

Redescriptions of three species of the biting midges (*Diptera*,
Ceratopogonidae) described by BECKER from Egypt

Redeskrypcje trzech gatunków kuczmanów (*Diptera*, *Ceratopogonidae*)
opisanych przez BECKERA z Egiptu

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ABSTRACT. *Atrichopogon luteicollis* (BECKER, 1903) (= *A. aegyptius* KIEFF., 1925, n. syn., = *A. phrixus* DE MEILLON, 1943), *A. flavitarsatus* (BECKER, 1903), and *Johannsenomyia imparunguis* (BECKER, 1903) are redescribed and illustrated. *Ceratopogon pallidetarsatus* STROBL, 1900, is a junior synonym of *Bezzia albicornis* (MEIG., 1818) and *Mixohoelea australiensis* KIEFF., 1917, is a junior synonym of *Hebetula imparunguis* (KIEFF., 1917).

Through the courtesy of Dr. H. SCHUMANN, and the Zoologisches Museum an der Humboldt-Universität zu Berlin, DDR, I have been able to examine the types of three species described by BECKER (1903) from Egypt.

BECKER described five new *Ceratopogonidae* species from east Egypt. The correct generic assignments of these species are as follows:

BECKER, 1903	present assignment
<i>Ceratopogon luteicollis</i> , p. 74	<i>Atrichopogon</i> KIEFF., n. comb.
<i>C. flavitarsatus</i> , p. 74	<i>Atrichopogon</i> , n. comb.
<i>C. imparunguis</i> , p. 72	<i>Johannsenomyia</i> MALL., n. comb.
<i>C. puncticollis</i> , p. 75	<i>Culicoides</i> LATR. (EDWARDS, 1939)
<i>Macroptilium nudum</i> , p. 77	<i>Macropeza nuda</i> (WIRTH et al., 1972)

Record and short redescription of female of *Ceratopogon pallidetarsatus* STROBL made by BECKER concern *Bezzia albicornis*.

***Bezzia albicornis* (Meigen, 1818)**

Ceratopogon albicornis MEIGEN, 1818: 74 (♂, Germany).

Ceratopogon pallidetarsatus STROBL, 1900: 171 (♀, Spain), **n. syn.**

Ceratopogon pallidetarsatus: BECKER, 1903: 73 (♀, Egypt).

Bezzia pallidetarsata: KIEFFER, 1925: 264 (combination, Egypt).

Original description of *Ceratopogon pallidetarsatus* agrees with *Bezzia albicornis* which is common in South Europe and North Africa.

***Atrichopogon* (subg.?) *luteicollis* (Becker, 1903), n. comb.**

(Figs 1-10)

Ceratopogon luteicollis BECKER, 1903: 74 (♀, Egypt).

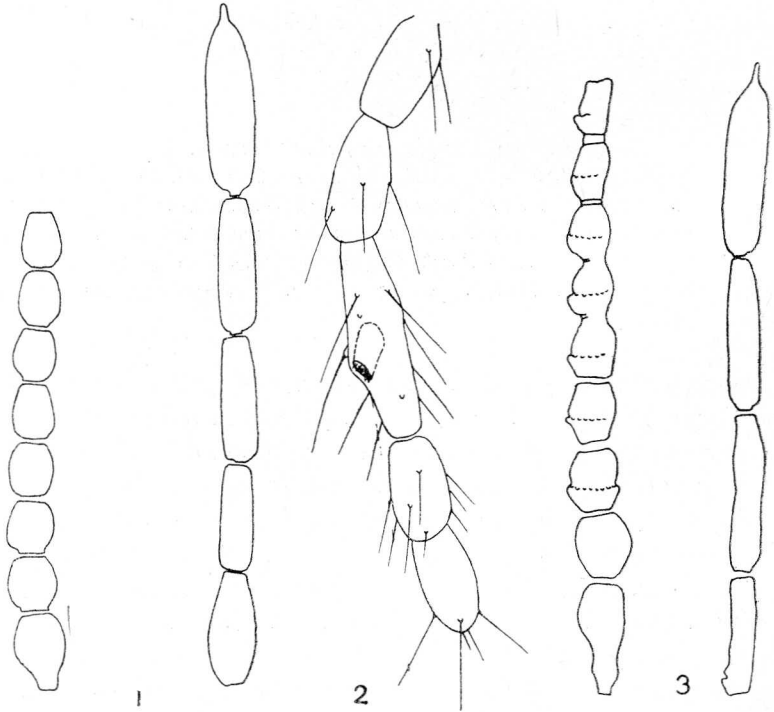
Atrichopogon atriscapula: MACFIE, 1924: 63 (♀, Egypt), nec KIEFFER, 1918: 45.

