

Description of the nymph of *Isoperla curtata* Navás, 1924 (Insecta, Plecoptera)

Descripción de la ninfa de *Isoperla curtata* Navás, 1924 (Insecta, Plecoptera)

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The genus *Isoperla* Banks 1906, with more than a hundred species along the Holarctic Region (Tierno de Figueroa *et al.*, 2003), is composed by 45 European species (Fochetti & Tierno de Figueroa, 2006).

From a morphological point of view, the species of *Isoperla* as a whole only can be correctly identified using the morphology of the penial armature, and its scales, in adult males. Nevertheless, the nymphs of some species can be distinguished based on some characters (Consiglio, 1980). This can be particularly useful in specific areas where stonefly communities are known from studies on adults.

Five species of *Isoperla* are known to occur in Southern Iberian Peninsula: *I. bipartita* Aubert, 1963, *I. grammatica* (Poda, 1761), *I. nevada* Aubert, 1952, *I. pallida* Aubert, 1963, and *I. curtata* Navás, 1924 (Tierno de Figueroa *et al.*, 2003). The latter is the only species in which the nymph is not yet described.

I. curtata is an endemic but widely distributed species in the Iberian Peninsula, presenting a relatively high degree of polymorphism (Aubert, 1956).

The description of the nymph of this species is based on 10 individuals collected during a monthly sampling program at Río Despeñaperros, Sierra Morena (Jaén, Spain), UTM: 30SVH558476, 560 m a.s.l. All individuals were collected in April and May 2007. The sampling station is characterized by temperatures ranging from 5.90 °C to 25.87 °C. Substrate is composed

mainly by pebbles and cobbles. In this sampling station, mean oxygen saturation is 69.11 ± 23.75 % and mean oxygen concentration is 7.03 ± 2.73 mg/l. Mean conductivity is 454.89 ± 69.43 μ S/cm. Caudal varies from 0.00 to 0.32 m³/s, depending on rainfall, due to the mainly pluvial regime of this stream.

Studied nymphs of this species reach a relatively large size (body length: 11.2 to 14.8 mm. for mature nymphs). Body color is mainly yellowish with brown ornamentation. The whole body is covered by abundant hairiness.

The head, with a characteristic design (Fig. 1A), presents a light round spot surrounded by the three ocelli and other spot in front of the anterior ocellus [resembling the head designs of *I. rivulorum* (Pictet 1842) and *I. insularis* (Morton, 1930) (see Consiglio, 1980: pp. 17, figs. 19b and 19c)]. This last spot has a characteristic pentagonal shape. Other light colored

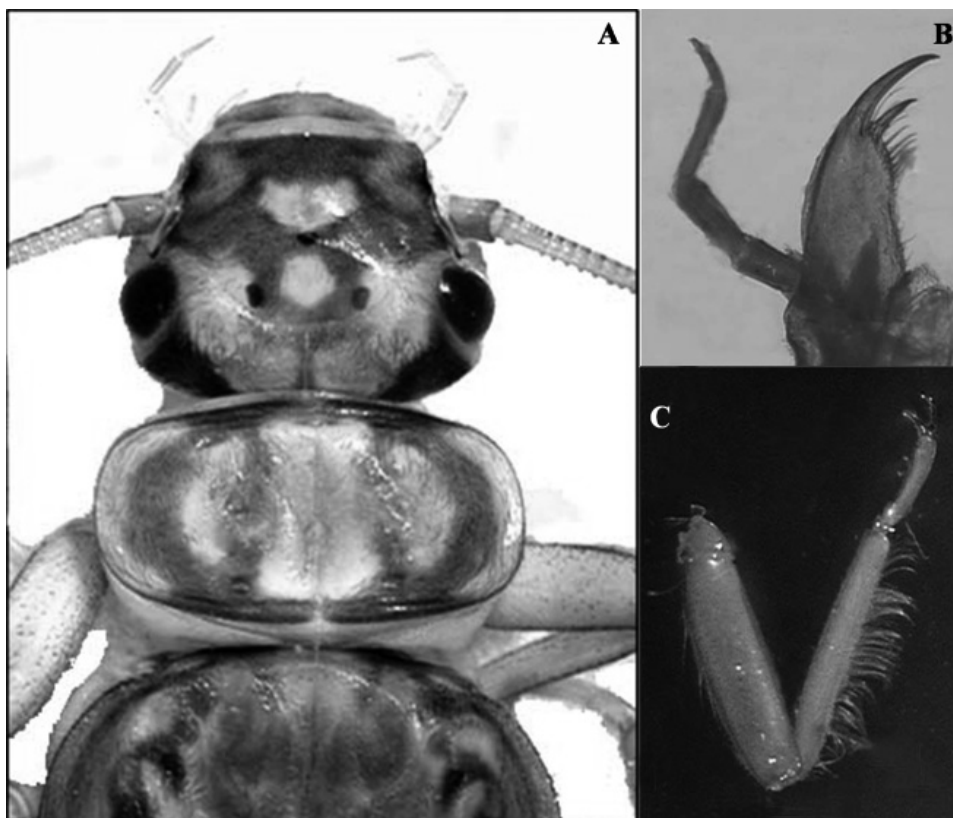


Fig. 1.—*Isoperla curtata* nymph: A) head and pronotum; B) maxilla; C) leg.
Fig. 1.—Ninfa de *Isoperla curtata*: A) cabeza y pronoto; B) maxila; C) pata.

