

## A new genus and species of Heleomyzidae (Diptera) from Baltic amber

ANDRZEJ J. WOŹNICA\* & ANDRZEJ PALACZYK\*\*

Department of Zoology and Ecology,  
Agricultural University of Wrocław,  
51-631 Wrocław, Kozuchowska 5b, Poland,  
e-mail: woznica@ozi.ar.wroc.pl

\*\*Institute of Systematics and Evolution of Animals,  
Polish Academy of Sciences, Museum of Natural History,  
31-049 Kraków, Św. Sebastiana 9, Poland,  
e-mail: palaczyk@muzeum.pan.krakow.pl

**ABSTRACT.** A new genus *Paleoheleomyza* is described for a new species *Paleoheleomyza kotejai* from Baltic amber. The taxonomic position of the new genus is discussed.

**KEY WORDS:** Diptera, Heleomyzidae, *Paleoheleomyza*, new genus, new species, fossil, Baltic amber.

---

### INTRODUCTION

Among flies preserved as inclusions in Baltic amber (Upper Eocene/Lower Oligocene, about 40 Mya) sent for us by Christel and Hans Werner Hoffeins of Hamburg we found a new heleomyzid which is described below and placed in a new genus within the tribe Heleomyzini. Five genera of the Heleomyzidae have been hitherto recorded from Baltic amber (EVENHUIS 1994). Two of them are also represented in the recent fauna (*Suillia* ROBINEAU-DESVOIDY, 1830 and *Heteromyza* FALLÉN, 1820). Three other genera – *Electroleria*, *Protosuillia* and *Chaetohelomyza*, described by HENNIG (1965) are fossil and monotypic. *Protosuillia* belonging to the subfamily Suilliinae and the tribe Suilliini BEZZI, 1911 is characterized by: two orbital bristles present, oblique frontal plates, directed inward anteriorly and distinctly separated from the eye margin, proepimeral bristle absent; anal vein not reaching the wing margin. *Chaetohelomyza* and *Electroleria* have been placed in the subfamily Heleomyzinae. *Chaetohelomyza* can be distinguished by 2-3 ors, 0 + 2 of

dorsocentral bristles, 3 katepisternal bristles, midtibia bearing 4 longer setulae and the frontal plates parallel to eye margin as well as well developed proepimeral bristle. Anal vein reaching wing margin fits the diagnosis of the tribe Heleomyzini. The genus *Electroleria* lacks the proepimeral bristle - a typical character of the Heleomyzinae (HENNIG 1965), which actually excludes its placement in the subfamily. Unfortunately brief descriptions, especially the lack of any information on the postabdominal structures do not allow to assign the genus *Electroleria* to any tribe proposed by MCALPINE (1985). The characters applying to head chaetotaxy (Aor shorter than Pors) and mesonotum (absence of presutural dorsocentrals) constitute the apomorphies in *Chaetohelomyza*. Contrary to the latter, plesiomorphic characters, which imply resemblance to the ancestor of Palaearctic Heleomyzidae, dominate in the genus described below. The morphological terminology and abbreviations follow those proposed by WOŹNICA (2003).

#### **Acknowledgements**

We would like to express our sincere thanks to Christel and Hans Werner HOFFEINS (Hamburg), for the loan of the specimens for studies.

#### SYSTEMATICS

Subfamily: Heleomyzinae BEZZI, 1911

Tribe: Heleomyzini BEZZI, 1911

#### ***Paleohelomyza* gen. n.**

Type-species: *Paleohelomyza kotejai* sp. n. Present designation.

#### **Diagnosis**

*Paleohelomyza* is similar to *Neoleria* MALLOCH, 1919 but differs from the latter and from other genera of Heleomyzini in the following combination of character states: a pair of well developed prescapular setae, numerous of dorsocentral bristles (1-2 + 4) and setulosed posterior corner of anepisternum.

#### **Etymology**

Gender: feminine. The name is derived from paleo (= ancient) + and the name *Helomyza*.

#### ***Paleohelomyza kotejai* sp. n.**

(Figs 1, 2)

#### **Diagnosis**

As for the genus.