A. aegyptius KIEFFER, 1925: 250 (♂, ♀, Egypt), **n. syn.**

A. phrixus DE MEILLON, 1943: 105 (♂, South Africa).

A. aegyptius: MACFIE, 1944: 125 (Egypt, = *atriscapula*: MACFIE, 1924).

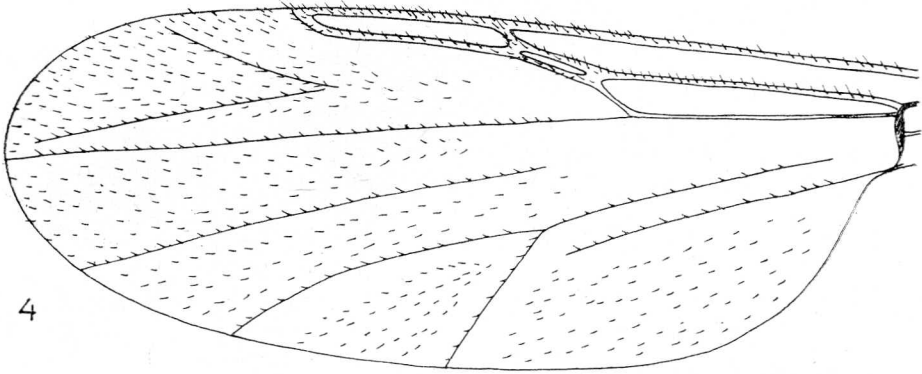
A. aegyptius: MACFIE, 1947: 73 (♂, ♀, key, Sudan, = *phrixus* DE MEILLON, 1943).



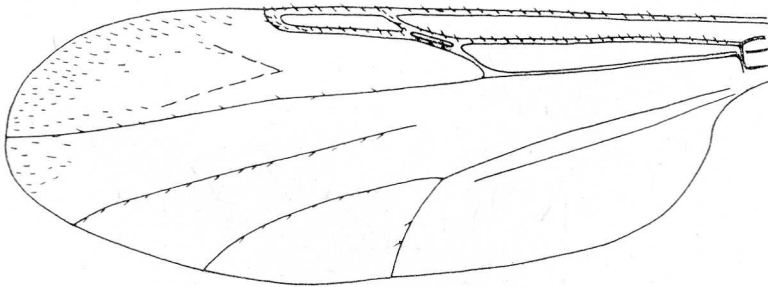
1-3. *Atrichopogon luteicollis*. 1 — female flagellum, 2 — female palpus, 3 — male flagellum

DESCRIPTION

♀. Head brown, face pale brown; scapus and pedicellus brownish, flagellum dark brown; proximal flagellomeres longer than wide (fig. 1), antennal ratio 1.36 (1.3–1.4), $n = 4$. Palpus five segmented, pale, last segment dark; sensory pit at middle of third palp segment (fig. 2), third palp segment $90 \mu\text{m}$ long. Mandibula with 28–32 small teeth, eye bare.



