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***Hydraena (Hydraena) marcosae* sp.n.**  
**from the Iberian Peninsula**  
**(Coleoptera: Hydraenidae)**

P. AGUILERA, C. HERNANDO & I. RIBERA

**Abstract**

*Hydraena* (s.str.) *marcosae* sp.n. is described from the Sierra de la Peña de Francia (western Spain). It is not closely related to any other known species of *Hydraena*, although the general structure of the aedeagus suggests a relationship with *H. corinna* d'ORCHYMONT and *H. corrugis* d'ORCHYMONT.

**Key words:** Coleoptera, Hydraenidae, *Hydraena*, new species, Spain

**Introduction**

In the course of an extensive survey of the species of *Hydraena* KUGELANN of the Iberian Peninsula a series of specimens belonging to an undescribed species were found by the first author in two localities in the Sierra de la Peña de Francia, province of Salamanca (W Spain), in July 1995. In a subsequent visit to the area in August 1996 more material of the same species was collected in another locality in the same mountain system.

We thank Manfred A. Jäch and Garth N. Foster for their suggestions in describing this species.

**Acronyms**

CAB: Coll. Aguilera, Barcelona; CFA: Coll. Foster, Ayr; CFL: Coll. Fresneda, Llesp, Lleida; CHB: Coll. Hernando, Barcelona; CRB: Coll. Ribera, Barcelona; MZB: Museu de Zoologia, Barcelona; NMW: Naturhistorisches Museum, Wien.

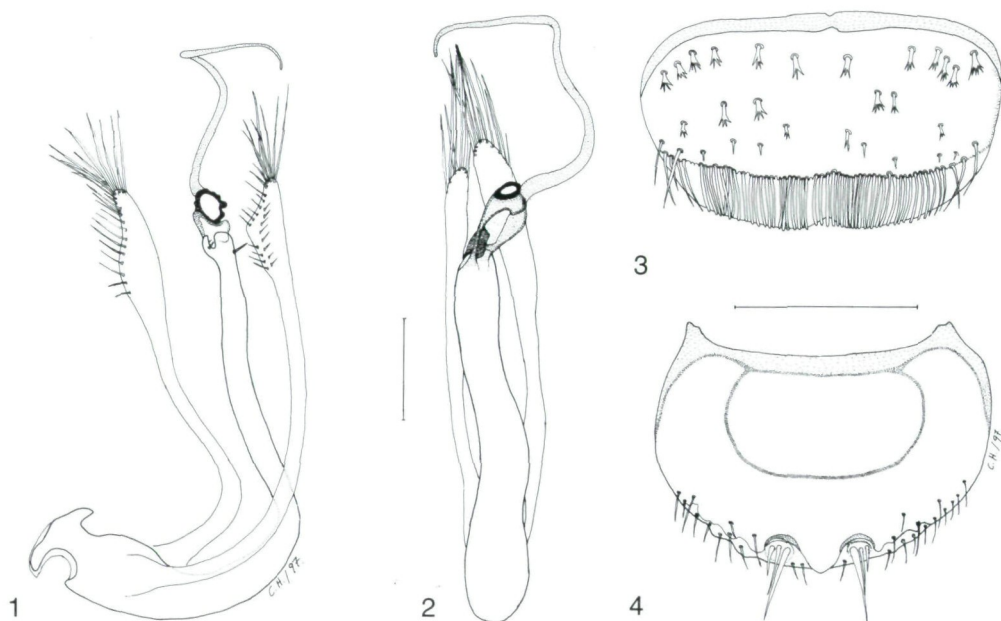
***Hydraena marcosae* sp.n.**

**TYPE LOCALITY:** Small tributary of the river Betuecas, in La Alberca, province of Salamanca, Spain (U.T.M. 10x10 km grid square 29TQE48).

**TYPE MATERIAL:** **Holotype** ♂ (NMW): "SPAIN Salamanca La Alberca \ Afl. río Betuecas \ 25.VII.1995 P. Aguilera leg." and with holotype label. **Paratypes** (NMW, MZB, CFL, CFA, CAB, CHB, CRB): 15 ♂♂, 25 ♀♀ labelled as holotype; 4 ♂♂, 18 ♀♀ labelled as holotype with date 25.VIII.1996 and paratype labels.

**DESCRIPTION OF HOLOTYPE:** 1.9 mm long. Body form elongate, elytra oval, with maximum width (0.7 mm) in the middle. Pronotum and elytra uniformly dark brown. Legs and head appendages testaceous, paler than the body.

