

## Palearctic species of Pseudopomyzidae (Diptera)

### Палеарктические виды сем. Pseudopomyzidae (Diptera)

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**КЛЮЧЕВЫЕ СЛОВА:** Pseudopomyzidae, таксономия, новый вид, Палеарктика, эпандриальная гипотеза, циклографный тип гениталий.

**ABSTRACT.** A review of the Palearctic species of the family Pseudopomyzidae is presented. The family contains 3 species of 3 genera, including *Tenuia smirnovi* sp.n. The genus *Tenuia* is recorded for the Palearctic Region for the first time. Characters of the genital apparatus of *Eremoneura* discussed with respect to morphological interpretation and probable polarity. The findings considered seem to favor the "epandrial" hypothesis. Homology of the basic elements of genitalia of the Pseudopomyzidae is established.

**РЕЗЮМЕ.** Дан обзор палеарктических видов семейства Pseudopomyzidae. Семейство включает 3 вида из 3-х родов, в том числе *Tenuia smirnovi* sp.n. Род *Tenuia* впервые отмечается в фауне Палеарктики. Детально разобрана проблема становления циклографного гипопигия, оценены основные тенденции и пути его изменения, в том числе внутри обсуждаемого семейства. Полученные результаты недвусмысленно свидетельствуют в пользу "эпандриальной" гипотезы. Гомологизированы основные элементы генитального аппарата Pseudopomyzidae.

### Introduction

The family Pseudopomyzidae comprises a group of six genera [D.K.McAlpine, 1994] two of which were known hitherto from the Palearctic Region [Krivosheina, 1979]. These are *Polypathomyia* Krivosheina and *Pseudopomyza* Strobl with one species each. Now this list can be completed with the third genus, *Tenuia* Malloch. The latter was described from a single female collected in Luzon (Philippines). Our material of *Tenuia* contains a series of males and females representing a new species de-

scribed below. Types of the new species are deposited in the Zoological Museum of Moscow State University.

The Pseudopomyzidae belong to the superfamily Neriioidea (Micropezoidea) [D.K.McAlpine, 1966; Hennig, 1969] which is nested among the most primitive groups of the Acalyptrata. This family, being the most generalized, may be the key to the understanding of early evolution of the Acalyptrata.

The data on genital morphology are of great importance for conclusions concerning the phylogenetic position of dipterous groups. Analysis of male hypopygium in the Pseudopomyzidae is considered as an essential component of the present study.

The Pseudopomyzidae are characterized by a complicated system of hypandrial appendages which have been understood in different ways. The situation is complicated by the fact that the hypopygium of the Pseudopomyzidae falls in with the cyclorrhaphous type, no unity of opinions being observed in its evaluation. The previous analyses of the morphological data have suggested conflicting scenarios for the origin of the cyclorrhaphous hypopygium. In this connection, one of the purposes of this paper is to evaluate the causes of this conflict, and to present a new opinion eliminating some contradictions of the existing versions.

To achieve a better understanding of the structure of cyclorrhaphous hypopygium, it was necessary to go beyond the limits of this particular problem and to consider the transition from the orthorrhaphous genitalia to the cyclorrhaphous ones. I only touch on this question here. A more elaborated analysis will be presented elsewhere. Let us begin with the analysis of the "epandrial-periandrial" dilemma.