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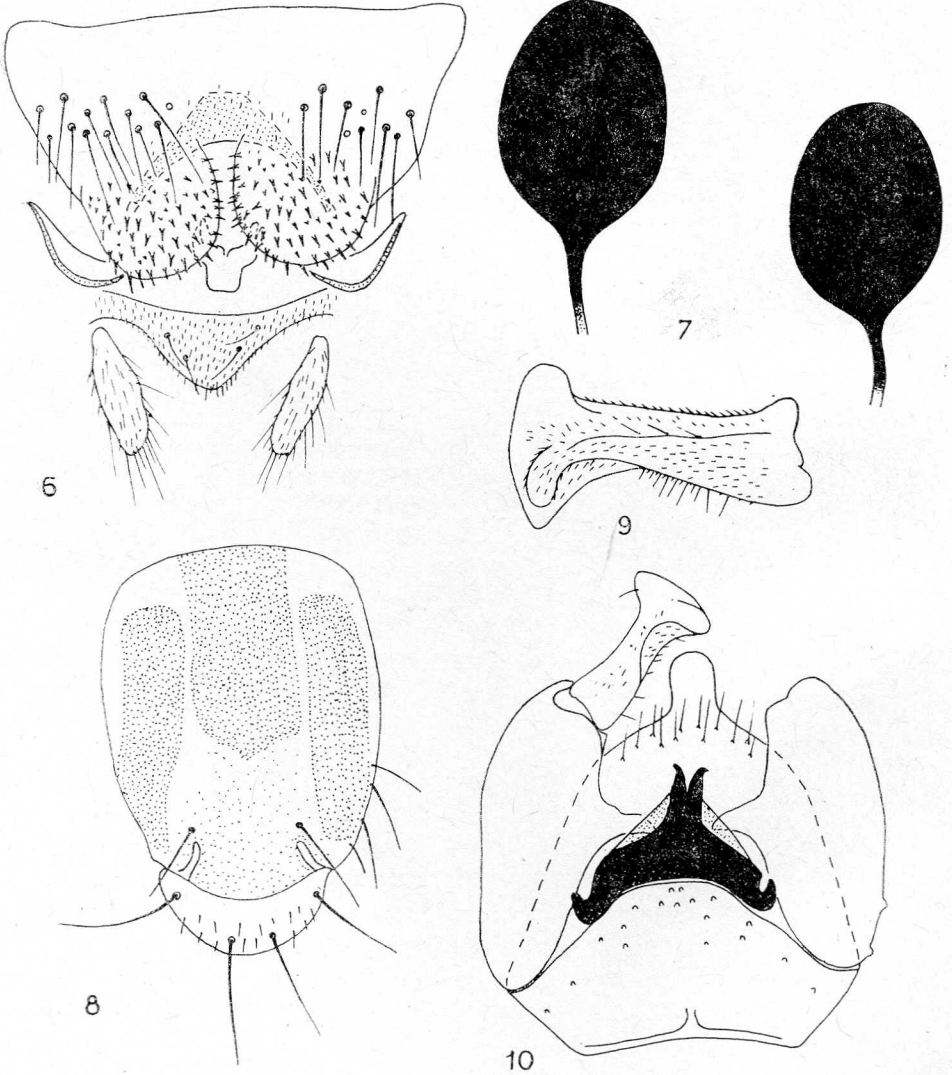


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4, 5. *Atrichopogon luteicollis*. 4 — female wing, 5 — male wing

Thorax pale brown. Mesonotum with three dark stripes (fig. 8), densely covered with short setae except for bare prescutellar surface; one prescutellar and several supraalar long setae present. Scutellum yellow, with two submedian and two lateral long setae, and several short setae; post-scutellum and frontal surface of preepisternum dark. Wing (fig. 4) 1.46 (1.4–1.6) mm long, $n = 3$; wing membrane densely covered with macrotrichia, anteroproximal surface bare; second radial cell about three times longer than first radial cell. Haltere pale. Legs pale (ochrous), tarsi pale or somewhat darker, claws simple.

Abdomen pale brown, last segments contrast yellow. Sternum VIII caudally bilobed, lobes covered with pale spines (fig. 6), sternum IX strongly reduced, sternum X densely covered with fine pale setae and four longer setae; genital sclerotization well visible. Two spermathecae:



6-10. *Atrichopogon luteicollis*. 6 - female genitalia, 7 - spermathecae, 8 - female mesonotum, 9, 10 - male genitalia

100×72–78 and 90–92×64–70 μm with spermathecal duct chitinized for a considerable distance (fig. 7).

♂. Similar to female, with the usual sexual differences.

Antennal ratio 1.0, $n = 2$, flagellum (fig. 3) with flagellomeres V–VIII or IX fused. Third palp segment 80–90 μm long.

Wing length 1.25 (1.20–1.28) mm, membrane with macrotrichia in R_5 and M_1 cells (fig. 5). Claws with bifid apices.

Abdominal terga and last sterna dark. Genitalia ochrous, large (fig. 10); tergum X with blunt caudomedian projection, sternum IX evenly rounded, gonocoxite at middle with large inner expansion; gonostyle (fig. 9) stout, with strongly expanded, T-shaped tip; at tip slender longitudinal lobe; aedeagus strongly sclerotized, brown, with two long divorced apical projections.

MATERIAL EXAMINED

Egypt. Holotype — female labelled: Assuan, XII, 44447, *Ceratopogon luteicollis* BECK., det. Becker, Typus. Zoologisches Museum Berlin.