Labrum shiny and granulate, anterior margin with a median indentation. Clypeus finely punctured, with a sparse fine pubescence; anterior margin finely bordered. Frons with a coarser and sparser puncturation than the clypeus; surface between punctures smooth and shiny. Pronotum sub-hexagonal, finely bordered around the entire edge; surface granulate, with coarse, almost contiguous punctures except on the disk, in which the puncturation is less dense and strong, with the surface between punctures smooth and shiny. Elytra with a broad explanate margin ending abruptly in the humeral part, where it is sinuate. Stria more regular in the disk, more irregular and with smaller punctures laterally. Puncturation less strong in the apex of the elytra, which are regularly rounded. Hind wings apparently poorly developed, with the apex folded but only slightly longer than the elytra.



Figs. 1 - 4: *Hydraena marcosae* sp.n.; 1) aedeagus, lateral view, 2) same, dorsal view, 3) last abdominal tergite of female 4) last abdominal sternite of female. Scale bar: 0.1 mm.

Ventral side covered by dense and fine, grey-whitish hydrophobic pubescence except on the head and the last sternites, on which the pubescence is sparser and thicker. With two reniform metasternal plaques reaching the posterior margin of the metasternum. Surface totally granulated, less coarsely on the last two visible sternites. Prosternal process tectiform, not bordered. Epipleura with the same width throughout their length, except at the union with the humerus, where they become slightly sinuated and narrower.

Internal side of the mesotibia with two irregular rows of erect setae; area between these rows of setae slightly depressed.

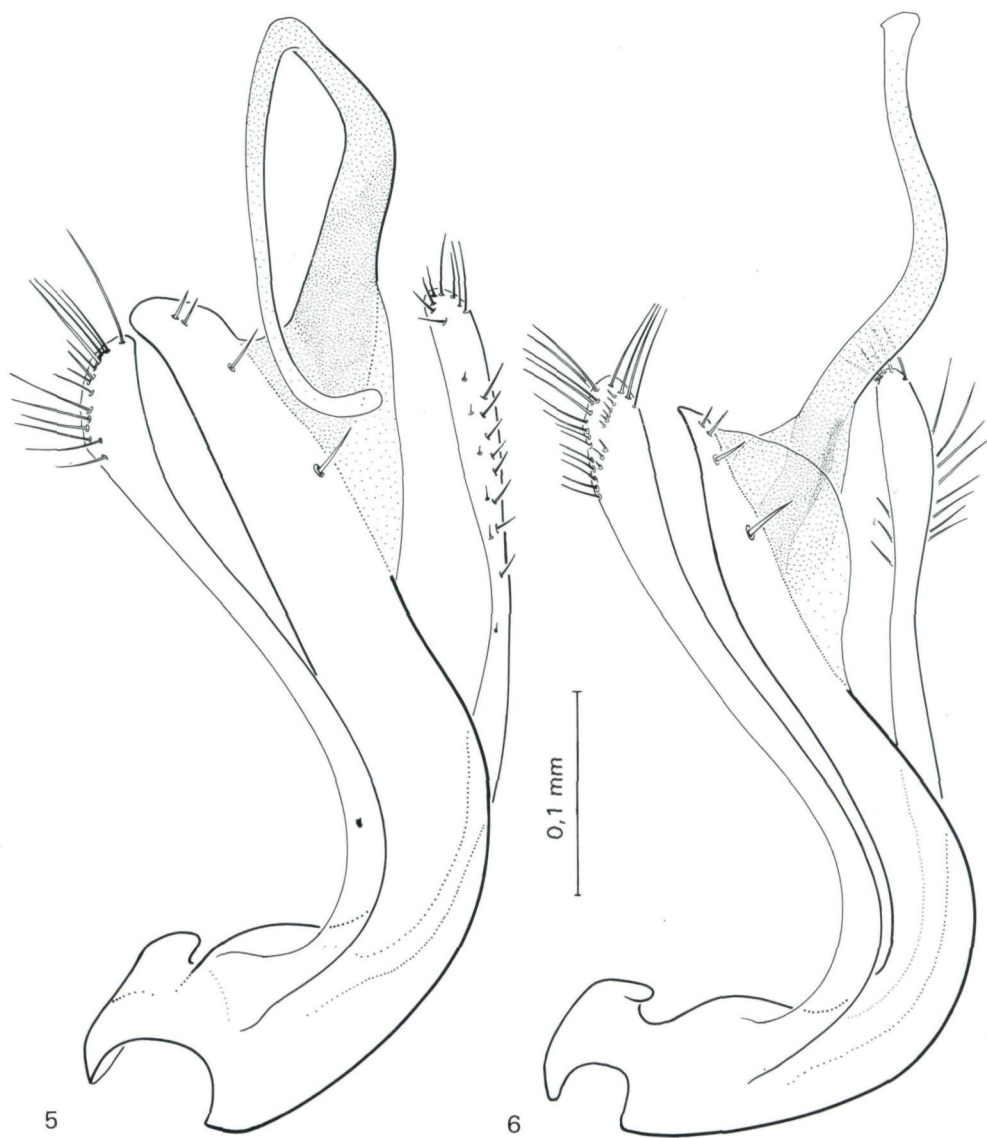
Aedeagus as in Figs. 1 and 2. Basal half of the median lobe strongly arched. With a long curved flagellum, articulated to the apex of the median lobe by an annular piece. The flagellum is typically twisted through an angle of 90°, although in some specimens it has a different topology. Apex of the median lobe emarginate (lateral view), with three small pre-apical setae and one large dorsal seta. Parameres as in Figs. 1, 2, highly asymmetrical.

