

New Data on the Representatives of the Genus *Platystoma* Meigen (Diptera, Platystomatidae), with Description of *P. soosi*, sp. n.

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Abstract

Platystoma suave Loew and *P. murinum* Hendel are redescribed. The validity of *P. murinum* Hendel, considered previously as *P. suave murinum*, is proven. One new species, *P. soosi* sp. n., is described from Middle Asia.

The genus *Platystoma* Meigen includes more than 40 species in the Palaearctic (Soós, 1984). Some of the species, described in this genus were considered later as subspecies (Hennig, 1945; Soós, 1984). One of these species is *P. murinum* Hend. (Hendel, 1913). It was described from China. In current literature it is mentioned as *P. suave murinum*.

With rare exceptions the species of the genus are distributed in Mediterranean regions (North Africa, France, Italy, Greece, countries of Asia Minor), as well as in Transcaucasus, Mongolian and China. Some species were described from the territory of the Middle Asia.

We have examined material of several species, close to *P. suave* Loew. In this work we present detailed description of *P. suave* Loew, restore *P. murinum* Hend. as valid species, and describe a new species from Middle Asia.

Material has been borrowed from various institutions. Their abbreviated names are given in the text in parentheses: an asterisk indicates collections from which type specimens were borrowed.

MFN – * Museum für Naturkunde der Humboldt Universität zu Berlin, Germany;

ZMUM – * Zoological Museum of the Moscow Lomonosov State University, Russia.

***Platystoma suave* Loew**

Platystoma suave Loew, 1873: 281.

Type material. Holotype is labelled: “Sarawsch. Fedtsch., coll. H. Loew, Type” (MFN).

Other material. 1 ♀, TURKMENIYA, 50 km S Gerelde, 24. 5. 1988, coll. Burdakova (ZMUM); 1 ♂, 1 ♀, ibid., near Kushka, 05. 1991, A. L. Ozerov.

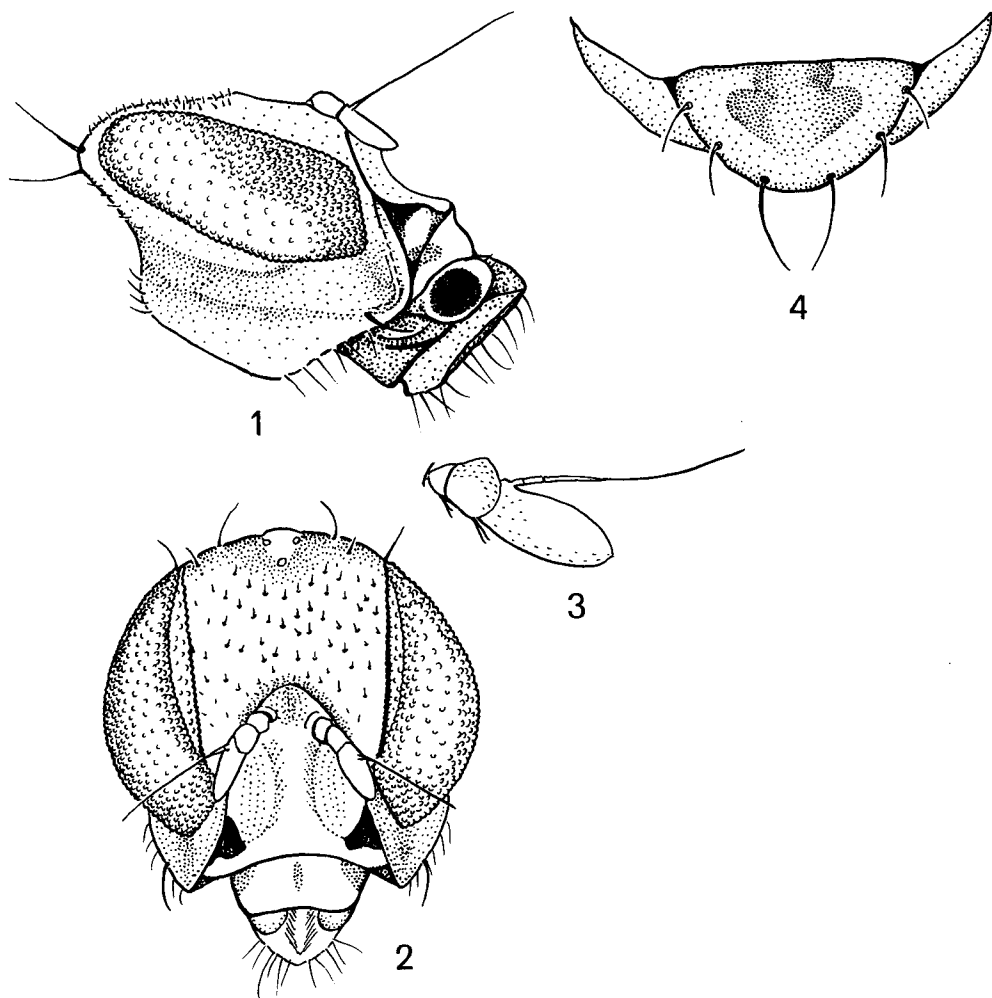
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Male