#### **Description**

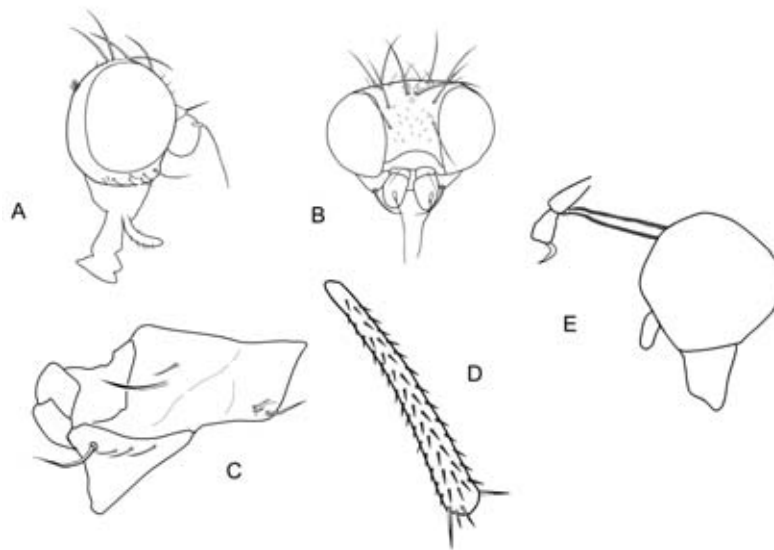
Body length: ca. 2.7 mm. Head as in figure 1A-B. Head ratio about 1.2. One vibrissa present. Peristomal setulae well developed and slightly greater near the vibrissa, in two

---

irregular rows. Eyes round, with tiny silver-greyish dusting which emerged the frontal plate from the eye margin. Cheeks small (cheek-eye ratio ca. 0.2). Face similar in colour as the cheeks area. Hypostom brownish, palpus thin, regularly broad and rounded apically, uniformly coloured with some setulae on the lower margin. First flagellomere big, round and brownish-grey and little velvety on the borders (flag-cheek ratio ca. 2.0). Scape and pedicel little paler than first flagellomere. Pedicel with big dorsal apical seta anterodorsally. Arista shorter than height of head, brownish-black and minutely pubescent with distinctly swollen basal part. Frons covered by small setulae and entirely grayish in colour. Frontal plate square-like with two equal in length orbital bristles. Both directed slightly outside from the frontal plate. Ocellar triangle blackish in colour. A pair of big ocellar bristles, inside the ocellar triangle present. Vertical bristles well developed. Postocellar setae small and cruciate.

Thorax with two well developed prescapular setae. Mesonotum entirely grey. Pleural parts similarly coloured. Anepisternum greyish-brown in colour. Mesonotum sparsely setulosed with big acrostichal setulae. One well developed postpronotal bristle, two notopleural bristles, one presutural, one supra-alar and two post-alar bristles present. Dorsocentral bristles before the mesonotal suture similar to acrostichals (1-2 small pairs), behind the suture 4 pairs of distinct dorsocentrals present. Length of postsutural dorsocentrals variable, especially last three better developed, all not arising from black spots. Between the dorsocentrals five rows of distinct acrostichal setulae. A pair of prescutellar bristles well developed. Scutellum bare except two pairs of scutellars, almost equal in length. Scutellum broad and short, not pointed apically, grey in colour. Proepimeral bristle well developed. Stigmatal and one additional seta in anterior corner of anepisternum present. Anepisternum with two big irregular bristles in posterior corner (Fig. 1C). Katepisternum bare in the middle part, setulosed between the coxae. One distinct katepisternal bristle, with a row of setae before it. Anepimeron and meron fully bare. Wing length ca. 2.1 mm, width ca. 0.8 mm. Wings membrane transparent and turned up along and across well developed anal vein. Longitudinal veins pale brown in colour. Costa with short but distinct costal spines seen from upper side, especially before subcostal break. Apices of subcosta and  $R_1$  slightly divergent. Subcostal break similar to representatives of Heleomyzini. Cross-veins not darkened, r-m and dm-cu well developed and dm-cu slightly oblique and directly situated. Medial vein ratio ca. 2.0. Halteres big with rounded pale brown knob. Legs normally developed. Coxae paler in colour than femora and normally setulosed as in other genera of Heleomyzini. Fore and hind femora greyish-black dorsally. Fore femur typically setulosed with two rows of big bristles. Mid femur paler in colour and with one well developed anterior bristle. Hind femur with one dorsolateral bristle (which is longer than width of the femur). Tibiae short setulosed. Preapical bristles on all tibiae distinct. Mid tibia with few ventral spines apically (Fig. 1D). Tarsomeres darker than tibiae. Tarsi short setulosed, but last segments of I-III tarsi distinctly longer. First tarsomeres on all legs longer than remaining segments. The hind one is twice as long as the second segment. Pulvilli big and whitish.

Abdomen grey and shiny. Five well developed abdominal segments, light grey and shiny, short and sparsely setulosed with thin lateral marginal bristles. VI tergite elongated and placed laterally on the right side. Epandrium grey in colour, medium sized and rounded, short and sparsely setulosed. Cerci laterally elongated and long haired, with four longer hairs distally. One pair of elongated dististyli present. Dististylus flattened. Distiphallus thin and band-like (Fig. 1E) as in representatives of the tribe Heleomyzini in the sense of GORODKOV (1984).