Algeria. Chegga near Biskra, mineral spring area, 2 May 1981, 2 ♀; Biskra, *Umbelliferae* flowers, 29 April 1981; 4 ♂, 1 ♀; Barika, *Umbelliferae* flowers, 27 April 1981, 1 ♂, 1 ♀. Leg. R. Szadziewski. In the author's collection.

DISTRIBUTION

Algeria, Egypt, Sudan, South Africa.

DISCUSSION

Two spermathecae with long spermathecal ducts, unusual male genitalia and other characters do not allow to include *A. luteicollis* to known subgenera of the genus *Atrichopogon*. According to WIRTH (personal information) subgeneric classification of the genus is poorly understood and should be reviewed on a world-wide basis. He will meet this problem in the book "Manual to the genera of the *Ceratopogonidae* of the World" on which he is working. He advised against erecting a new subgenus for this species now.

Atrichopogon (s. str.) *flavitorsatus* (Becker, 1903), n. comb.

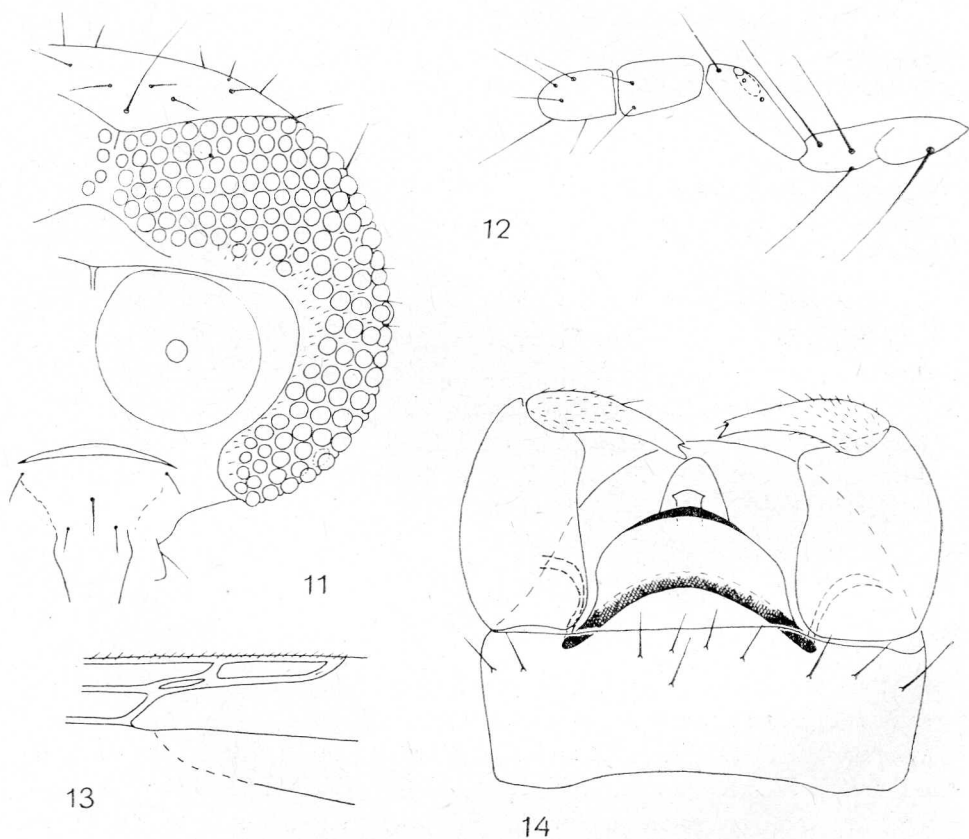
(Figs 11–14)

Ceratopogon flavitorsatus BECKER, 1903: 74 (♂, ♀, Egypt).

DESCRIPTION

♀. According to the original description similar to male, with the usual sexual differences.

♂. Head dark brown, flagellum absent. Palpus five segmented (fig. 12), third palp segment with small sensory pit on distal half; lengths of palp segments as follows (in μm): I+II = 56, III = 48, IV+V = 60. Eye at middle with some short setae (fig. 11).



