

***Pseudocentropilum calabrum* sp. n. (Ephemeroptera, Baetidae),  
a new species of mayfly from Southern Italy**

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**Taxonomy, Palaearctic, Mediterranean, *Centropilum-Pseudocentropilum* species-group**

**Abstract.** *Pseudocentropilum calabrum* sp. n. is described from Argentino River (Southern Italy, Calabria). It belongs to the species group *romanicum*, previously referred to the genus *Centropilum*. Distinctive characters are the structure of egg chorion (*romanicum*-like), relatively wide hindwing and nymph with single gills and *pennulatum* group-like mouthparts. The taxonomic relationships between genera *Centropilum* and *Pseudocentropilum* are discussed and the respective species-groups are defined.

The taxonomic status of the genera *Centropilum* EATON, 1869 and *Pseudocentropilum* BOGOESCU, 1947 was recently reviewed by KEFFERMÜLLER & SOWA (1984). That work tentatively proposes that the species of *Centropilum* with rounded hindwing should be referred to the genus *Pseudocentropilum*. The dubitative proposition arose from the lack of certain data on males and nymphs of the *Pseudocentropilum* type species (*P. motasi* BOGOESCU, 1947). Later, SOWA (1985) described *Pseudocentropilum fascicaudale* SOWA, 1985 from Rhodes: the nymphs of this species are very close to the *pennulatum*-group. We think that similarities between *Pseudocentropilum*-species (according to BOGOESCU (1947), KEFFERMÜLLER & SOWA (1984) and SOWA (1985) descriptions) and the so-called *pennulatum* group, are sufficient for considering the whole complex congeneric. It is a question whether the *pennulatum-motasi* complex may be referred to the genus *Pseudocentropilum* or to some other one (e.g.: *Procloeon*: WALTZ & MC CAFFERTY, 1985). In the present work we tentatively attribute the species in question to the genus *Pseudocentropilum*, which can be divided into species-groups, mainly on the basis of egg chorion structure. European species are the following: (*pennulatum*-group: hindwing narrow with parallel margins, egg chorion uniformly covered with papillae) *P. pennulatum* (EATON, 1870), *P. lacustre* (EATON, 1885), *P. nemorale* (EATON, 1885); (*pulchrum*-group: hindwing wider, slightly expanded toward the apex, egg chorion with long papillae at one or both poles, labrum of nymphs with fore-margin projections converging) *P. pulchrum* (EATON, 1885), *P. parapulchrum* (KEFFERMÜLLER & SOWA, 1975), *P. forlivense* (GRANDI, 1964) (possibly a synonym of *P. pulchrum*: KEFFERMÜLLER & SOWA,

1975; (*romanicum*-group: hindwing shorter, strongly expanded at 2/3 of its length, egg chorion with an equatorial wide band of papillae) *P. romanicum* (BOGOESCU, 1949), *P. nanum* (BOGOESCU, 1951), *P. shadini* KAZLAUSKAS, 1964; the latter species was referred by JACOB & GLAZACZOW (1986) to a new genus, *Pseudocentroptiloides* JACOB, 1986, but the similarity of egg chorion between *P. shadini* and other species of the *romanicum* group corroborates congenerity; (*motasi*-group: hindwing expanded at 2/3 of its length with some evident cross-veins, egg with single small papillae in the meshes of chorion) *P. motasi* BOGOESCU, 1947, *P. fascicaudale* SOWA, 1985. The following species need further investigations for a species-group attribution: *P. lituratum* (PICTET, 1843–1845) (eggs possibly *romanicum* -like (cf. DEGRANGE, 1960), poorly known species), *P. stenopteryx* (EATON, 1871) (wings *romanicum*-like, nymph unknown), *P. obtusum* (NAVAS, 1915) (very poorly known species), *P. hungaricum* (PONGRACZ, 1913) (very poorly known species), *P. strugense* IKONOMOV, 1962 (incertae sedis, very poorly known species).

Among the material collected in 1987 from Southern Italy we found a species whose eggs and hindwing resemble those of the *romanicum* group and whose nymphs have single gills. We describe this new species below.

