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New genus and two new species of the Lo wer Cretaceous Digger Wasps from Spain (Hymenoptera: Sphecidae , Angarosphecinae)

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ABSTRACT

One new genus and two new species, *Ilerdosphex wenzae* RASNITSYN n.gen. and n.sp. and *Pompilopterus montsecensis* RASNITSYN n.sp., are described in the digger wasp subfamily Angarosphecinae (Sphecidae) from the Lower Cretaceous (possibly Barremian) lithographic limestones of the La Pedrera de Meià fossil site in the Montsec Range, NE Spain.

Keywords: Insecta. Hymenoptera. Sphecidae. Cretaceous. n. gen., n. sp. Spain.

INTRODUCTION

Digger wasps of the subfamily Angarosphecinae were abundant in the Early Cretaceous of various parts of Eurasia (Evans, 1969; Rasnitsyn, 1975, 1986, 1990; Hong, 1984; Zhang, 1985, 1992; Jarzembowski, 1991; Ansorge, 1993; Ren, 1995; Rasnitsyn et al., 1998, 1999) and South America (Darling and Sharkey, 1990). This is particularly true for the Spanish insect assemblage from Sierra del Montsec in Lleida Province (Ansorge, 1993; Rasnitsyn and Ansorge, 2000; Rasnitsyn and Martínez-Delclòs, 2000). Following are descriptions of two interesting fossils kept at the Laboratoire de Paléontologie, Muséum National d'Histoire Naturelle, Paris. This material was collected by Dr. Sylvie Wenz of the above Lab in the lithographic limestones from La Pedrera de Meià fossil site located in the Montsec Range, central Lleida Province, 5 km W of Santa Maria de Meià, possibly of Barremian age (Martín-Closas and López-Morón, 1995).

SYSTEMATIC PALAEONTOLOGY

Class: Insecta LINNAEUS, 1758
Order: Vespida LAICHARTING, 1871
(= Hymenoptera LINNAEUS, 1758)
Family: Sphecidae LATREILLE, 1802
Subfamily: Angarosphecinae RASNITSYN, 1975

GENUS ***Ilerdosphex*** RASNITSYN n.gen.

Type species: I. wenzae n.sp. Lower Cretaceous of Spain.

Name derivation: Ilerda, the Roman name of the city and province in Spain, now known as Lleida or Lérida, and *Sphex* L. gender masculine.

Diagnosis: New genus differs from other Cretaceous Sphecidae in having cell 2rm petiolate; from the Ceno-

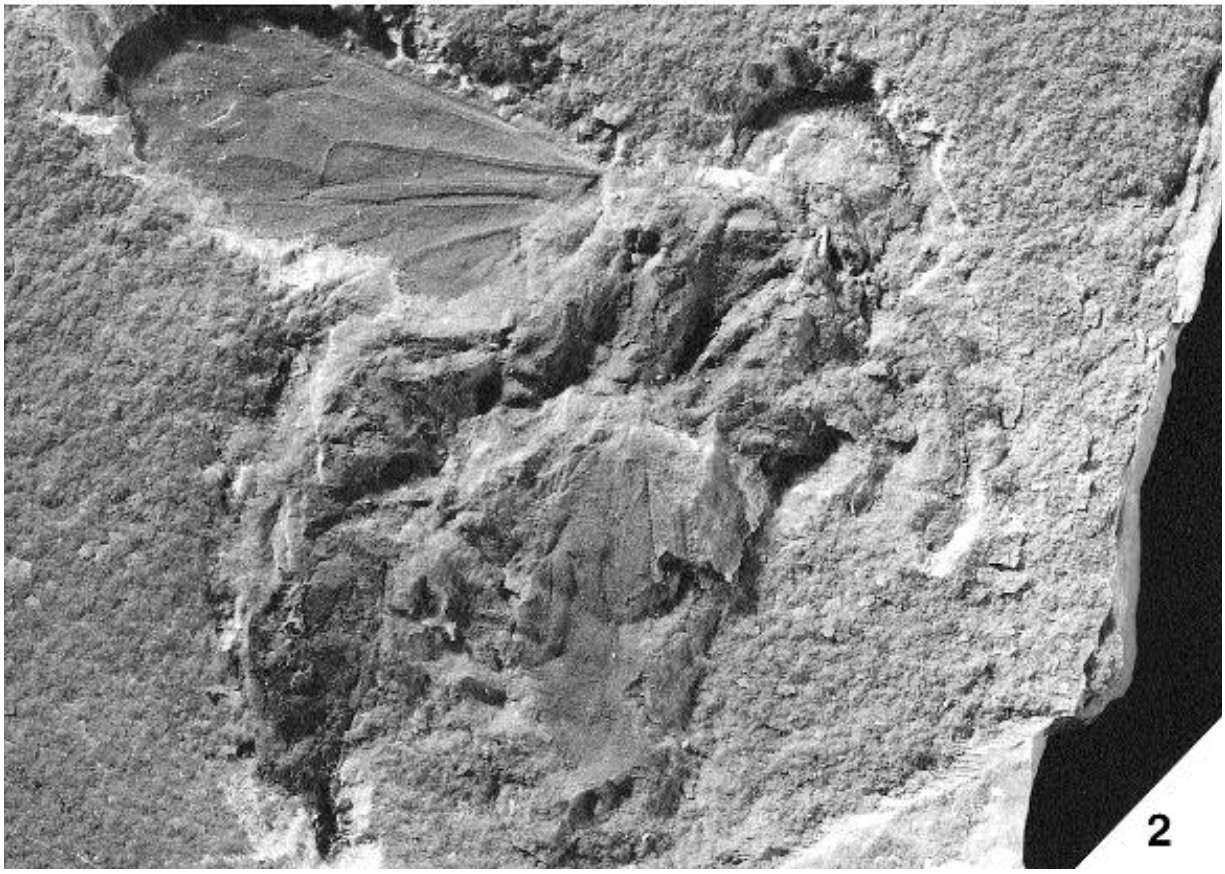

Figure 1. 1.- *Ilerdosphex wenzae* n.gen., n.sp., holotype; 2.- *Pompilopterus montsecensis* n.sp., holotype. Photo D. Serrette (MNHN, Paris).