Figs 1–4

Body densely and uniformly silvery pollen.

Head: ratio of length of frons to its width 3 : 4.7. Frons mainly in white-yellow microtomentum and with short black erect setae, uniformly covering mainly the middle of frons, their length not exceeding distance between them. Area before flat ocellar triangle, situated at the level of the posterior margin of eyes, bare, without setae. Occiput light without dark band on upper half. Eyes dark brown. The angle of eye, nearest to antennae, widely rounded, but not exceeding 120° . Antennae light, yellowish, relatively widely separated, with distance between them equal to the width of the second antennal segment. 2nd antennal segment with narrow



Figs 1–4

Platystoma suave Loew, ♂ – 1, 2, Head, lateral and frontal aspects; 3, Antennae, lateral aspect; 4, Scutellum, dorsal aspect.

dark dorsal stripe, 3rd segment elongated, 2 times as long as wide. Arista yellow. Face with broad carina, light-yellow in the middle, with white pollen. Antennal grooves each with one dark triangular spot in the lower part, not reaching oral margin. The latter with narrow brownish lateral band, isolated from dark triangular spot. Clypeus light with small washed lateral light-brown spots, not reaching its apex. The last segment of the palpus widely rounded, light-yellow, with large round dark median spot. Gena relatively high, 0.25 as high as eye. Postgena with 1 long seta.

Thorax and scutellum dorsally dark, lateral sclerites of thorax and apex of scutellum yellow in thick silvery pollen. Surface of mesonotum in numerous light hairs. Scutellum with 3 pairs of long dark setae. Distances between neighbouring setae from middle to the margin are as 2.3 : 2 : 2 (Fig. 4).

Abdomen: mainly yellow, median parts of tergites dark. Abdomen completely in dense regular silvery pollen.

Legs: Femora and tibia light-yellow, tarsi brownish, the coloration becomes more intensive from the basal to the apical segment, the apical segment darkest.

Wing: surface with small mainly round dark spots at the light background in base (basal cells and anterior part of wing, bordering with Sc and R_1). The rest of the surface dark with many small light round spots, their size somewhat decreasing to the posterior margin of wing. The largest spots are situated along M_{3+4} . Veins R_{2+3} and R_{4+5} noticeably converging near apex. Discal cell with longitudinal rows of big white spots in basal half and rare separate big and small spots in apical part.

Male genitalia (Fig. 5–8): cercus relatively short, gonostylus with 2 sclerotised dents at apex, one of which pointed and the other longer, than the former, with spatulate broadening at apex. Setae of the 8th sternite form inclined band.