**Fig. 1.** *Paleohelomyza kotejai* gen. et sp. n., holotype male. A, B - head, C – anepisternum and katapisternum, D – distal end of right mid tibia, E – epandrium and dististylus with pointed end of distiphallus.

#### Type material

Holotype. Male preserved in Deutsches Entomologisches Institut in Müncheberg, Germany (DEI). Labels: Coll. Hoffeins Nr. 1286 / Balt. Amber. Fam. ??; *Paleohelomyza kotejai* WOŹNICA & PALACZYK gen. et sp. n. (red).

Left side of the holotype in great part moulded. Anepimeron invisible and covered by air bubble.

#### Etymology

The new species is dedicated to the late of Professor Jan Koteja (Kraków), for his excellent papers on amber and recent coccids.

#### Discussion

The newly described genus, a typical representative of the subfamily Heleomyzinae bears the following characters: distinct preapical bristles present on all tibiae, wings with well developed costal spines, and only one pair of dististyli. The taxon differs from all known genera placed in the subfamily in the presence of prescapular setae. It should be noted that a pair of well-developed prescapulars has been regarded a synapomorphy in all recent representatives of the tribe Heteromyzini (WOŹNICA 1998). With all probability this

---

character has developed independently in different and unrelated representatives of the Heleomyzidae. In *Paleohelomyza distiphallus* is well developed, band-like and elongated, which is typical of all Holarctic Heleomyzini. The occurrence of acrostichal setae, presence of numerous dorsocentrals, the similar length of orbitals and distinct stigmal seta constitute the plesiomorphic characters of the genus. The apomorphic characters are as follows: the presence of prescapular setae, one well developed katepisternal seta, middle katepisternal area bare and well developed anepisternals. *Paleohelomyza* is closely related to the recent genus *Neoleria* MALLOCH, 1919, the most primitive taxon within the tribe Heleomyzini (GORODKOV 1972). Like in *Neoleria* the *Paleohelomyza* has two developed orbitals which are equal in length, well developed acrostichals and similar katepisternal chaetotaxy. It can be differentiated from *Neoleria* by the presence of a pair of prescapulars, greater number of dorsocentrals (1+3 pairs in *Neoleria*), distinct stigmal seta and by five rows of well developed acrostichals (7-9 in *Neoleria* – see PAPP 1998).



**Fig. 2.** *Paleohelomyza kotejai* gen. et sp. n., holotype male – lateral aspect.

#### REFERENCES

- BEZZI M. 1911. Suivi d'un Appendice sur les Diptères cavernicoles recueillis par le Dr ABSOLON dans les Balcans. Archives de Zoologie Experimentale et Generale, 5e ser. **8**: 1-87.
- EVENHUIS N.L. 1994. Catalogue of the fossil flies of the world (Insecta: Diptera). Backhuys Publishers, Leiden. [viii] + 600 pp.
- GORODKOV K.B. 1972. A system of Holarctic Helomyzidae (Diptera, Acalyptrata). Doklady XXIII ezheg. chtenii pam. N.A. Kholodkovskogo, 2 April **1970**: 50-92. [In Russian].

- GORODKOV K.B. 1984. Family Heleomyzidae (Helomyzidae). In: SOÓS Á. & PAPP L. (eds.), Catalogue of Palaearctic Diptera, Budapest **10**: 15-45.
- HENNIG W. 1965. Die Acalypratae des baltischen Bernsteins und ihre Bedeutung für die Erforschung der phylogenetischen Entwicklung dieser Dipteren-Gruppe. Stuttgarter Beiträge zur Naturkunde **145**: 215 pp.
- MCALPINE D.K. 1985. The Australian genera of Heleomyzidae (Diptera: Schizophora) and a Reclassification of the Family into Tribes. Records of the Australian Museum **36**: 203-251.
- PAPP L. 1998. Heleomyzidae. Chapter 3.41. Pp. 439-455. In: PAPP L. & DARVAS B. (eds), Contribution to a manual of Palaearctic Diptera. Vol. 3, 1998. Science Herald, Budapest, 880 pp.
- WOŹNICA A. 1998. On the genus *Kiboleria* LINDNER and its relationship with other heteromyzine genera (Diptera: Heleomyzidae). Pp. 250. Fourth International Congress of Dipterology. Abstracts Volume, 6-13th September 1998, Keble College, Oxford, 275 pp.
- WOŹNICA A. 2003. Two new synonyms of the Old World representatives of the genus *Suillia* ROBINEAU-DESVOIDY, 1830 (Diptera: Heleomyzidae: Suilliinae). Polskie Pismo Entomologiczne **72**: 349-357.

Received: 15 March 2005

Accepted: 30 April 2005

---