**SEXUAL DIMORPHISM:** Female mesotibia without flat area between the rows of setae, which are similar to that of the metatibia. Last abdominal sclerites as in Figs. 3, 4.

**VARIABILITY:** Total length between 1.9 - 2.1 mm, maximum width between 0.7 - 0.8 mm. In all specimens examined the hind wings had the same size as in the holotype.

**DISTRIBUTION:** All the known localities of the species are in the same mountain system, the Sierra de la Peña de Francia, in the extreme south-west of the Sistema Central. The species occurs both in the north (river Duero basin) and south (river Tajo basin) slopes of the sierra. Other than the type locality, the species was found in the following sites:

Salamanca: Fuente del Monsagro, Monsagro (U.T.M. 29TQE38), 25.vii.1995, 4 ♂♂, 4 ♀♀, P. Aguilera leg.; arroyo de los Milanos, Mogarraz (U.T.M. 29TQE48), 25.vii.1995, 1 ♂, 1 ♀, P. Aguilera leg.; and Arroyo del Zarzoso, El Cabaco (U.T.M. 29TQE49), 25.viii.1996, 1 ♂, 2 ♀♀, P. Aguilera leg.



Figs. 5 - 7: Aedeagus of 5) *Hydraena corrugis* and 6) *H. corinna* (illustrations by M.A. Jäch). Scale bar: 0.1 mm.

**ETYMOLOGY:** The species is named after Ruth Marcos.

**BIOLOGY:** All specimens were found in permanent, fast-flow mountain streams surrounded by gallery forest, with strong seasonal variations in flow. In all of them the substratum was gravel with abundant plant detritus. Specimens were found in areas with shallow water (5 - 10 cm), mostly in the edges, but also in the centre of the stream. Part of the material was obtained from submerged moss in the edges with Berlese funnels, and from the mouth of a spring with some

gravel but no moss. The species does not seem to occur in the nearby river Francia, of which some of these streams are tributaries. *Hydraena marcosae* was found to coexist with several species of the same genus: *H. brachymera* d'ORCHYMONT, *H. exasperata* d'ORCHYMONT, *H. iberica* d'ORCHYMONT, *H. inapicipalpis* PIC, *H. lusitana* BERTHELEMY, and *H. testacea* CURTIS. Teneral specimens were found in August in one of the localities.

### Discussion

*Hydraena marcosae* seems not to be closely related with any other known species of the genus. Its general external appearance may place it near *H. barrosi* d'ORCHYMONT or *H. bolivari* d'ORCHYMONT, although similarities are based on characters difficult to describe systematically. The abruptly explanate margin of the elytra is also present in *H. claryi* JÄCH and *H. angulosa* MULSANT, although again this is not a sound basis on which to establish a phylogenetic relationship. The general structure of the aedeagus places it near *H. corrugis* d'ORCHYMONT and *H. corinna* d'ORCHYMONT, the three species sharing a relatively simple median lobe, with a long and thin flagellum in the apex (Figs. 5, 6). The parameres are, however, very different, and the similarity of the median lobe could also be homoplastic: the insertion of the flagellum in the median lobe is subapical in *H. corrugis* and *H. corinna*, more like the expansion of a dorsal vellum, while in *H. marcosae* it is articulated with the median lobe by an intermediate structured piece (Figs. 1, 2). The structure of the female pygidial sclerites also suggests certain relationship with *H. corinna* and *H. corrugis* (J.A. Díaz Pazos, in litt. 25.ii.1997), although more detailed morphological studies, including the analysis of the spermatheca, are necessary to place this new species in a monophyletic group within the subgenus *Hydraena*.

The Sierra de la Peña de Francia is in the south-west corner of the old Hesperian area of the Iberian Peninsula, with the same general geology as nearby mountain systems such as the Serra da Estrela in Portugal and the Sierra de Guadalupe in Cáceres. All of them are over Proterozoic rocks with some Hercinian plutonic intrusions (GABALDON 1995). This area harbours many Iberian endemics, both in *Hydraena* (VALLADARES & MONTES 1991, DIAZ PAZOS & GARRIDO GONZALEZ 1993, DIAZ PAZOS & BILTON 1995) and in other groups of aquatic Coleoptera. The biogeographical relationships between the different mountain systems of the Central and NW parts of the Iberian peninsula are however still poorly known due to our incomplete knowledge of the detailed distribution of the species. Their apparent restricted distributions may sometimes be more the product of insufficient sampling and/or scarcity of populations than of true biogeographical differences between them.

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