Female

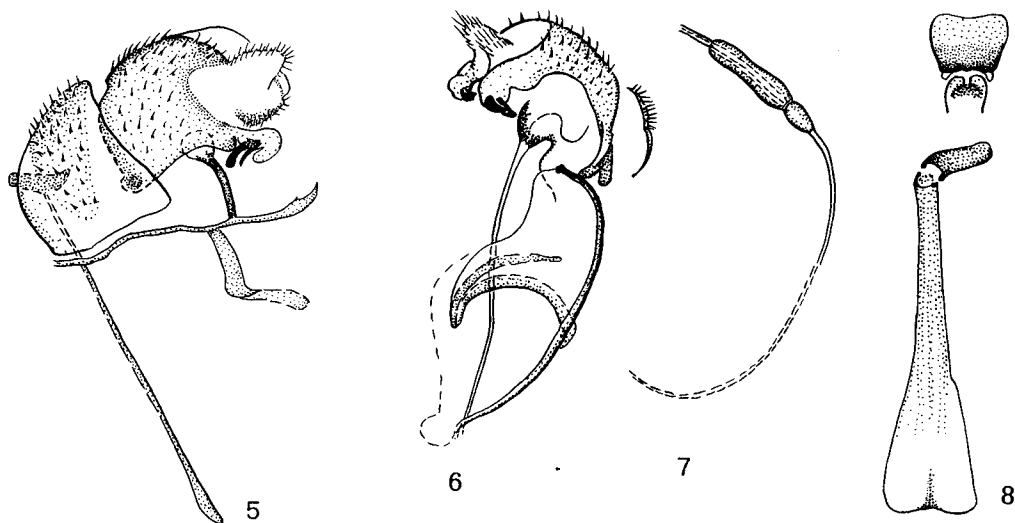
Figs 13–16

Resembling male.

Head: frons 2 : 3 as long as wide, mainly in thick yellow microtomentum. Silvery pollen forms narrow median stripe and wider stripes along the inner margin of eyes. Frons with black short stick setae, their length usually lesser than the distance between them. Setae near the eye margin noticeably shorter, but thicker, than on the other surface. Angle of eye near antennae rounded, blunt, no lesser than 120° . Antennae light-yellow like in male. Second antennal segment dorsally with black stripe and bun of black setae on dorsal and ventral sides.

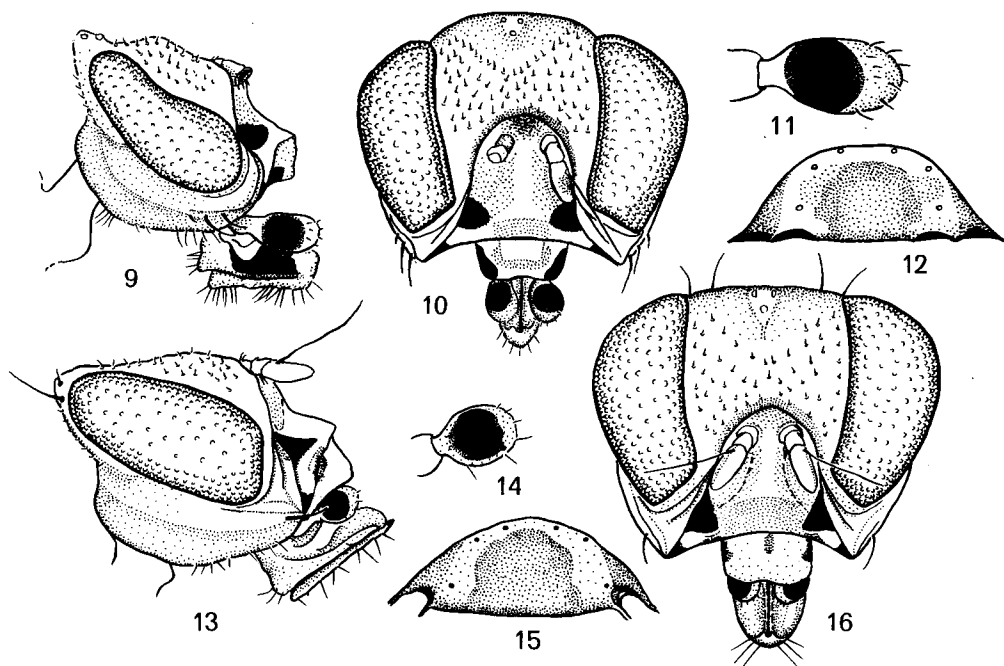
Face with typical black triangular spots in antennal grooves. Oral margin with narrow brown band, broadening laterally and contacting with spots in antennal grooves. Clypeus light with brownish spots in base and with narrow median stripe with silvery microtomentose border. The same microtomentum forms narrow stripe at the margin of clypeus. Gena relatively high, slightly lower than $1/4$ height of eye. Postgena with 1 strong seta and 1 weaker black seta.

