily appearing and repetitive homoplasies (Wanat 1996).

Because of the uniform appearance and diagnostic characters often based exclusively on insignificant differences in proportions of various body parts, the species of *Squamapion* cause many problems to taxonomists and we can expect a number of unrecognised, sibling species even in European fauna. Three such taxa and the one never recorded in literature since its description at the end of 19th century, of which I had at my disposal sufficient material of both sexes, are described in this paper.

MATERIAL AND METHODS

The list of source collections for the material used in this paper and type depositories, with the abbreviations used in the text, is presented below in alphabetical order.

- AR – A. Riedel's collection, Munich;
- DEI – Deutsches Entomologisches Institut, Eberswalde;
- ISEZ – Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Cracow;
- JF – J. Fremuth's collection, Hradec Kralove;
- MHNG – Muséum d'Histoire Naturelle, Genève;
- MIZW – Museum and Institute of Zoology, Polish Academy of Sciences, Warsaw;
- MNHW – Museum of Natural History, Wrocław;
- MNP – Muséum National d'Histoire Naturelle, Paris;
- MW – author's collection;
- NMW – Naturhistorisches Museum, Wien;
- PB – P. Białooki's collection, Sopot;
- SG – Ş. Güçlü's collection, Erzurum;
- USMB – Upper Silesian Museum, Bytom;
- VK – V. Karasjov's collection, Minsk;
- WS – W. Suppantšitsch's collection, Wien.

Letters „m” and „f” denote male and female respectively. For newly described species the labels are cited literally in quotation-marks, with explanations, if necessary, given in square brackets. All the drawings and measurements of specimens were made using the stereomicroscope Carl Zeiss Jena and grid eyepiece. Corresponding body parts in various species are drawn to the same scale. In order to examine male genitalia, slides in Canada balsam were made according to the standard procedure and stored on transparent plastic cards pinned under the specimens. The slides were examined in light microscope under 160 × and 640 × magnifications. SEM photos were

made in the Museum and Institute of Zoology PAS, Warsaw, thanks to the courtesy of Prof. P. Trojan.

In order to ascertain the variability range of proportions of various body parts, 20 measurements were taken from each species. Up to 5 most outstanding specimens of each sex were measured. The measurements were taken at 62.5 × (10 measurements) or 100 ×. In each species description the variability range of the proportions between particular body parts is given as a synthetic set of 22 indices in tables 1–4. Explanation of abbreviations of particular measurements and techniques used are listed below in alphabetical order.

- apw** – pronotum width at anterior margin,
- arw** – width of rostrum apex,
- bew** – width of elytral base, measured through the middle of humeral calli,
- bpw** – pronotum width at base (=maximum pronotum width),
- brl** – distance between antennal insertion and rostrum base (in species with large mesorostral teeth the distance was measured from their apices),
- el** – elytra length, measured in top view in a position when the base and apex of elytra are at the same level,
- eyl** – eye length, measured in top view, when the head is horizontally positioned,
- hl** – head length (the measurement considers the natural degree of its withdrawal into pronotum),
- hw** – head width, measured across the middle of eyes,
- mew** – maximum elytra width,
- minrw** – minimum rostrum width,
- mpw** – median pronotum width,
- msrw** – maximum mesorostrum width,
- mtrw** – minimum metarostrum width,
- pft** – maximum thickness of profemur,
- pl** – pronotum length,
- ptbl** – protibia length,
- ptbmw** – maximum width of protibia, excluding the brown vestiture on the inner side of tibia apex,
- rl** – rostrum length, measured in top view, in a position in which the base and apex are at the same level,
- scl** – antennal scape length.

The body length was measured in top view, from the base of rostrum to the apex of elytra, in a position in which they are at the same level. The antennal insertion determines the ratio between their distance from the eye and the total rostrum length.

In the descriptions, female genitalia and characters of ventral side of the body are omitted, unless they are taxonomically important. All described species are macropterous and able to fly.

TAXONOMY

Squamapion mroczkowskii sp. nov.
(Figs 1, 3, 5, 7, 13–14)

Etymology. Named after Prof. Maciej Mroczkowski, outstanding Polish coleopterist, a guardian of nomenclatural correctness of beetle names and co-author of the monumental Coleopteran part of the Catalogus Faunae Poloniae.

Diagnosis. Among central European members of the genus it is closest related to *S. atomarium* (Kirby), from which it differs in the following characters (for indices of *S. mroczkowskii* see Table 1, here in parentheses respective indices of *S. atomarium*). Rostrum shorter and thicker in both dorsal and lateral view (rl/msrw m: 3.35–3.89, f: 4.64–5.50, scl/msrw m: 1.09–1.15), head narrower – particularly in female (hl/hw f: 0.53–0.61, hw/eyl m: 1.88–2.23, f: 2.30–2.45, mpw/hw m: 1.57–1.63, f: 1.63–1.82), pronotum narrower and smaller in relation to elytra (el/pl m: 2.74–2.83, f: 2.72–2.93, bew/mpw mf: 1.27–1.33, mew/mpw m: 1.42–1.45, f: 1.45–1.58, ptbl/pl m: 1.22–1.28, f: 1.15–1.22), elytra much weaker rounded at sides and subrectangular in outline (Figs 1–8). Only larger specimens of *S. atomarium* were taken into account and measured for comparison; in minute specimens (body length less than 1.5 mm) rostrum and pronotum proportions vary considerably and are often closer to those of *S. mroczkowskii*, but elytra are then constantly more rounded, making such dwarf specimens easy to distinguish from *S. mroczkowskii*.