11-14. Male of *Atrichopogon flavitarsatus*. 11 - head, 12 - palpus, 13 - radial cells, 14 - genitalia

Thorax shining black, mesonotum with three supraalar and one pre-scutellar long setae; scutellum with two submedian and two lateral long setae. Haltere pale yellow. Wing 0.95 mm long, without macrotrichia, costal ratio 0.62, second radial cell 2.4 times longer than first one (fig. 13). Legs yellow, last tarsomeres somewhat darker, hind coxa brown; claws of all legs slender, bifid apices hardly discernible; tarsal ratio of fore leg 2.7, middle leg 2.8, hind leg 2.2.

Abdomen blackish brown; genitalia (fig. 14), gonostyle yellow, gonocoxite pale brown; sternum IX with caudomedian margin straight, aedeagus with apicodorsal transparent plate and darker projection.

MATERIAL EXAMINED

Holotype — male, labelled: Luxor, XII, 44515, *Ceratopogon flavitarsatus* B., det. Becker, typus. The specimen is without flagella (it was mentioned by BECKER in the original description).

DISTRIBUTION

Egypt.

DISCUSSION

Female described by BECKER sub *flavitarsatus* does not exist in the collection of the Zoologisches Museum, Berlin.

The species is very similar to *Atrichopogon minutus* (MEIG.), but the latter species has scutellum with two long submedian setae and bare eyes.

Johannsenomyia imparunguis (Becker, 1903), n. comb.

(Figs 15–25)

Ceratopogon imparunguis BECKER, 1903: 72 (♀, Egypt).

Ceratophus imparunguis: KIEFFER, 1906: 60 (combination).

Palpomyia imparunguis: KIEFFER, 1917: 364 (combination).

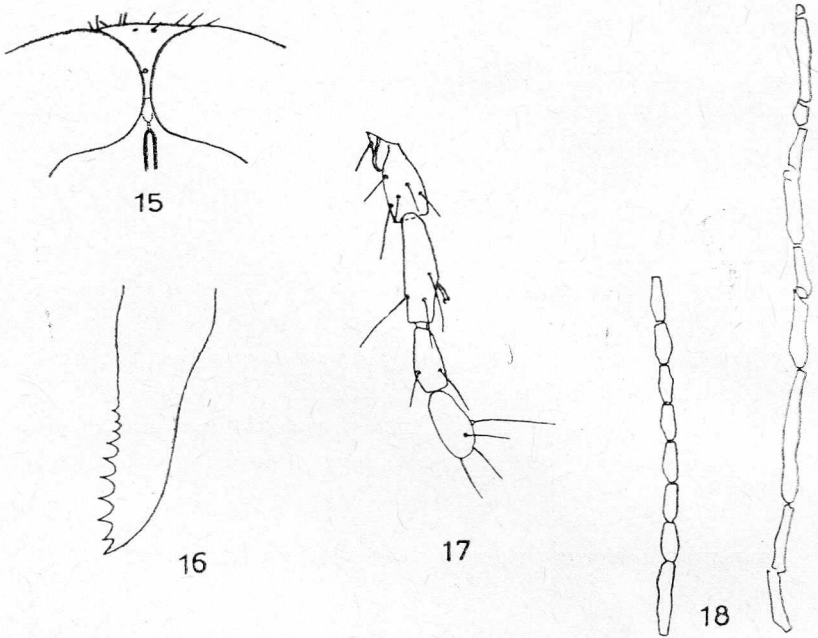
Allohelea imparunguis: KIEFFER, 1925: 263 (combination).

DESCRIPTION

♀. Head brown, frons and proboscis ochrous; antenna ochrous, basal portions of flagellomeres I–IX pale; each proximal flagellomere slender cylindrical, distal 5 filiform (fig. 18); flagellum 1.22 mm long, antennal ratio 1.72. Palpus five segmented (fig. 17), third palp segment with sensilla ampullacea, lengths of palp segments as follows (in μm): I+II = 64, III = 80, IV = 42, V = 52. Mandibula with 7 large and 3 smaller teeth (fig. 16). Eyes bare, separated by the width of one facet (fig. 15).