Thorax: mesonotum and scutellum in relatively regular silvery pollen without distinct stripes and spots. Hairs of mesonotum short, black in base and light at apex. The position of long setae of scutellum differing from those of male (Fig. 15). Median and intercalar setae somewhat brought together.



Figs 5–8

Platystoma suave Loew, ♂ – 5, 6, Genitalia, dorsal and ventral aspects; 7, Details of aedeagus; 8, Apodema.



Figs 9–16

Platystoma murinum Hendel, ♀ – 9, 10, Head, lateral and frontal aspects; 11, Apical segment of palpus; 12, Scutellum, dorsal aspect; – 13, 16, *Platystoma suave* Loew, ♀ – Head, lateral and frontal aspects; 14, Apical segment of palpus; 15, Scutellum, dorsal aspect.

Legs: yellow, anterior surface on the apical part of fore and middle femora with short slightly darkened stripes. Fore tibia slightly darkened, brown along ventral margin. Tarsi seem dark due to dense thick black setae.

Abdomen: with hairs thicker, than on mesonotum. The picture formed by black spots at light background more distinct, sometimes spots brought together forming short curved lines; as a result large-cell picture is formed.

Female genitalia: spermatheca (Fig. 28) elongated with distinct projection gradually broadened in the apical part.

Platystoma murinum Hendel

Platystoma murinum Hendel, 1913: 117

Type material. Lectotype, ♂: "Kaschgar, V. 1903, murinum, det. Hendel, 50815, Typus". Paralectotype: ♀ with the same geographical label (MFN).

Male

Figs 17–21

Body relatively densely covered with silvery pollen, mainly hiding general black and yellow coloration.

Head: frons broad, 3 : 5 times as long as wide, with setae short, erected, situated as in *P. suave*. Setae along inner margin of eye smaller. Frons in yellow microtomentum with narrow dark median stripe, ocellar triangle darker. Occiput light without dark band. Eyes brown. Angle of eye near antennae broadly rounded, blunt, but no more than 110°. Antennae relatively widely separated, distance between them equal to the width of the 2nd antennal segment. Antennae light, yellowish, 3rd antennal segment with distinct dark spot in the median part along its upper margin. 3rd antennal segment slightly more than 2 times as long as wide. Arista broken.