areas occupy the posterior part of the head, bordering the compound eyes and reaching the base of the antennae, medially divided by a dark line. Antennae are yellow, with darker basal segments. According to the literature, *I. curtata* head design is different from *I. grammatica* and *I. nevada* (see Sánchez-Ortega & Alba-Tercedor, 1990: pp. 91, fig. 5f; pp. 94, fig. 6f) and *I. bipartita* (see description by Aubert, 1963), and resembles *I. pallida* according to Aubert (1963).

The maxilla (Fig. 1B) has a relatively long lacinia, and the inner edge of the maxilla bears long and thick bristles in the apical part and shorter bristles in the medial part. As in the case of the head design, the lacinia of this species is more similar to the one of *I. rivulorum* (see Consiglio, 1980: pp. 18, fig. 20b) than those of other species inhabiting Southern Iberian Peninsula, at least *I. grammatica* and *I. nevada* (see Consiglio, 1980: pp. 18, fig. 20a; Rupprecht, 1984: pp. 89, fig. 7c; Sánchez-Ortega & Alba-Tercedor, 1990: pp. 91, fig. 5i and pp. 94, fig. 6g).

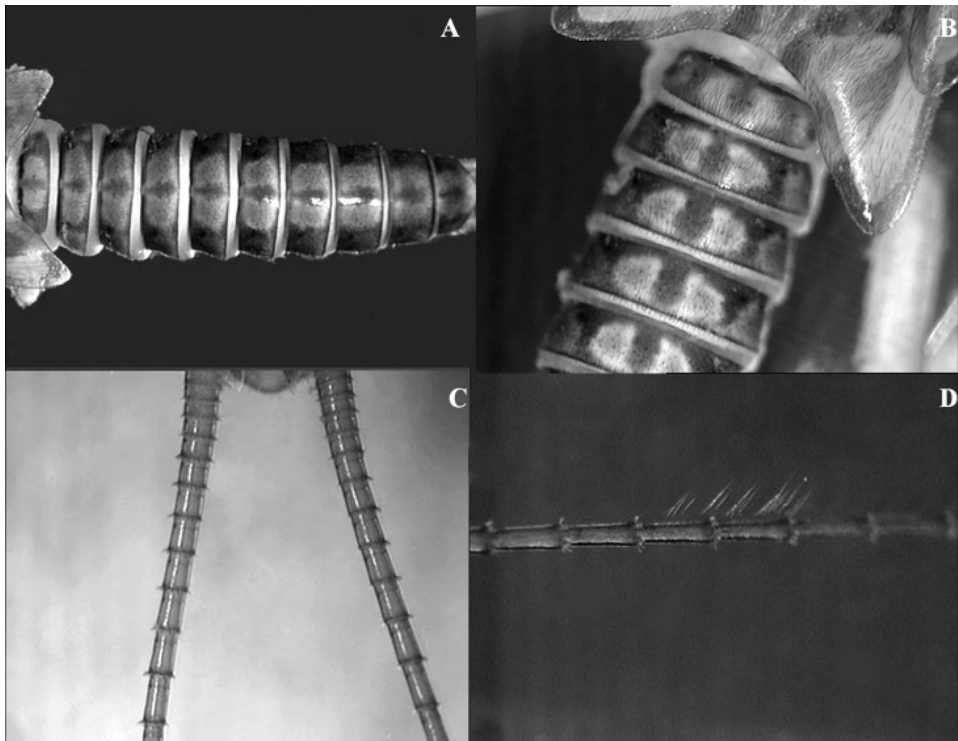


Fig. 2.—*Isoperla curtata* nymph: A) & B) abdomen; C) & D) cerci.

Fig. 2.—Ninfa de *Isoperla curtata*: A) & B) abdomen; C) & D) cercos.

The pronotum (Fig. 1A) is elliptical, with a larger light coloured area in the middle and two smaller kidney-shaped areas in each side, resembling that of *I. grammatica* (Consiglio, 1980: pp. 17, fig. 18a; Sánchez-Ortega & Alba-Tercedor, 1990: pp. 91, fig. 5f).

The leg has a silky fringe (with long bristles) in the outer femur, tibia and tarsus (Fig. 1D).

The abdomen (Fig. 2A & 2B) presents a characteristic pattern, dorsally two-colour and yellowish in the ventral and lateral parts. Each urite presents dorsally a clear medial area with a tear-shaped dark spot, surrounded by a dark contour. Bristles in the posterior edge of each tergum are around 1/8 of the urite length in the mature nymphs, considerably smaller than the 1/3 or 1/4 in *I. grammatica* (Sánchez-Ortega & Alba-Tercedor, 1990).

Cerci present a crown of smaller bristles around each article and a longer fringe of bristles in the distal part (Fig. 2C & 2D).

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