### *Pseudocentroptilum calabrum* sp. n.

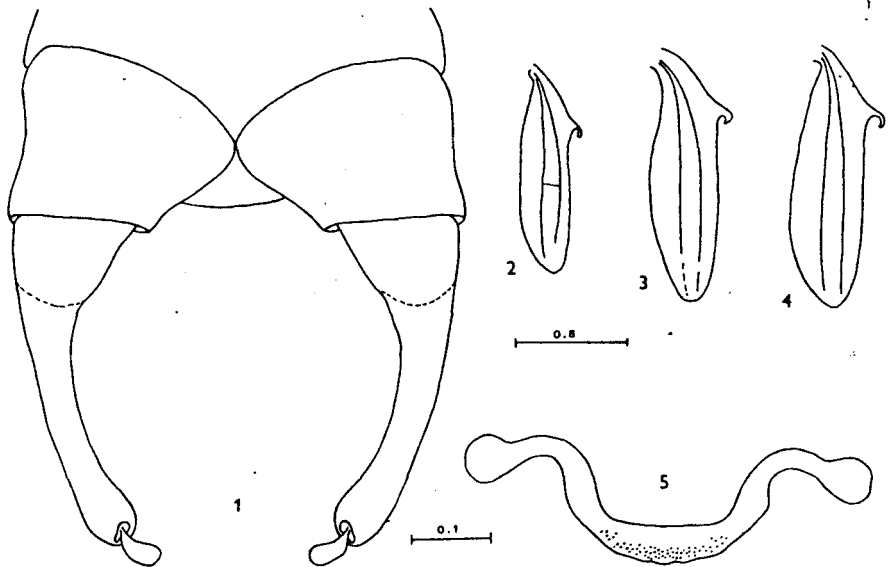
(Figs 1–19)

Holotype (male imago, in alcohol). Body length 8 mm, forewing 6.5 mm, cerci 13 mm. Upper surface of turbinate eyes orange, stem pale yellow. Pterostigma with 3 fully developed and 1 rudimentary cross veins. Thorax brown. Hindwing wide, distally rounded with straight fore margin and sinuous hind margin (Fig. 3). Legs yellowish. Abdominal tergites reddish brown, darker toward hind margin in segments I–IV; sternites I–VI pale, translucent, VII–IX whitish. Cerci light yellow, ringed with brownish. Gonopodes (Fig. 1): first segment slightly longer than wide; second segment three times long than first; third segment slender, piriform. Penis subtrapezoidal, with rounded corners (Fig. 5).

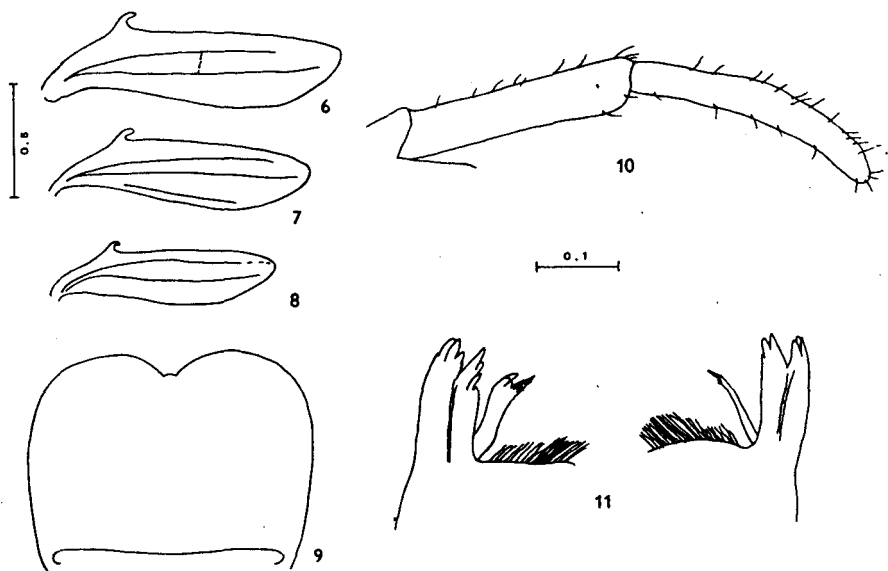
Variability of male imagines. Size (in mm): body length: max. 7.2, min. 5.0, mean 6.2; forewing length: max. 7.1, min. 5.5, mean 6; hindwing length: max. 1.2, min. 0.9, mean 1.1; hindwing width: max. 0.35, min. 0.25, mean 0.29. 4–8 cross veins on the male forewing pterostigma. Figs 2–4 show variability of hindwing shape.

Female imago. Body length: max. 8.0, min 4.8, mean 6.5; forewing length: max. 8.0, min. 5.4, mean 6.6; hindwing length: max. 1.3, min. 0.9, mean 1.0; hindwing width: max. 0.3, min. 0.2, mean 0.25. pterostigma with 7–9 cross veins. Figs 6–8 show variability of hindwing.

Egg. 146–136 × 90–106 μm. Chorion with a wide equatorial band of large papillae (see KEFFERMÜLLER & SOWA, 1984: 331, Fig. 36), arranged in 13–18 rows.



1 Figs 1-5: *Pseudocentropitulum calabrum* sp. n. (male imago). 1 - gonopodes; 2, 3, 4 - variability of hindwing; 5 - penis.