Table 1. Indices of *Squamapion mroczkowskii*.

	male	female
brl/eyl	0.35–0.45	0.49–0.75
rl/pl	1.00–1.10	1.30–1.45
rl/msrw	2.86–3.16 [3.28]	3.86–4.34
scl/msrw	0.88–1.05	1.08–1.23
msrw/mtrw	1.04–1.07	1.00–1.04
msrw/arw	[1.23]	1.17–1.26
msrw/minrw	1.28–1.34 [1.23]	1.24–1.31
msrw/eyl	0.73–0.81	0.82–0.86
eyl/hl	0.75–0.80	0.69–0.78
hl/hw	0.67–0.73	0.62–0.71
hw/eyl	1.72–1.88	2.00–2.11
mpw/hw	1.43–1.51	1.53–1.63
bpw/apw	1.33–1.43	1.35–1.44
pl/mpw	0.79–0.86	0.75–0.80
bew/mpw	1.39–1.48	1.39–1.46
mew/mpw	1.56–1.62	1.57–1.68
el/pl	2.87–3.02 [3.08]	3.11–3.25
el/mew	1.49–1.57	1.44–1.57
mew/bew	1.08–1.14	1.11–1.16
pft/msrw	0.93–1.04	0.99–1.10
ptlb/pl	1.25–1.35	1.28–1.34
ptlb/ptbaw	5.83–6.27	5.23–5.88

The new species resembles *S. vicinum* (Kirby) in pronotum/elytra proportions, but differs from it in smaller body size (total length 1.80–2.30, in females >2.00 mm in *S. vicinum*), stronger arched male rostrum, less conical pronotum, less prominent humeral calli, protibiae shorter and equally long in both sexes (in *S. vicinum* ptbl/pl m: 1.45–1.55, f: 1.40–1.45, ptbl/ptbaw m: 6.77–8.23, f: 6.21–6.55) and usually broader tarsi (*S. vicinum*: 1st segment of protarsus in male 1.8–2.0 ×, in female 1.6–1.7 × longer than broad). Mediterranean *S. consors* (Desbrochers) has similar body size and resembles *S. mroczkowskii* in rostrum shape and subrectangular elytra, but is distinct in having relatively larger pronotum and much longer protibiae.

Description. Length m: 1.63–1.82, f: 1.81–1.86 mm. Body black; in male antennae testaceous with darker club and sometimes darkened distal part of funicle, femora black, all tibiae dark brown to nearly black, bases of protibiae often lightened; in female antennae and tibiae dark brown to nearly black. Vestiture cream-white, moderately dense, composed of piliform scales arranged in a single regular row on elytral intervals and as long as interval's breadth, at bases of intervals 2–4 the scales more numerous forming confused rows; striae scales slightly finer, at most distinctly separated each from other.

Rostrum relatively short and stout, slightly narrowing apicad, with apical half of prorostrum often cylindrical, in profile distinctly and more or less regularly curved with prorostrum in male slightly narrowing distad (Figs 1, 3, 5, 7); rostrum shagreened and almost mat in both sexes, irregularly and very shallowly punctate, in male with sparse, whitish, piliform scales on about 3/4 length, in female with finer and sparser scales vanishing about middle of rostrum.

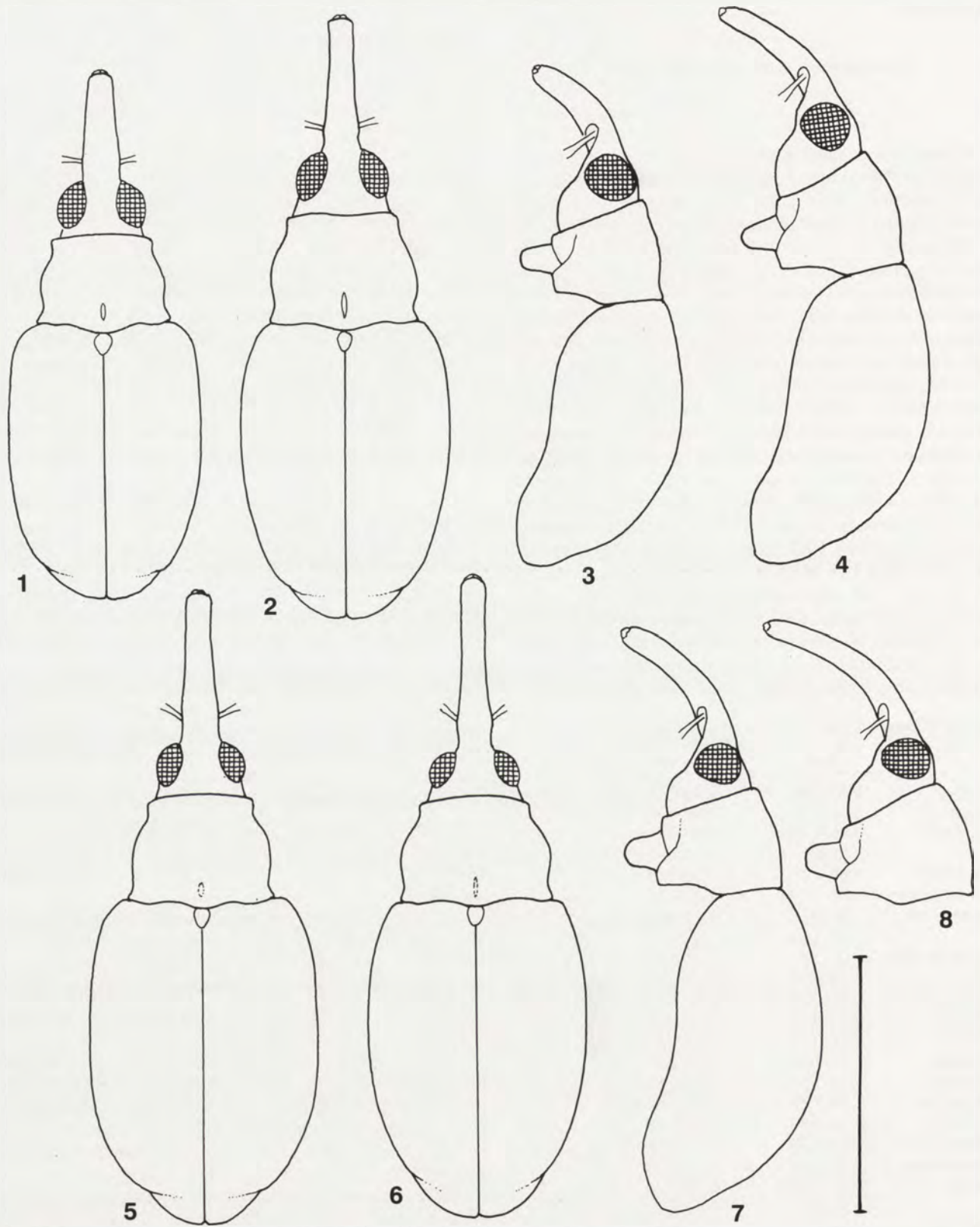
Head transverse but in both sexes visibly narrower than in *S. atomarium*; eyes in male moderately large, regularly convex, in female distinctly smaller; frons flat or in male barely depressed, rugosely punctate and strongly microsculptured.