Scutum with small anterior tubercle; mesonotum shining black, densely clothed with fine appressed setae arising from microtubercles; scutellum black with 4 setae; notopleural surface shining black, smooth; pleura brownish-black. Haltere on proximal half yellow, distal half blackish-brown. Wing (fig. 24) 1.95×0.68 mm, pale, without macrotrichia, costal ratio 0.90, second radial cell 4 times longer than first. Legs (figs 19–23), femora

and tibiae slender, hind femur slightly clavate, all unarmed but covered with fine erect setae; fore tibia with a long pale apical spine, middle tibia with black preapical spine; fore and hind last tarsomeres with 5 pairs

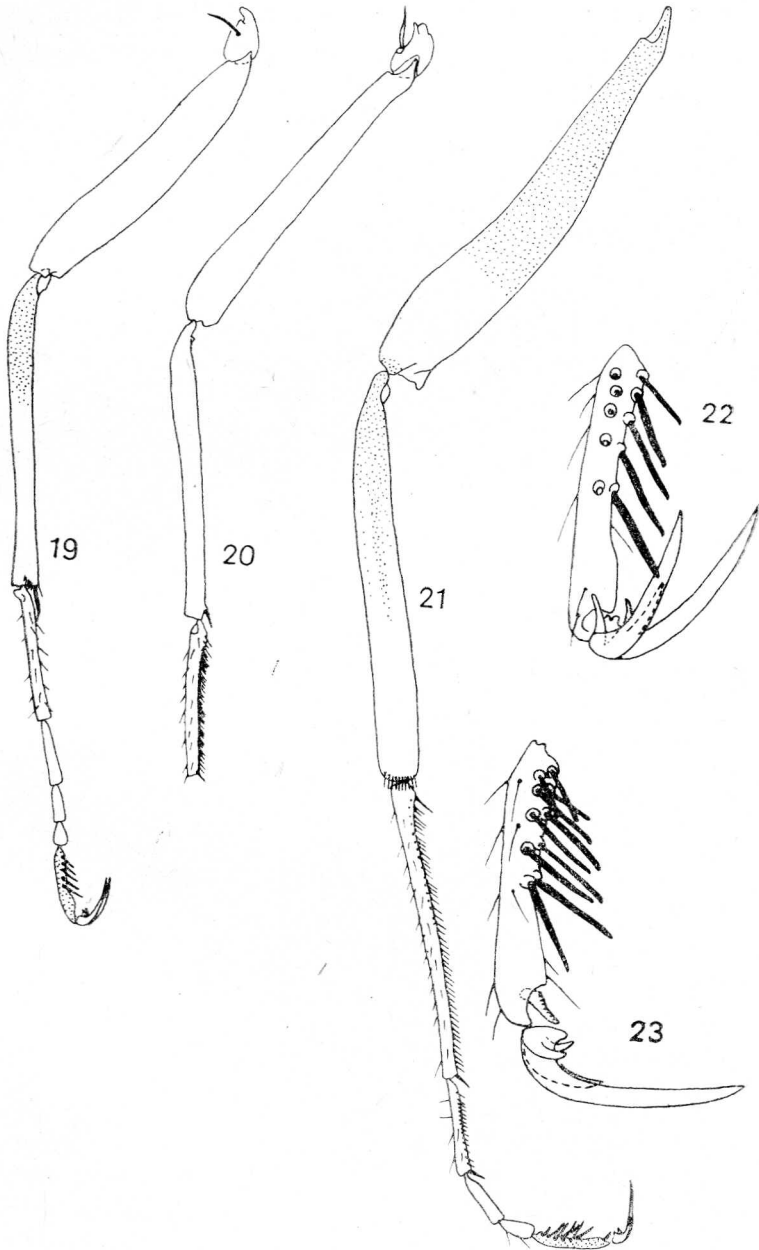


15–18. Female of *Johannsenomyia imparunguis*. 15 — eyes separation, 16 — mandibula, 17 — palpus, 18 — flagellum

of batonnets on proximal halves (tarsomeres II–V of middle leg are not present in the type female); fore leg with two long and equal claws and three basal teeth (fig. 22), hind leg with one long claw and three short basal teeth (fig. 23); according to the original description middle leg with fifth tarsomere as on hind leg.

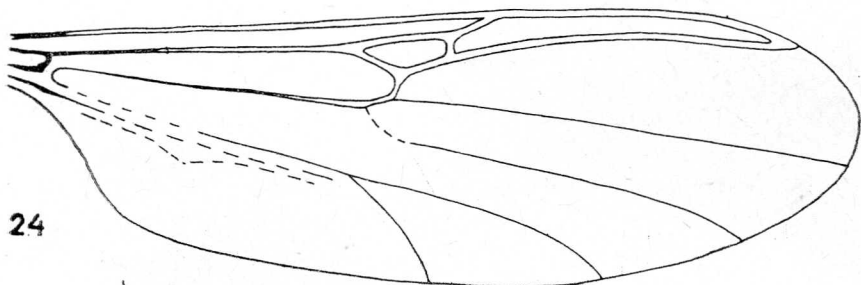
Length of legs as follows (in μm):

	fore leg	middle leg	hind leg
<i>fe</i>	735	840	1065
<i>ti</i>	765	735	985
<i>ta</i> ₁	330	390	705
<i>ta</i> ₂	180	—	240
<i>ta</i> ₃	98	—	150
<i>ta</i> ₄	64	—	90
<i>ta</i> ₅	195	—	195