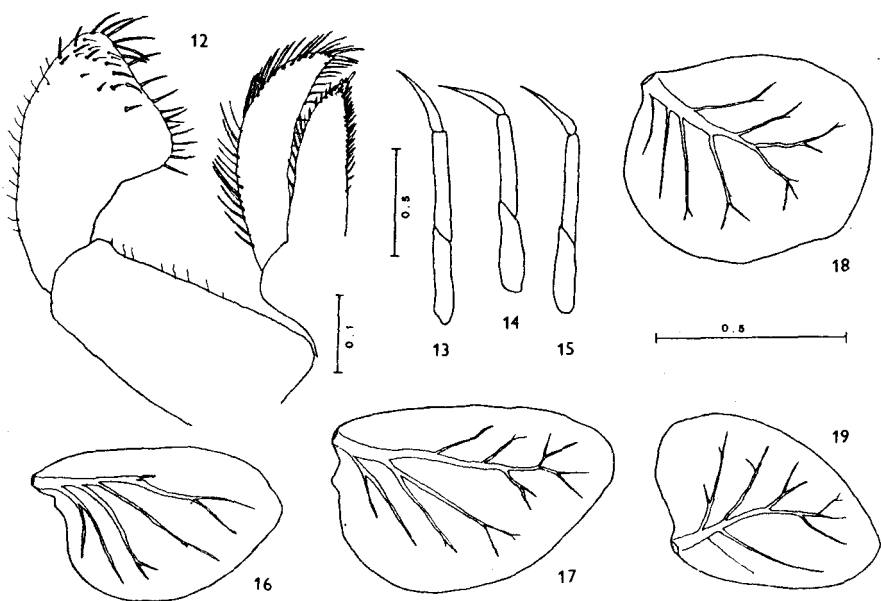


Figs 6-11: *Pseudocentropitulum calabrum* sp. n. 6, 7, 8 - variability of female imago hindwing; 9 - labrum of nymph; 10 - palpus maxillaris of nymph; 11 - mandibular canines of nymph.

Nymph. Body length 6–7 mm, cerci 2–3 mm. Labrum rectangular with two large, rounded projections on fore margin (Fig. 9). Canines of mandibles divided only at top (Fig. 11). Palpus maxillaris 2-segmented, apical segment longer than basal one (Fig. 10). Palpus labialis 3-segmented, apical segment wider than long with straight truncated distal margin (Fig. 12). Foreleg claws (Fig. 13) about 3/4 length of tarsus; middle and hindleg claws (Figs 14–15) hardly reaching 3/4 length of tarsus. Denticles on claws very small. Gills single, with rounded apex, asymmetrical (Figs 16–19). Inner margin of subanal plates with 10 sharp denticles. Natatory hairs not present only on proximal 1/5 of cerci.

Type material: Holotype ♂ imago: "Italy, Calabria, Cosenza, Orsomarso, Argentino river, 250 m, 16. ix. 1987. C. Belfiore & C. D'Antonio leg." Paratypes: 5 ♂, 5 ♀ imagines, 5 nymphs, all same data as holotype. Other material: 14 ♂, 31 ♀ imagines, 10 nymphs, all same data as type material, 1 ♀ imago, same locality data, dated 9. vii. 1987. Types and other material preserved in the collections of authors.

Affinities. The wide band of papillae arranged in rows on *P. calabrum* egg chorion is an important diagnostic generic feature shared with *P. romanicum* (BOGOESCU, 1949), *P. nanum* (BOGOESCU, 1951) and *P. shadini* (KAZLAUSKAS, 1964) (all previously referred to the genus *Centroptilum*). Also the hindwing of *P. calabrum* adults resembles that of *P. romanicum*. The nymphs share more qualitative diagnostic characters than adults and the discussion of affinities is not so univocal. Labrum shape and mandibular canines are *pennulatum* group-like. Single



Figs 12–19: *Pseudocentroptilum calabrum* sp. n. (nymph). 12 – palpus labialis, glossa and paraglossa; 13, 14, 15 – distal segments of fore-, mid- and hindlegs; 16, 17, 18, 19 – first, third, sixth and seventh gills.

gills are present in *P. shadini* and in an undescribed species of the *pulchrum* group from Southern Italy (unpublished data). Also *Centroptilum dimorphicum* SOLDAN & THOMAS, 1985, a very peculiar species from north Africa, shares single gills, but, notwithstanding some features which resemble the genus *Pseudocentroptilum* the generic attribution of this species is still doubtful.

Ecology. *P. calabrum* nymphs were collected in a stony and cold stream, in circumscribed microhabitats of still or slow flowing water. Adults were caught in July and September. Nuptial flight took place 1–2 hours before sunset. Males flew at 0–3 m over the water, with a typical up and down flight.

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