Antennae inserted at basal 0.15–0.20 of rostrum, slender, with fine, whitish, poorly erect setae; scape in male 3.3–3.8 ×, in female 4.3–5.0 × longer than broad; first funicular segment 1.7–1.8 ×, second about 2.0 × as long as broad, segments 3–6 elongate, 7 isodiametric; club compact, 2.0–2.5 × longer than wide.

Pronotum much narrower than elytra and relatively small, more or less distinctly rounded in middle; disc poorly convex, densely punctate, punctures of about 2 × ommatidium size, 0.3–0.5 diameter apart, interspaces usually convex, strongly microreticulate; prescutellar fovea minute.

Elytra subrectangular in outline; intervals 1.5–2.0 × as wide as striae, flat, rugosely microsculptured, with only traces of punctures; striae sharply margined, with septae between punctures distinctly deepened.

Legs moderately slender; in male hind femora thickened as in *S. atomarium*; tibiae relatively short, protarsi



Figures 1-8. 1, 3, 5, 7. *Squamapion mroczkowskii*; 2, 4, 6, 8. *S. atomarium*. 1-8. Dorsal and lateral body outlines: (1-2) male, dorsal; (3-4) male, lateral; (5-6) female, dorsal; (7-8) female, lateral (8 - elytra omitted). Scale bar 1 mm.

strongly variable, 1st segment 1.3–2.0 × longer than broad, 2nd distinctly shorter than 1st and 0.9–1.3 × as long as broad, 3rd small, with narrow lobes, onychium 1.2–1.4 × longer than 2nd segment.

Basic indices in Table 1.

Tegmen with manubrium slightly longer than forked basal piece; tegminal plate with median carinae moderately separated, reaching sclerotized plates and curved outwards just above them; sclerotized plates each bearing 6–8 pores; apical membranous lobes well developed, broadly separated, margined with microchaetae (Fig. 14); whole folded margins of tegminal plate with very fine, dense longitudinal carinae.

Median lobe symmetrical, variably narrowed in distal half, usually slightly narrower than in *S. atomarium*, always with a short, blunt tip (Fig. 13); tectum with melanized median carina reaching half length of the lobe; internal sac with M-shaped aggregation of spines in orificial region, outer spines very small and arranged in a few quite regular rows, inner spines longer and confused.

Spiculum gastrale not distinct from that in other members of the *vicinum* group, shaped as in Fig. 18.

Types. Holotype m: „W Ukraine: Podolia: Kolodiyivka, Mt. Teremets at Dnestr, 48°37'N/26°58'E, 20.6.1996, leg. P. Białooki” (MNHV). Paratypes (10m 8f): same data as holotype: 2m, 5f (PB); same data, leg. M. Wanat (MW): 2m, 1f; Podolia: „Zaleszczyki, 21 VII 1930”, 1m, leg. S. Tenenbaum (MIZW); SE Poland: „Galicya wsch., Przemyśl, B. Kotula, 14/5477, not. 285” [Przemyśl, slope between Góra Zamkowa and Trzy Krzyże, 12 VII 1884], 1m, „Galicya wsch., Przemyśl, B. Kotula, 14/5477, not. 286” [Przemyśl, Winna Góra, 13 VII 1884], 2m – coll. B. Kotula (ISEZ); S Poland: „474”, „Polonia m., distr. Chrzanów, Libiąż [ca. 8 km NE Oświęcim], 16.8.1885, leg. Stobiecki”, 1f (ISEZ); „Podlesice [near Zawiercie], 9.7.[19]72, leg. A. Kuśka”, 1f (USMB); NE Poland: „Puszcza Augustowska [Augustów Forest]: Rubcowo, 13.07.1977, żw. [gravel-pit]”, 1m, leg. M. Wanat (MW); Austria: „Mödling”, 1m, coll. H. Perrot (MHNG).

Variation. The species is much less variable than *S. atomarium*, particularly with respect to the body size, degree of eye convexity, and the shape of head, pronotum and elytra. In the examined series greater differences were observed in rostrum length and shape, in some specimens approximating respective ratios in *S. atomarium*, and in the shape of protarsi. Among the type series, the single male from Rubcowo (NE Poland) is outstanding in its longer and thinner rostrum, and its respective indices are given separately in square brackets in Table 1. Contrary to external characters, the shape of aedeagus is more variable in *S. mroczkowskii* than in its relative.

Bionomics. Host plant unknown. Beetles were swept from dried xerothermophilous grassland in Podolia, also the localities in Przemyśl, where the species was found by B. Kotula, are of similar type. Dates of collecting most of the type specimens indicate that the species may be associated with calcareous soils and stones, and new genera-

tion appears about two-three weeks earlier (end of June till mid July) than in other central European *Squamapion* species.

Distribution. Western Ukraine (Podolia), Poland, Austria.

Squamapion oculatum sp. nov.

(Figs 9–12, 15–16)

Etymology. From Latin *oculus* – eye, derived from the extraordinarily large, hemispherical eyes in male.