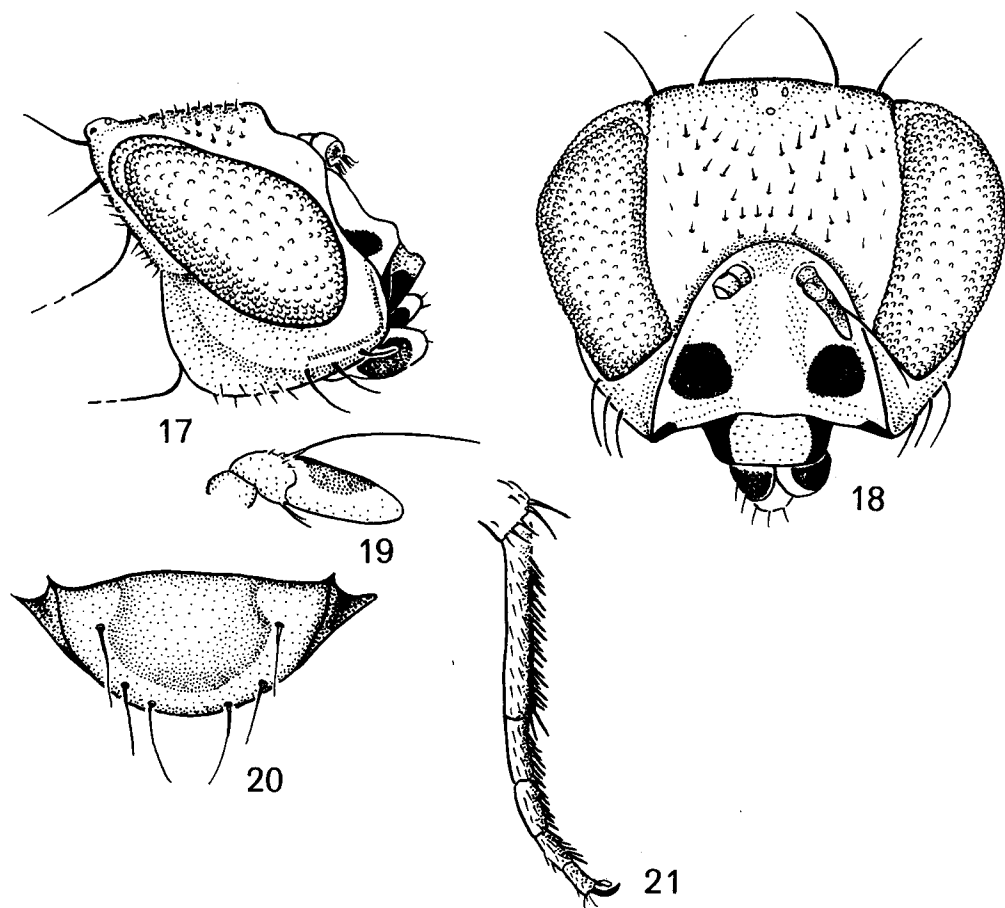
Face with broad carina, yellow in the median part, with white pollen. Large oval black spots, not reaching the mouth opening, are present in antennal grooves. Lowest margin of face with distinct transverse triangular brown elongated spot at each side, median part light. Clypeus light but with black shining lateral spots, reaching its apex. Last palpal segment broadly rounded, light with large oval black spot, not reaching apex.

Genae well developed, but shorter, than in previous species, 1 : 6 as high as eye (in original description this relation is given as 1 : 7). Each postgenae carry 3 long erect setae.

Thorax: mesonotum and scutellum like in previous species in dense silvery pollen, thorax dorsally dark, almost black, lateral sclerites light, covered with light hairs. Surface of mesonotum in white short hairs. Scutellum with 3 pairs of long setae. Distance between median setae is equal to the distances between intercalar and marginal setae and almost 2 times as large as the distance between median and intercalar ones. At the same time intercalar setae noticeably replaced to apex of scutellum (Fig. 20).

Abdomen: abdominal tergites dark in base, red on posterior margin. Fifth abdominal tergite yellow in posterior half. Surface of tergites in thick silvery pollen, partly rearer, with visible dark small pointlike spots. Besides this surface of tergites in white relatively long thick hairs. Separate black setae present on posterior margin of tergites. Femora and tibia yellow, femora anteriorly and tibia ventrally with distinct dark stripe. Tarsi seem darker, than tibia, mainly due to thick black setae.

The coloration of wing similar to those of *P. suave*, but light spots generally larger and denser. Veins R_{2+3} and R_{4+5} converging almost before the very apex. Discal cell completely with dense large white spots, the same spots present in the marginal cell of the wing.



Figs 17–21

Platystoma murinum Hendel, ♂ – 17, 18, Head, lateral and frontal aspects; 19, Antenna; 20, Scutellum, dorsal aspect; 21. Middle tarsus.

Genitalia: missing.

Female

Figs 9–12. Resembling male.

Head: frons pale-brown with weak median narrow stripe, 2,5 : 1,5 as wide as long. Surface of frons completely, including surface before lunule with short dark setae, the length of which before lunule is equal or slightly exceeding distance between them. Silvery microtomentum seems rare and regular, uncluding surface along margins of eyes.

Eyes dark. Angle of eye near antennae not exceeding 100–110°. Antennae widely separated, as in male, light, yellowish. Second antennal segment dorsally with weakly developed black stripe. The longest and dense setae are situated on the dorsal surface of the 1st and ventral surface of the 2nd segments, 3rd antennal segment elongated, slightly more than twice as long as wide, with dorsal brown spot. Arista yellowish-brown, thin with rare erect pubescence.