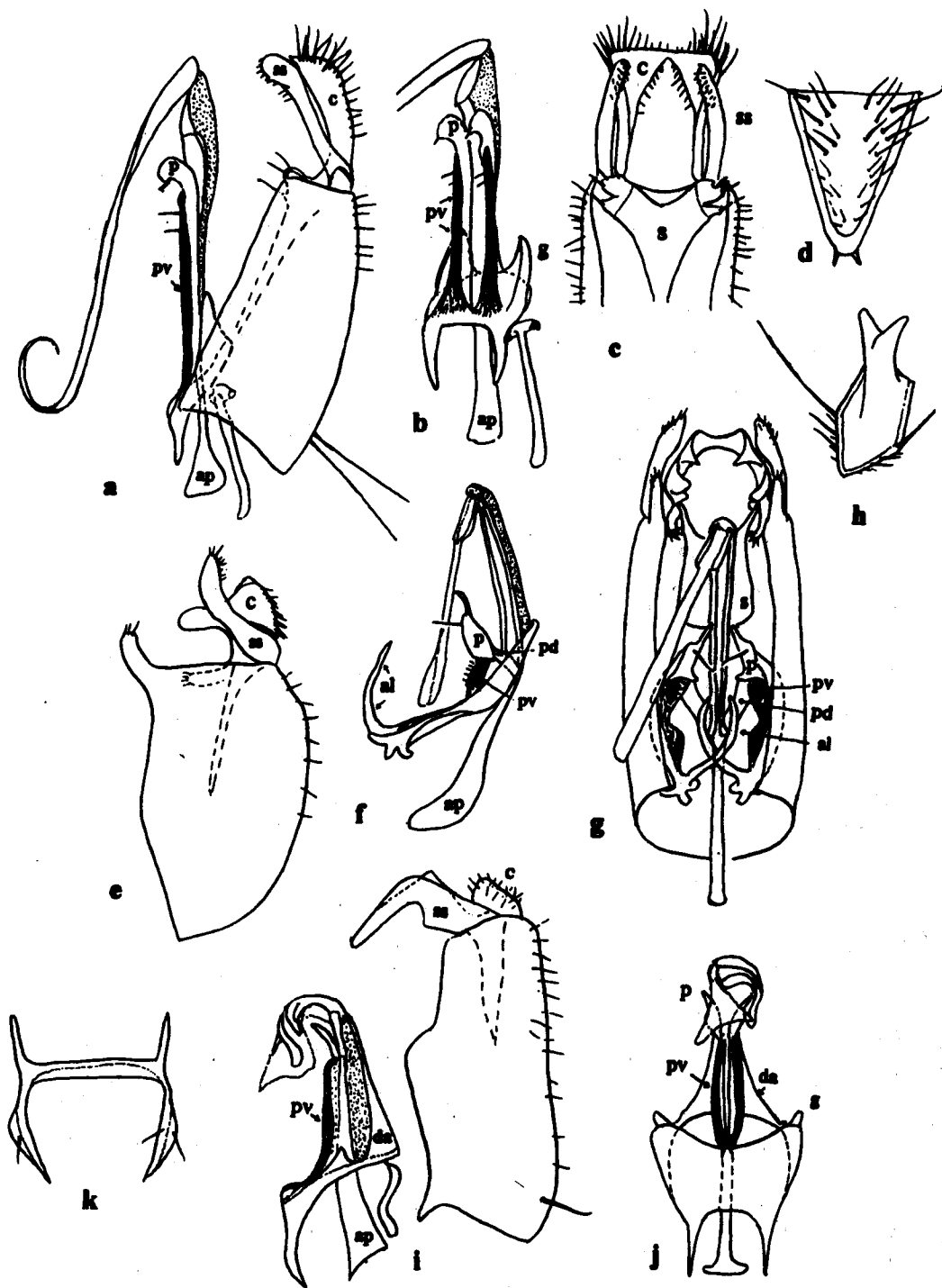


Fig. 4. Male terminalia of the Pseudopomyzidae: a-d — *Polypathomyia stackelbergi* Kriv. (a — hypopygium, lateral view; b — hypandrium, latero-ventral view; c — epandrium, ventral view; d — 6th sternite); e-h — *Teresia smirnovi* Shatalkin sp.n. (e — epandrium, lateral view; f — hypandrium, lateral view; g — hypopygium, ventral view; h — 6th sternite); i-k — *Pseudopomyza atrinana* Mg. (i — hypopygium, lateral view; j — hypandrium, ventral view; k — 6th sternite). See Fig.1. for abbreviations.

Рис. 4. Терминалии самцов сем. Pseudopomyzidae: a-d — *Polypathomyia stackelbergi* Krivosheina (a — гипопигий, сбоку; b — гипандрий, сбоку; c — эпандрий, вентральный аспект; d — стернит 6); e-h — *Teresia smirnovi* Shatalkin sp.n. (e — эпандрий, сбоку; f — гипандрий, сбоку; g — гипопигий, спереди; h — стернит 6); i-k — *Pseudopomyza atrinana* Mg. (i — гипопигий, сбоку; j — гипандрий, спереди; k — стернит 6. Для расшифровки сокращений смотри рис. 1.

bristles. Face with a median furrow; well developed foveae yellow, with small triangular black mark in their upper part. Antennae yellow; palpi black in upper half. Body black. Fore legs black, their coxae and bases of femora yellow, 2 last joints of tarsus white. Abdomen black.

Body length: male 4.5-4.8 mm; female 4.7-5.3 mm. Wing length: 4.2-4.8 mm.

#### Genus *Pseudopomyza* Strobl 1893

The genus *Pseudopomyza* differs from other Palaeartic genera by the following characters: costa without spinules, 2 pairs of scutellars, 1 pair of sternopleurals.

Genitalia (Figs. 4i-k). Epandrium with unequal ventral margins. Surstyli hook-like, with internal lamellate projection. Additional surstyler sclerites absent. Cerci poorly developed, with short light hairs. Hypandrium with not very large lobes (gonopods) directed dorsally. Dorsal sclerite well developed, having the shape of a groove. Parameres simple. In contrast to the two other genera, aedeagus weakly elongated. Distiphallus short.

The sole species is known from the Palaeartic region.

#### *Pseudopomyza atrimana* (Meigen 1830)

Figs. 4i-k.

MATERIAL examined. 1 ♂, Amurskaya Oblast', Zeya, 29.VI.1982 (Ozerov); 2♀♀, same locality, 2 and 9.VII.1982 (Ozerov); ♂, same locality, 4.VII.1981 (Shatalkin).