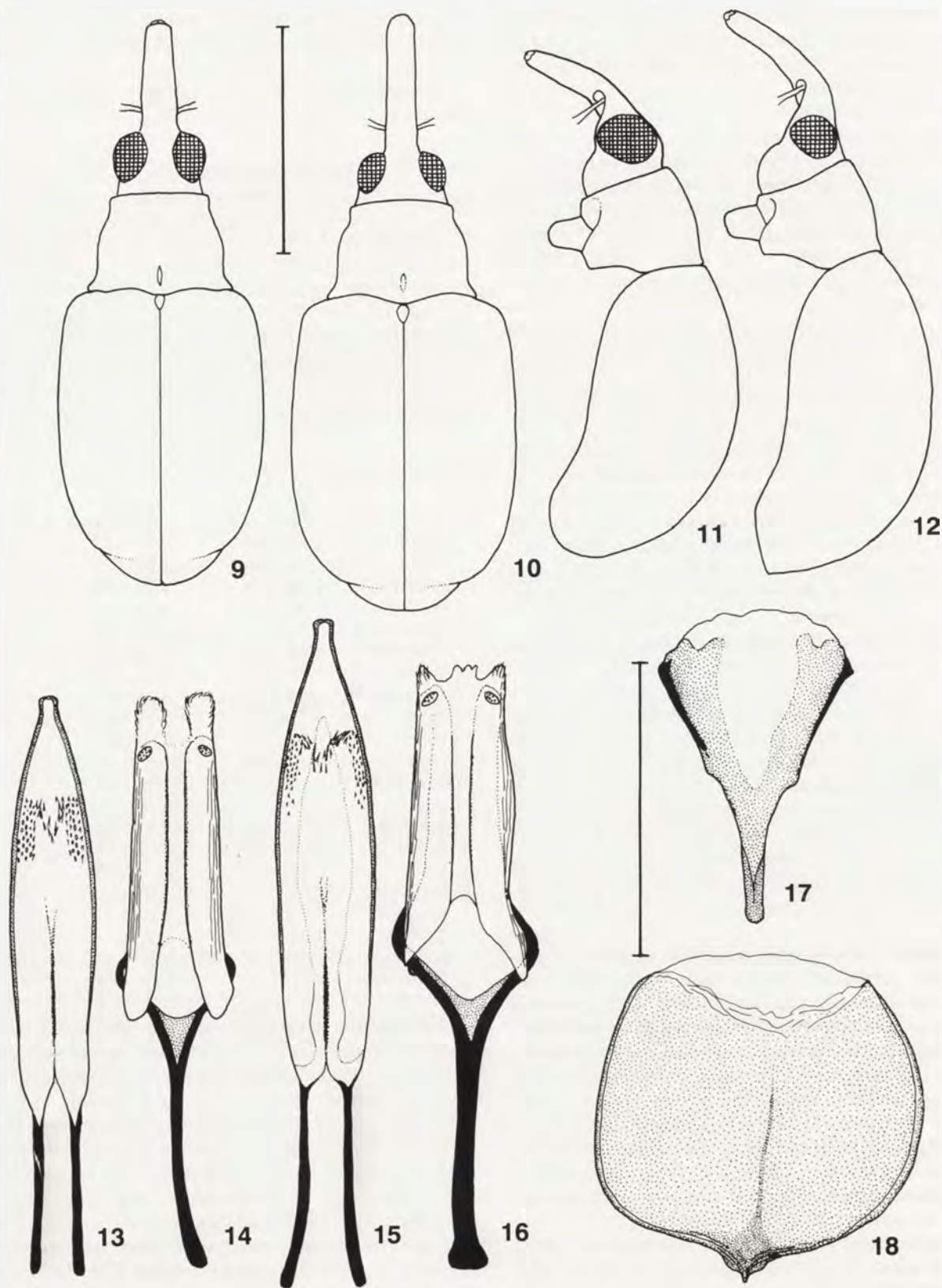
Diagnosis. Well distinguished from other „short-bodied” species of the *vicinum* – group by its relatively short and strongly curved rostrum, which is angled subbasally in profile and scalariferous to nearly the tip in both sexes, extraordinary large eyes in male, pronotum poorly rounded at sides and having its hind angles strongly protruding outwards, and elytra subrectangular in dorsal outline.

Table 2. Indices of *Squamapion oculatum*.

	male	female
br/eyl	0.28–0.43	0.50–0.55
rl/pl	0.96–1.04	1.28–1.38
rl/msrw	2.66–3.20	4.03–4.34
scl/msrw	0.86–1.19	1.16–1.27
msrw/mtrw	1.00–1.08	1.00–1.03
msrw/arw	1.33–1.42	1.18–1.25
msrw/minrw	1.33–1.42	1.18–1.25
msrw/eyl	0.63–0.67	0.74–0.79
eyl/hl	0.77–0.86	0.76–0.86
hl/hw	0.71–0.76	0.58–0.67
mpw/hw	1.35–1.43	1.46–1.52
bpw/apw	1.38–1.46	1.36–1.43
pl/mpw	0.77–0.87	0.76–0.83
bew/mpw	1.40–1.46	1.45–1.48
mew/mpw	1.63–1.67	1.69–1.74
el/pl	2.96–3.26	3.12–3.33
el/mew	1.50–1.57	1.48–1.55
mew/bew	1.12–1.17	1.16–1.19
pft/msrw	1.02–1.12	1.00–1.10
ptlb/pl	1.35–1.49	1.25–1.43
ptlb/ptbaw	6.75–7.86	6.25–7.14

Description. Length 1.75–2.12 mm. Body black; in male antennae orange-testaceous with much darker club, femora black, all tibiae unicolor, dark brown, their basal parts usually lightened, sometimes up to 1/3 length; in female antennae and tibiae dark brown to brownish-black. Vestiture white to greyish, composed of piliform scales, ordered in a single row on elytral intervals and as long as or slightly shorter than interval's breadth, at bases of intervals 2–4 the scales more numerous forming short multiple rows and often a poorly condensed patch at base of interval 3; striae similar to those on intervals, barely separated from each other.

Rostrum subcylindrical or in male pronotum slightly tapering, in profile strongly bent above antennal insertion and with pronotum weakly curved to nearly straight, nar-



Figures 9–18. 9–12, 15–16. *Squamapion oculatum*; 13–14. *S. mroczkowskii*; 17. *S. latesquamatum*; 18. *S. gracilitubus*. 9–12. Dorsal and lateral body outlines: (9, 11) male; (10, 12) female. 13–16. Genitalia: (13, 15) penis, dorsal; (14, 16) tegmen, dorsal. 17–18. Spiculum gastrale. Scale bar for 9–12: 1 mm, for 13–18: 0.25 mm.

rowing to apex in male or equally high on whole length in female (Figs 9–12); rostrum weakly shining (stronger in female), shallowly punctate and clothed with hair-like scales to nearly apex, in male vestiture white and very dense, in female much finer and sparser, especially on distal part of pronotum.

Head strongly transverse; eyes in male very large, almost hemispherical, taking whole height of head in profile, in female much smaller and moderately prominent; frons narrower (male) or as wide as rostrum base (female), flat, with dense punctures and indistinct median fovea in some specimens.

Antennae inserted at basal 0.15–0.21 of rostrum, slender, finely setose; scape in male 3.7–4.7 ×, in female 4.7–5.3 × longer than broad; first funicular segment 1.7–1.8 ×, second about 2.0 × (male) or 2.5 × (female) as long as broad, terminal segment isodiametric; club slightly longer than 4 distal funicular segments combined.

Pronotum poorly rounded at sides, with strongly prominent hind angles; disc flattened to weakly convex, with punctures of about 2 × ommatidium size, 0.3–0.5 diameter apart, interspaces mostly uneven, microreticulate; prescutellar fovea inconspicuous, not longer than 3 punctures.

Elytra subrectangular; intervals 1.5–1.8 × as wide as striae, flat, rugosely microsculptured, with single row of shallow and indistinct punctures; striae sharply margined, catenulate, with septae deepened.