Face light in silvery pollen. Black spots in antennal grooves oval, near equilateral triangle, distinctly not reaching oral margin. Oral margin with narrow undistinct brown band, broadening laterally, not contacting oval subantennal spots. Clypeus mainly yellowish with large lateral black spots, reaching its apex, with basal medial light-brown spot, bordering with thick silvery microtomentum. Last palpal segment oval, light, with large round dark spot (Fig. 11). Genae small, round, 1 : 9 as high as eye. Postgenae with 2 long and 1 short black setae.

Thorax: mesonotum and dorsal part of scutellum black, lateral surfaces of thorax and scutellum yellow with silvery not dense pollen. Mesonotum also with short, not darkened in base hairs. Distance between median setae of scutellum, like in male, equal with the distance between intercalar and marginal setae, intercalar setae somewhat brought together with median (Fig. 12).

Abdomen: tergites black in basal 2/3 and yellow posteriorly. Silvery pollen regular, but not very dense. Hairs, covering tergites, light, black point-like spots in base absent. Femora and tibia light, yellowish, anteriorly with distinct black stripes. Fore tibia darkened, only with narrow light dorsal stripe. Middle and hind tibia with dark stripe posteriorly. Tarsal segments ventrally yellow, dorsally brownish, with dense black setae.

Genitalia: female spermatheca round, without projection, ducts not broadened (Fig. 29).

Platystoma soosi sp. n.

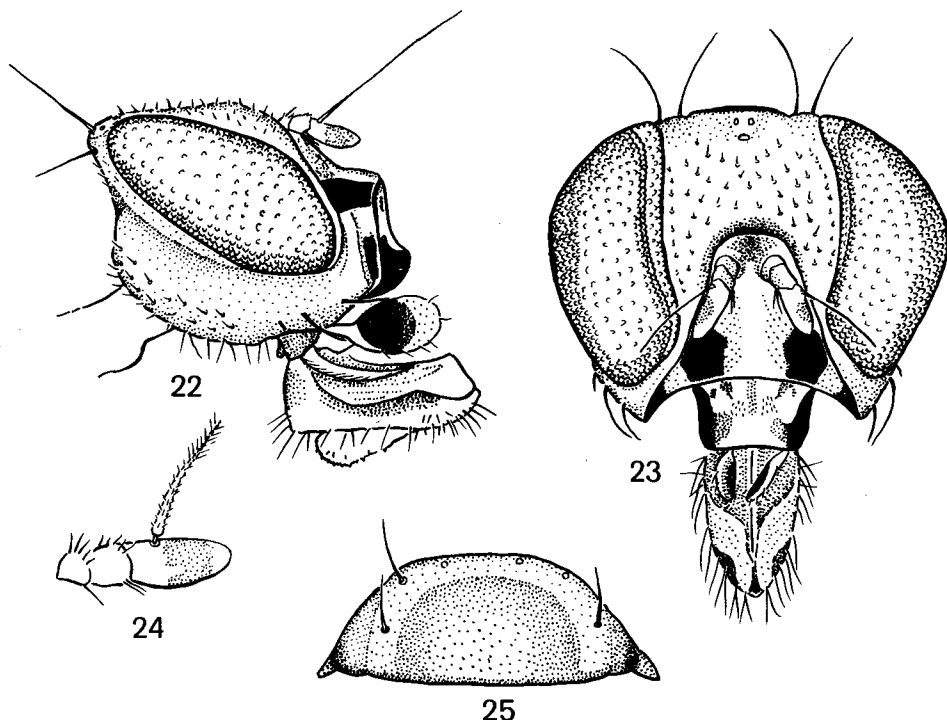
Type material. Holotype ♀: “Таджикистан, Курган-Тюбе, 1939, А. Романов” (TADJIKISTAN, Kurgan-Tube, 1939, A. Romanov). Paratypes: 3 ♀, “Туркменистан, Карабекаул, из личинок, 23. IV. 1978, Т. В. Компанцева” (TURKMENISTAN, Karabekaul, from larvae, 23. IV. 1978, T. V. Kompantzeva); 1 female, “Узбекистан, 25. VI. 1939, колл. Н. Фурсова” (UZBEKISTAN, 25. IV. 1939, coll. N. Fursova) (ZMUM).