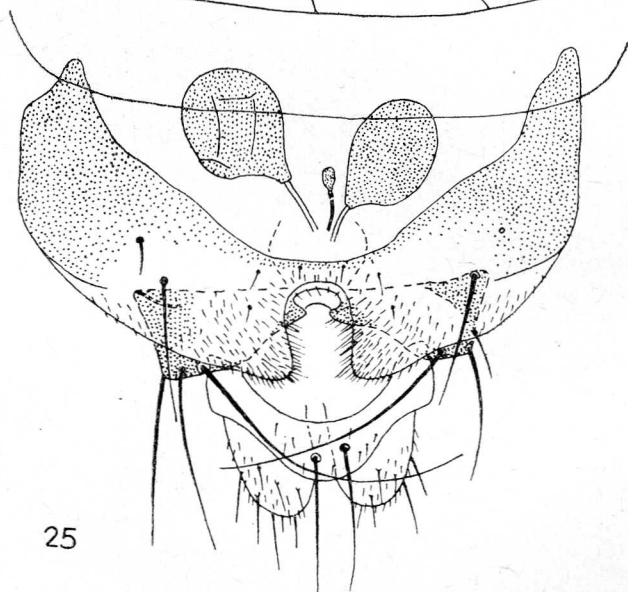


19-23. Female of *Johanssenomyia imparunguis*. 19, 22 — fore leg, 20 — middle leg, 21, 23 — hind leg

Legs ochrous, hind coxa black, proximal half of fore tibia, 2/3 of proximal portion of hind femur and proximal half of hind tibia and fifth tarsomeres brownish (figs 19-21).



24



25

24, 25. Female of *Johannsenomyia imparunguis*. 24 — wing, 25 — genitalia

Abdomen without sclerotized gland rods, abdominal terga black; sterna I-VII strongly reduced to very small patches; sternum VIII strongly sclerotized (fig. 25) with U-shaped caudomedian cavity; lateral lobes covered densely with fine, long pale setae; sternum IX strongly sclerotized, with single arm, at caudal margin two very long setae, sternum X and cerci yellow; two large oval spermathecae with short necks: $90 \times 64 \mu\text{m}$, $86 \times 54 \mu\text{m}$ and third rudimentary spermatheca present.

Male unknown.

MATERIAL EXAMINED

Holotype — female, labelled: Kairo, XI, 44361, *Ceratopogon imparunguis* BECK., typus. The specimen is without one wing, one fore leg, one middle leg and tarsomeres II–V of the second middle leg.

DISTRIBUTION

Egypt.

DISCUSSION

Johannsenomyia imparunguis is the only member of the genus in the Palaearctic. Previously known from this region other *Johannsenomyia* species have been transferred to the related genus *Mallochohelea* WIRTH.

From Afrotropical region five *Johannsenomyia* species are known: *J. albidorsata* (DE MEILLON, 1937) — South Africa; *J. grahami* (INGRAM et MACFIE, 1923) — Nigeria; *J. nigeriae* (INGRAM et MACFIE, 1923) — Nigeria; *J. nigra* GOETGHEBUER, 1933 — Zaire; *J. schoutedeni* (GOETGHEBUER, 1933) — Zaire.

Species name *imparunguis* proposed by KIEFFER (1917) for females from New Guinea originally placed in the genus *Palpomyia* MEIG. should be restored because there is no homonymy:

***Hebetula imparunguis* (Kieff., 1917)**

Palpomyia imparunguis KIEFFER, 1917: 194.

Mixohelea australiensis KIEFFER, 1917: 364 (unnecessary new name for *Palpomyia imparunguis* KIEFF. nec BECKER, 1903), n. syn.

Hebetula australiensis: WIRTH and DEBENHAM, 1977: 282 (combination).

Hebetula australiensis: DEBENHAM, 1979: 516 (synonymy, distribution).

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