Legs slender; in male hind femora moderately thickened; protarsi very narrow, 1st segment in male 2.2 ×, in female 1.9–2.0 × longer than broad, 2nd respectively 1.6 × and 1.3–1.4 ×, 3rd small, with narrow lobes, onychium as long or slightly shorter than 2nd.

Basic indices in Table 2.

Tegmen with manubrium slightly longer than forked basal piece; tegminal plate with median carinae moderately separated and vanishing far behind the top of paramerae; sclerotized plates each bearing 6–8 pores; apical membranous lobes rudimentary, with some microchaetae at outer margins only (Fig. 16); whole folded margins of tegminal plate with very fine, dense longitudinal carinae.

Median lobe symmetrical, 4.6–4.8 × longer than broad, with moderately long narrowed tip (Fig. 15); tectum with melanized median carina reaching half length of the lobe; internal sac with M-shaped aggregation of minute spines becoming longer inside orifice.

Spiculum gastrale typical for the *vicinum* group, shaped as in Fig. 18.

Types. Holotype m: „Turcia (Gümüsh.) [Gümüshane], ad Pirahmet, 1300 m, 25.VI.1994, leg. A. Warchalowski” (MW in MNHW). Paratypes 4m 4f: [E Turkey:] „westl. Gevas, Asm, 2200 m, 20.6.78”, 1m 1f; „ostw. Vansee, Asm, 1800–2200 m, VI.68”, 1m 2f; „Mardin, Asm. or., 1700 m, 28/31.5.70”, 1m – all leg. F. Schubert (NMW, MW); „Armenia: Khosrov, 1500 m alt., 30.06.1989”, 1f; as above but „...1500–1700 m alt., 3.07.1989”, 1m – both leg. V. Karasjov (VK).

Bionomics. Unknown.

Distribution. Turkey (Eastern Anatolia), Armenia.

Squamapion gracilitubus

(Desbrochers des Loges, 1896) comb. nov.
(Figs 18–22, 26–28)

Apion gracilitubus Desbrochers des Loges, [1896]: 107 (253).

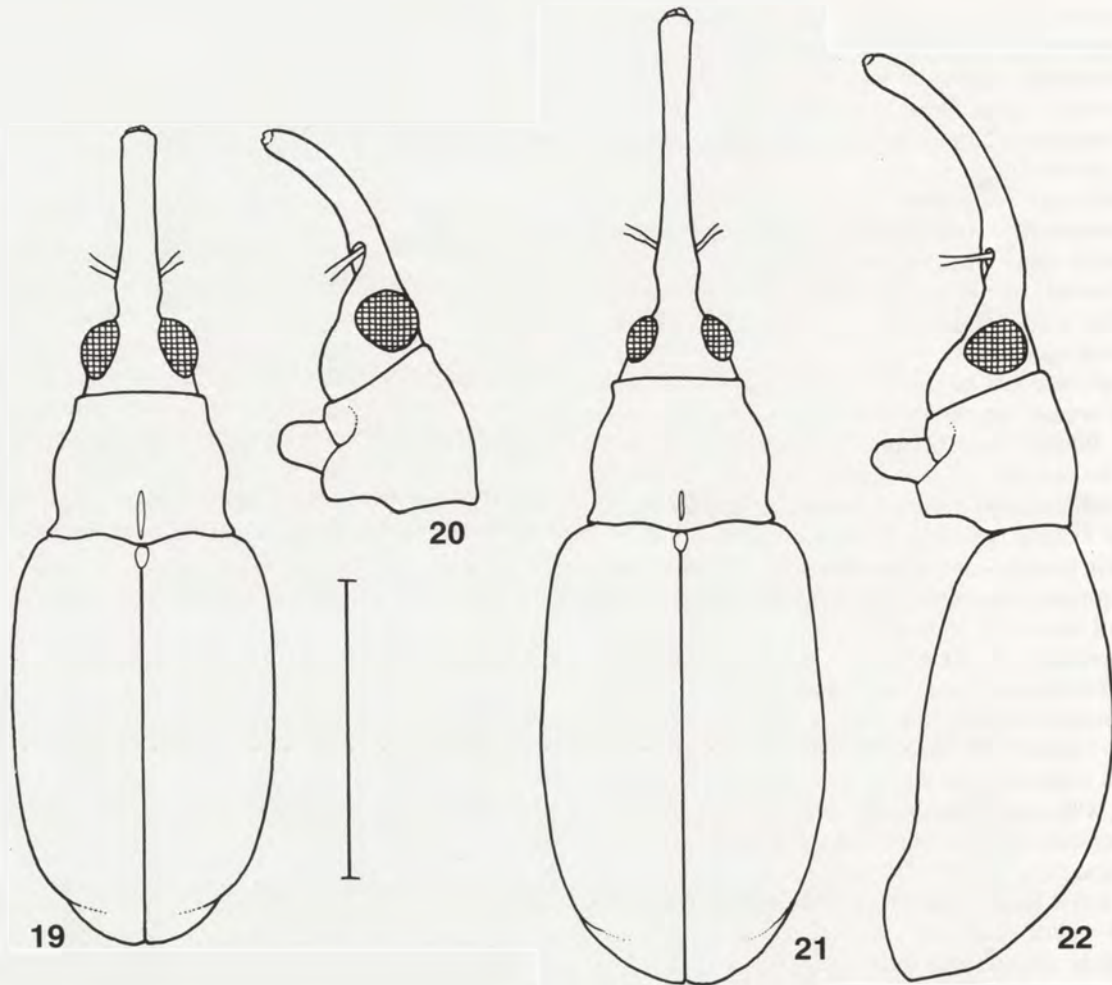
Diagnosis. In its long female rostrum, elongate elytra and relatively large body the species resembles members of the *elongatum* group, but unmodified 5th ventrite and swollen hind femora in male, and symmetrical median lobe of aedeagus clearly place it in the *vicinum* group. Thin rostrum, very long, shiny and sparsely punctate in female, and very slender antennae with the scape even 8 × longer than its apical width in female, combined with the above-mentioned characters allow an easy separation of this species from all other Palaearctic *Squamapion*.