Female

Figs 22–25. Body coloration from yellow to black mainly in dense silvery pollen.

Head: Frons in dense whitish-yellow microtomentum, with very indistinct light median stripe. Ocellar triangle and occipital part behind it dark brown, lower occiput – reddish. Frons with regular black sticking setae, distance between them as a rule equal to their length. A row of shorter setae present near the margin of eye. Frons 5 : 7 times as long as wide. Eyes dark brown. Angle of eye near antennae blunt, reaching 160°. Antennae light yellow, brought together in base, with distance between them lesser than the width of the 2nd antennal segment. First antennal segment with a row of black setae along posterior margin. Second antennal segment with black stripe and a bun of black setae on dorsal surface and long marginal setae on the ventral. Third antennal segment elongated, 2.5 times as long as wide, somewhat narrowed and broadly rounded at apex. Median part of the segment darkened. Arista dark brown with relatively dense light hairs at most surface.

Lunule in yellowish, face in silvery pollen. Antennal grooves with large oval black spots, reaching the margin of mouth. Isolated triangle black, smaller spots present on the lateral surfaces of face at the oral margin. Clypeus with narrow dark median stripe in base, laterally from it small brown spots present. Besides this large black, of irregular form, lateral spots reach the apex of clypeus. Silvery pollen and microtomentum form distinct spots laterally from the median stripe and on lateral surface of clypeus. Last palpal segment oval with large round black



Figs 22–25

Platystoma soosi sp. n., ♀ – 22, 23, Head, lateral and frontal aspects; 24, Antenna; 25, Scutellum, dorsal aspect.

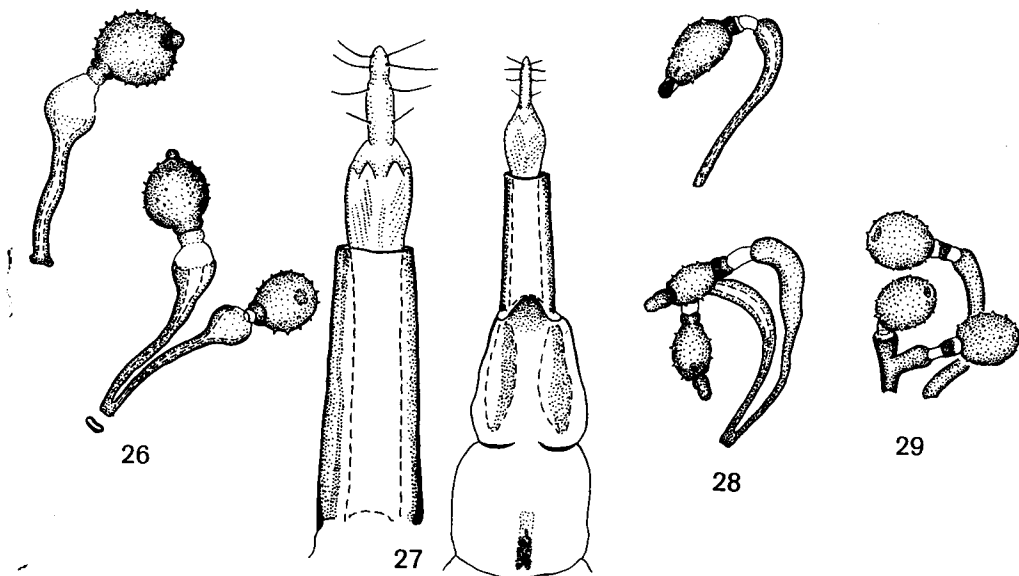
spot, apex yellow. Gena small, rounded, 1.5 : 11 as high as eye. Postgena with 3 long black setae, 2 of which very long.

Thorax: mesonotum and dorsal part of scutellum black, lateral parts of thorax and scutellum red, regularly covered with silvery pollen. Mesonotum with regular numerous sticking hairs, black in base and light apically. Picture of mesonotum is formed by small spots. Scutellum short, apically almost straight. Intercalar setae only slightly replaced from median ones (Fig. 25).