*P. atrimana* is a rare fly and was recorded as isolated specimens from Germany, Austria, Slovakia, Rumania, Finland, England (Chandler, 1983; Frey, 1952; Hendel, 1902; Hennig, 1937; Roháček, 1981), and also Korea (McAlpine, 1994). Two females were collected by A.A. Stackelberg [1958] from the vicinities of Leningrad (St.-Petersbourg).

DIAGNOSIS. MALE. FEMALE. Head yellow. Frons, except its anterior part, black. Occiput black. Antennae yellow, third antennal segment brown. Arista brown, with feathered slightly more than its thickened basal part. Palpi yellow. Body black. Body length: male 1.7 mm; female 1.8-2.1 mm. Wing length: 1.7-1.9 mm.

#### Genus *Tenuia* Malloch 1926

The genus *Tenuia* is characterized by 5 (sometimes 6) pairs of dorsocentrals, acrostichals in 4 rows with praescutellars large, face wide, with poorly developed keel in upper part, antennae widely arranged, costa with well developed spinules.

Male abdomen shorter than thorax. Syntergosternite 7+8 bristled but without an outstanding pair of bristles, equal to length of 5th-6th tergites taken together. 6th sternite having the shape of a pentagonal cowl crowned two-horned massive prominence. Epandrium also without an outstanding pair of bristles, equal to length of 4th-6th tergites taken together, bearing a pair of lobes on its posteroventral angles. Surstyli displaced dorsally, slightly spoon-shaped, with some bristles on their upper cuspidated margins. A lamellar lobe present, bristled on tip and connected with base of surstylus. Cerci fused, forming a structure in the shape of two-topped tent distally, and with a pair of lateral lamellar appendages directed ventrally.

Hypandrium divided ventrally with the tusk-like anterior lobes. Hypandrial apodeme bilobed and short.

*Tenuia* is an Asian vicariant of the American genus *Latheticomyia* Wheeler [1956] (See also Steyskal [1970]).

#### *Tenuia smirnovi* Shatalkin sp.n.

Figs. 4e-h.

MATERIAL. Holotype: ♂, Primorskiy Kray, Khasan area, "Kedrovaya Pad'" Reserve, 21.IX.1980 (Shatalkin). Paratypes: 2♂♂, 2♀♀, same locality, 21.IX.1980 (Shatalkin); 1♀, Primorskiy Kray, Lazo Reserve, Ta-Chingouz (20 km S from Valentin), 30.IX.1948 (Gussakovskij); 1♂, Primorskiy Kray, Kamenushka (30 km SE from Ussuriysk), 6.IX.1987 (Antropov); 1♂, 6♀♀, Khabarovskiy Kray, Obluch'ye, Pashkovo, 17.VII.1980 (Ozerov).

DESCRIPTION. Frons in anterior part brownish-yellow and blackish posteriorly. Hind part of head black. Orbits yellow. Face yellow with a median furrow from antennae to clypeus. Upper half of this furrow with small median keel. Foveae black. Gena yellow with black mark. Frons with light microscopic hairs; face with black microscopic hairs in upper half. Antennae widely arranged; all antennal segments black, brownish on lower and inner surfaces of third and second segments. Arista black with microscopic hairs. Mouthparts yellow; palpi yellow, their posterior margins in apical half blackish.

Thorax black, matt, with following yellow areas: upper part of humeral calli, notopleural triangular mark, narrow stripe along upper margin of mesopleuron and hypopleuron, apical half of scutellum. Mesonotum with thin gray pollen; three brownish, hardly discernible stripes along *ac* and *dc* present. Legs black. Wings grayish. First posterior cell slightly narrowed to apex; *ta* beyond middle of discal cell. Halteres yellow; base of its stalk slightly brownish. Abdomen black, slightly shining. Genitalia-

lia (Fig. 4e-h) large, bent back beneath abdomen.

Body length 2.8 mm; wing length 3.0 mm.

Chaetotaxy. 3 **ors**, 2 **vt**, **pvt** divergent, 1 **occi** (**pavt**), **vi** present, 2 genal bristles, a series of peristomal setulae between vibrissal and genal bristles, 1 **h**, 1 **ph**, 2 scapulars, 1+4 **dc**, **ac** in 2 medial rows with additional sparse setulae between those and dorsocentrals, 1 **ia**, 1 **pa**, 2 **sa** with anterior of them longer than posterior, scutellum with 3 pairs of bristles, of which basal pair relatively long, about 2 times shorter than previous one.

FEMALE resembles male. Frons and face with black hairs. Body length: paratypes from Primorskiy Kray 3.4-3.5 mm; paratypes from Pashkovo 4.1-4.3 mm.

DIAGNOSIS. This new species differs from *T. nigripes* Malloch [1926] by the presence of the paravertical bristles, in having entirely black anterior coxae.

The new species is named in honor of my master, the late Professor E.S.Smirnov.

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