Table 3. Indices of *Squamapion gracilitubus*.

	male	female
brl/ey	1.060–0.71	1.19–1.49
rl/pl	1.12–1.26	1.70–1.92
rl/msrw	3.94–4.18	6.55–8.14
scl/msrw	1.38–1.39	1.73–2.04
msrw/mtrw	1.05–1.08	1.06–1.10
msrw/arw	1.19–1.30	1.16–1.21
msrw/minrw	1.21–1.34	1.28–1.36
msrw/eyl	0.72–0.76	0.79–0.87
eyl/hl	0.77–0.80	0.71–0.82
hl/hw	0.70–0.71	0.55–0.64
mpw/hw	1.46–1.52	1.69–1.79
bpw/apw	1.31–1.39	1.30–1.49
pl/mpw	0.89–0.95	0.84–0.93
bew/mpw	1.33–1.35	1.29–1.33
mew/mpw	1.48–1.55	1.49–1.60
el/pl	2.67–2.89	2.86–3.08
el/mew	1.65–1.71	1.69–1.74
mew/bew	1.12–1.17	1.13–1.22
pft/msrw	1.15–1.17	1.09–1.35
ptlb/pl	1.16–1.20	1.09–1.25
ptlb/ptbaw	6.38–7.57	5.89–7.54

Redescription. Length m: 1.82–2.15, f: 2.07–2.51 mm. Body black; antennae testaceous with darker club to uniformly dark brown, usually darker in female; legs brownish-black to black, usually with lighter „knees” and bases of protibiae, in male whole protibia reddish to brown. Vestiture distinct, white, composed of piliform to narrowly lanceolate scales, as long as elytral interval’s breadth, usually and sometimes distinctly broader in females, in some the scales may be truncate at apex, on elytral intervals arranged in 2–3 confused rows, in striae similar to those on intervals, narrowly separated from each other.

Rostrum obtusely dilated subbasally, clothed with sparse hair-like scales in basal 3/4 length, the scales similar to those on head at base of rostrum, become much thinner distad; rostrum length differs very much between sexes (Figs 19, 21); in male shagreened in basal half, distal



Figures 19–22. *Squamapion gracilitubus*, dorsal and lateral body outlines: 19–20. Male (20 – elytra omitted); 21–22. Female. Scale bar – 1 mm.

part of pronotum densely punctate and weakly shining, in profile straight in basal half and then regularly arched (Fig. 20); in female polished and finely punctate on whole length, strongly curved (Fig. 22), with meta- and mesorostrum of subequal breadth, pronotum much thinner and expanded apically in both dorsal and side views.

Head strongly transverse; eyes much smaller and less prominent in female; frons as wide as mesorostrum or wider, rugosely punctate, slightly concave in male, flat in female.

Antennae inserted at basal 0.20–0.24 of rostrum, very thin, with poorly protruding white setae; scape in male 5.0–5.5 ×, in female 7.0–8.0 × longer than broad; all funicular segments elongate, 1st at least twice, 2nd 2.5–3.0 ×, 7th about 1.3 × as long as broad; club small, not longer than 4 distal funicular segments combined.

Pronotum moderately rounded at sides; disc regularly convex in profile, with punctures of about 2 × ommatidium size, less than half diameter apart, interspaces flat, microreticulate; prescutellar fovea not broader than disc punctures, variably long.

Elytra parallelsided in male, weakly widening backwards and widest behind middle in female; intervals 1.5 × wider than striae, flat, rugosely microsculptured, puncturation obscured; striae sharply margined, catenulate, with septae deepened.

Legs moderately long in both sexes, slender; in male hind femora moderately thickened; protarsi narrow, 1st segment almost 2 ×, 2nd about 1.4 × longer than broad, 3rd small, with narrow lobes, onychium slightly longer than 2nd.

Basic indices in Table 3.

Tegmen with manubrium and forked basal piece subequal in length; tegminal plate with median carinae widely separated and vanishing far behind sclerotized plates; these very small, each bearing 7–8 punctures some of them with microscopic setae; apical membranous lobes separated, with dense microchaetae around outer margins (Fig. 28); whole folded margins of tegminal plate with very fine, dense longitudinal carinae.

Median lobe narrow, 5.5–6.0 × longer than broad, with long narrowed tip which is slightly downcurved in profile

(Figs 26, 27); tectum with melanized median carina reaching nearly half length of the lobe; internal sac with a reversed U-shaped aggregation of very dense, uniform, minute spines in orificial region and several extremely fine lines (folds) in basal part.

Spiculum gastrale very large, as in Fig. 18.

Material examined. „Perse sept.”, 1f (type?), coll. Desbrochers des Loges (MNP). [SE Turkey:] „ostw. Vansee, Asm, 1800–2200 m”, VI.71, 4m 3f, 12 VII.75, 1m 4f, VII 75, 4m 1f – leg. F. Schubert (NMW, MW); Hakkari prov.: Ortabag, 27 VI 1989, 3f, leg. Barries & Cate (WS, MW); ca. 20 km NE Hakkari, 8 VIII 1988, 1f, leg. A. Riedel (AR); Central Turkey: Ankara prov.: Baglum, 11 VII 1979, 1m, leg. N. Lodos (JF).

Bionomics. Unknown.

Distribution. Central & Eastern Turkey, (Iran?, Armenia?).

Remarks. The only specimen standing under the name *gracilitubus* in Desbrocher's collection fits well with the original description, but it is labelled „Perse sept.” and no „type” statement is added on the label. The species was originally recorded from „Arménie” based on uncertain number of females. Generic placement of this species for a long time has remained obscure. It has never been recorded since its description in 1896, where it was grouped with various species, at most of the present genera *Catapion*, *Eutrichapion* and *Hemitrichapion* (Section XIV, sous-section I, group II in Desbrochers' monograph), and not (except *fissile* Faust) with the species presently classified in *Squamapion*.

Squamapion latesquamatum sp. nov.
(Figs 17, 23, 29–30)

Etymology. From Latin *latus* – broad and *squama* – scale, reflecting body vestiture (especially of females) composed of dense scales broader than in related species.

Diagnosis. Male 5th ventrite modified, aedeagus asymmetrical and seemingly forked spiculum gastrale place the new species in the *elongatum* group. It is distinct from *S. elongatum* in body vestiture composed of broader scales in female, rostrum slightly shorter (in *S. elongatum*: rl/pl m: 1.34–1.42, f: 1.85–1.95, rl/msrw m: 4.51–5.02, f: 6.25–6.72) and in both sexes clothed with white hair-like scales on some 3/4 length, and elytra relatively broader, with more prominent humeral calli in both sexes. More evident diagnostic characters concern the structure of male 5th ventrite and median lobe of aedeagus. The ventrite is more obtusely rounded, with apical polished area kidney-shaped, totally visible when the ventrite is seen in exactly vertical view, and taking one-third of total ventrite length (Fig. 23). In *S. elongatum* the polished area is much shorter (one-fifth of the ventrite length, though it seems even shorter when the ventrite is viewed vertically, because of inclination) and more transverse, subrectangular in shape (Fig. 24). The outcurved apex of aedeagus is broad and spatulate (Fig. 30) in the new species, whereas it is narrow

and parallelsided or tapering in *S. elongatum* (Fig. 31). The differences between the new species and *S. leucophaeatum* are analogous, except that 5th ventrite is distinctly emarginate and has no clear median polished area in the latter species (Fig. 25).