Coxae and femora light-yellow, femora anteriorly with distinct black stripe at 2/3 of its length, excluding basal third. Fore tibia dark with narrow light dorsal stripe. Hind tibia brownish. Tarsi completely black with dense black setae. Basal tarsal segment of the fore and two basal tarsal segments of the hind tarsi ventrally with dense red hairs. Wing: veins R_{2+3} and R_{4+5} brought together before apex, parallel at least at 1/2 of the length of R_{4+5} . Discal cell with rows of large white spots in base and small rare spots in apical part. Medial m_2 cell with small rare light spots too.

Abdomen: black with relatively dense silvery pollen and short darkened in base hairs. Small dark point-like spots in base of hairs sometimes joining and form short zigzag dark lines. Generally spotted picture on abdomen more distinct, than on mesonotum.

Spermatheca round with distinct projection and bulbously broadened apically ducts (Fig. 26). Ovipositor as in Fig. 27.



Figs 26–29

Platystoma soosi sp. n., ♀ – 26, Spermatheca; 27, Ovipositor, dorsal and ventral aspects; 28, *P. suave* Loew, ♀ spermatheca; 29, *P. murinum* Loew, ♀ spermatheca.

The “*suave*” group of species includes also *P. kaszabi* Soós (Soós 1979), described from Mongolia and relatively close to *P. soosi*: it has black tarsi, black longitudinal stripes on femora. *P. soosi* differs from *P. kaszabi* by the next characters: black spots situated in antennal grooves reach oral margin, clypeus has other coloration, 3rd antennal segment relatively long, 2 times as long as wide, red postpronotal lobe with black stripe.

In spite of the fact, that genitalia of *P. murinum* absent it is possible to ascertain the validity of *P. murinum* basing on the other morphological characters. The characters, differing *P. murinum* from *P. suave* are of the same rank as those separating *P. kaszabi* and *P. soosi*. At the same time the study of female terminal structures shows significant differences between *P. suave*, *P. murinum* and *P. soosi*, which also supports our point of view. Unluckily it proved to be impossible to include *P. kaszabi* in the key, because the characters used here were not described in the original description.

Key to the species of the genus *Platystoma*, group “*suave*”

- 1 Postpronotal lobe completely yellow: 3rd antennal segment yellow, hind femur completely red. Dark lateral spot on clypeus does not reach its margin *P. suave* Loew
- Postpronotal lobe with black band; 3rd antennal segment darkened in median part dorsally; hind femur with dark stripe anteriorly. Dark lateral spot on clypeus reaches its apex 2
- 2 Black spots of antennal grooves oval, relatively large, but not reaching the margin of oral cavity. Black band on anterior surface of middle femora almost reaches the base. Anterior tarsus brown. Occiput behind ocellar triangle light. Angle of eye near antennae not exceeding 120° *P. murinum* Hendel
- Black spots of antennal grooves large, reaching oral margin, unicolourously black. Black band on anterior surface of femora about 1/3 not reaching their base. Occiput behind ocellar triangle with black band, contacting ocellar triangle. Angle of eye, contacting antennae, exceeding 120° *P. soosi* sp. n.

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References

- Hendel, F.** (1913): Die Gattung *Platystoma* Meigen (Diptera). Eine monographische Übersicht über die Arten. *Zoologische Jahrbücher* (Systematik) **35**: 55–126.
- Hennig, W.** (1945): 48. Platystomidae. In Lindner, E. (ed.) Die Fliegen der palaearktischen Region. Band 5. Stuttgart, E. Schweizerbartsche Verlagsbuchhandlung, 56 S.
- Loew, H.** (1873): Beschreibung europäischer Dipteren. Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten, von Johann Wilhelm Meigen. Band 3, Halle. 320 S.
- Soós, A.** (1979): Einige neue acalyptraten Musciden aus der palaearktischen Region (Diptera). *Acta zoologica Academiae Scientiarum Hungaricae*. **25** (3–4): 409–414.
- (1984): Family Platystomidae (Platystomidae). In **Soós, A. & Papp, L.** (eds.): *Catalogue of palaearctic Diptera*. vol. 9, Budapest. 490 pp.