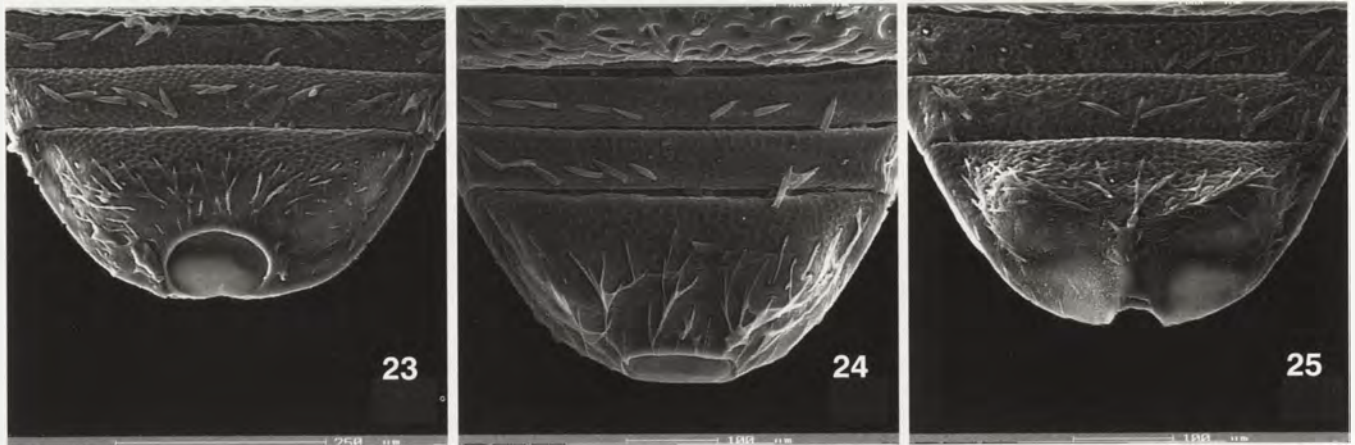
Description. Body length m: 1.92–2.32, f: 1.92–2.51 mm. Body black; male antennae and protibiae orange-red to testaceous, antennal club brownish-black; in female antennae dark brown to black, protibiae testaceous to almost black (only in females from Artvin), usually lighter than meso- and metatibiae but darker than male protibiae; remaining parts of legs black in both sexes, rarely in male meso- and metatibiae dark brown.

Vestiture distinct, differs between sexes, white, sometimes cream-white; in male composed of piliform to narrowly lanceolate scales, on elytra often truncate, not very distinct from scales in *S. elongatum*, unordered in 2–3 confused rows on elytral interval, only at elytral base more condensed, as long as or shorter than elytral interval's breadth; in female the scales always denser and broader though strongly variable in shape, 3–6 times longer than broad, usually truncate, in 3 confused rows on intervals, in some females almost entirely covering the surface of pronotum and elytral intervals, giving the beetle white colouration; scales in striae not distinct from those on intervals, often contiguous.

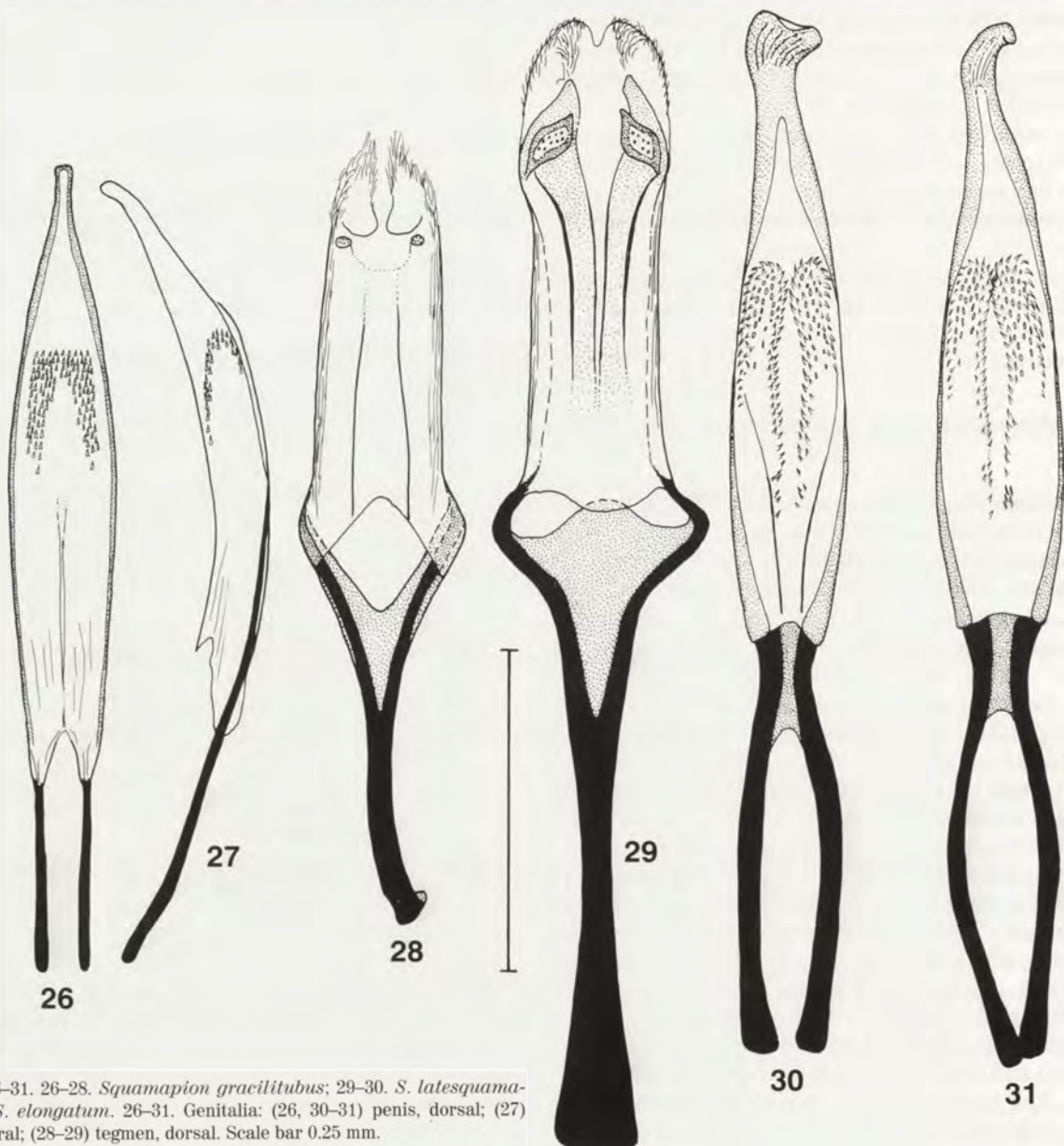
Table 4. Indices of *Squamapion latesquamatum*.

	male	female
brl/eyl	0.76–0.80	1.15–1.32
rl/pl	1.22–1.36	1.69–1.82
rl/msrw	3.55–4.25	5.60–5.96
scl/msrw	1.06–1.26	1.37–1.46
msrw/mtrw	1.08–1.19	1.09–1.16
msrw/arw	1.13–1.37	1.16–1.30
msrw/minrw	1.15–1.37	1.22–1.37
msrw/eyl	0.73–0.84	0.83–0.88
eyl/hl	0.72–0.78	0.67–0.81
hl/hw	0.71–0.83	0.69–0.73
mpw/hw	1.41–1.57	1.51–1.68
bpw/apw	1.29–1.38	1.27–1.38
pl/mpw	0.87–0.95	0.88–0.97
bew/mpw	1.36–1.40	1.36–1.39
mew/mpw	1.57–1.64	1.64–1.78
el/pl	2.95–3.25	3.06–3.35
el/mew	1.70–1.77	1.69–1.78
mew/bew	1.15–1.19	1.19–1.28
pft/msrw	1.11–1.24	1.00–1.09
ptlb/pl	1.26–1.45	1.21–1.34
ptlb/ptbaw	7.60–8.50	7.06–8.33

Rostrum cylindrical, obtusely dilated at antennal insertion, weakly and regularly arched, alutaceous and densely punctate, covered with moderately dense, white, hair-like scales in basal 3/4 length, the scales on prorostrum are very fine and often abraded in males, denser and better preserved in females, especially in those with broader scales on the body.



Figures 23–25. Male last ventrites: (23) *Squamapion latesquamatum*; (24) *S. elongatum*; (25) *S. leucophaeatum*.



Figures 26–31. 26–28. *Squamapion gracilitubus*; 29–30. *S. latesquamatum*; 31. *S. elongatum*. 26–31. Genitalia: (26, 30–31) penis, dorsal; (27) penis, lateral; (28–29) tegmen, dorsal. Scale bar 0.25 mm.

Head shape, sculpture, differences in eye size between sexes and variation in degree of its convexity as in *S. elongatum*.

Antennae inserted at basal 0.23–0.27 of rostrum, slender, with poorly protruding white setae; scape in male similar as in *S. elongatum*, in female slightly shorter; funicular segments variable, usually less elongate than in *S. elongatum* and two distal segments often isodiametric.

Pronotum weakly rounded at sides, with hind angles poorly prominent outwards; disc weakly convex to nearly flat in profile, roughly sculptured as in *S. elongatum*; prescutellar fovea obsolete.

Elytra slightly broader than in *S. elongatum*, due to more prominent humeri at base more wider than pronotum, subrectangular in male, weakly widening backwards in female; intervals and striae as in *S. elongatum*.

Legs not distinct from those in *S. elongatum*; male hind femora not thickened.

Male 5th ventrite broadly rounded, with polished area deepened, well margined, 1.5–1.6 × wider than long, 0.30–0.35 of total ventrite length, kidney-shaped (Fig. 23); apical half of the ventrite more regularly convex than in *S. elongatum* and polished area less inclined, therefore better visible in exactly vertical view; latero-marginal depressions obsolete to nearly absent; hair-like scales on two highest elevated parts of the ventrite half-erect.

Basic indices in Table 4.

Tegmen similar as in *S. elongatum*, with manubrium broad and flattened; arms of basal piece broadly connected with a half-sclerotized membrane; tegminal plate with median carinae narrowly separated, divergent towards sclerotized plates and vanishing behind prostegium margin; a pair of submedian carinae very distinct, curved outwards near sclerotized plates; these large, each with a broad, stronger sclerotized margin around, bearing 7–8 pores; apical membranous lobes well developed, united, with dense short microchaetae along margins and a paired cluster of longer, curved outwards microchaetae (Fig. 29); whole folded margins of tegminal plate with very fine, dense longitudinal carinae.

Median lobe asymmetrical, with the apical, outcurved part broad and spatulate (Fig. 30), with a few fine oblique lines; tectum without median carina in basal half; internal sac bilobed, each lobe with numerous spines, slightly larger and reaching basal 0.2 penis length (excl. apophyses) along inner lobe margins; apophyses very thick, at bases broadly connected with a poorly sclerotized membrane.

Spiculum gastrale shaped as in Fig. 17, with a short strut and straight, broadly sclerotized forked arms fully connected with a transparent membrane.

Types. Holotype m: [E Turkey] „ostw. Vansee, Asm, 1800–2200 m, E 7.75, F. Schubert” (NMW). Paratypes 6m 16f: „Anatolien: ca. 20 km n.ö. Hakkari, 8.8.1988, 1f, leg. A. Riedel” (AR); „Y. Eli, Artvin, 15 VIII 1991”, „Şeftali”, „24”, 2f, leg. R. Hayat (SG, MW); „Kagizman, Kars, 19 VII 1991”, „24”, 1m, leg. Ş. Güçlü (SG); „Iran, Luristan: Burujird, X 1970, 5f, Warchalowski leg.” (DEI, MW); „Iran: Tehran: Avadj, 35°38'N/49°13'E, 27.VII.73, 1f, A. Senglet” (MHNG); „Iran: Tehran: Pol-e-Djadjirud, 35°45'N/51°42'E, 16.VII.73, 5m 8f, A. Senglet” (MHNG, MW).

Bionomics. Unknown.

Distribution. Turkey (Eastern Anatolia), Iran.

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