zoic Sphecidae with petiolate 2rm in having cells 2rm and 1mcu not overlapping, 2m-cu present and received by cell 3rm, and 3r-m present.

Description: (based on the male sex only). Dorsal thoracic contour distinctly incised at boundary between pro- and mesonotum, smoothly arching further backward, with no angulation between propodeal dorsum and slope. Pronotum about half as long as mesonotum, propodeum with dorsal surface moderately or fairly long, its transition to slope smoothly rounded, mesopleuron with scrobal suture subhorizontal, percurrent. Forewing with marginal cell rounded apically, leaving RS distant of wing fore margin, crossvein 2r-rs shorter than pterostigmal width, 2r-m reaching RS before 2r-rs (cell 2rm petiolate), 3r-m oblique, arching, 1m-cu received by cell 1+2r, 2m-cu - by cell 3r-m, cu-a before fork M + Cu. Legs with short trochantellus (unknown for hind leg). Metasoma not petiolate, gonostyles needle-like slender and sharp.

Composition: Type species.

Taxonomic position: New genus lacks specific synapomorphies of any sphecid subfamily. This is the reason to attribute the genus to the paraphyletic subfamily Angarosphecinae embracing majority of the Lower Cretaceous sphecid wasps.

Ilerdosphex wenzae RASNITSYN n.sp.
Figure 1.1

Derivation of name: The collector, Dr Sylvie Wenz, from Paris.

Description: Female unknown. Male (Fig. 1.1). Head, thorax, and matasomal base moderately dark, flagellum dark, legs and metasoma (except base) moderately pale, metasomal tergum 2 with two sublateral pale spots. Antenna longer than head and thorax combined, mounted atop of boss, scape subcylindrical, with length 2.5 times width, pedicel narrower than scape, with length 1.5 times width, flagellomeres still narrower, of subequal width but becoming shorter toward apex, 1st flagellomere longer than scape and pedicel combined, penultimate flagellomere slightly shorter than scape, with length ca. 5 times width. Head not inflated, with eye ovoid. Length of some segments of (labial?) palp 1.5 to 2 times width. Pronotum shorter centrally than eye wide, its dorsal contour concave before middle and bulging in its rear 0.3. Forewing with pterostigma widest beyond midlength, near twice as long as R between basal vein and pterostigma. Cell 2rm with petiole length almost 0.3 cell height, 3r-m arching in rear 0.5, distant from cell 3r apex for 0.8 its length, distant from 2m-cu for full its length, cu-a distant from M + Cu fork for almost half its length. Fore femur as long as eye high, 1.6 times as long as trochanter and trochantellus combined, tapering toward apex. Fore tibia as long as femur, with maximum hight subequal to femoral subapical height. Tarsus ca. 1.5 times as long as tibia, with basitarsus shorter than three following tarsomeres combined, penultimate tarsomere ca. 2.5 times as long as high. Mid femur, tibia and, possibly, trochanter as long as their fore counterparts. Metasoma widest at tergum 2, roundly narrowed toward base and very gradually toward apex. Genital claspers needle-like elongate, apparently as long as scape and pedicel combined. Body length ca. 16 mm, fore wing length (measured from wing base to apex of cell 3r) ca. 8 mm.

Material examined: Holotype male MNHN-LP-S. 11456 a, b; the La Pedrera de Meià fossil site, Montsec Range, central Lleida Province, Spain; Lower Cretaceous (possibly Barremian).

GENUS ***Pompilopterus*** RASNITSYN 1975

Pompilopterus montsecensis RASNITSYN n.sp.
Figure 1.2

Derivation of name: montsecensis, the Latin adjective for the Montsec Range in NE Spain.

Diagnosis: In the published key (Rasnitsyn et al, 1998) the new species runs toward *P. ciliatus* RASNITSYN but differs from that in having pterostigma narrow basally and RS with apical abscissa shorter. Differs from all other P*ompilopterus* in longer forewing.

Description: Male unknown. Female (Fig. 1.2). Ground color dark, legs moderately dark. Scape almost twice as long as thick, 1.5 times as thick as flagellum basally, pedicel shorter than wide. Flagellum tapering toward apex, flagellomeres almost to full 3 times as long as wide, gradually becoming smaller toward apex, so as flagellomere 8 about 0.7 times as long as flagellomere 1. Forewing with pterostigma widest slightly beyond midlength, wider than 2r-rs long, about as long as R between basal vein and pterostigma; basal vein straight, RS almost straight between RS+M and 2r-rs and between 2r-m and 3r-m. Cell 2rm shorter than 1+2r and 3rm, receiving 1m-cu before its midlength, 2r-m and 3r-m both oblique and arching, 3r-m length two times its distance to cell 3r apex.

Cell 3rm receiving 2m-cu in its basal third; cu-a slightly beyond M + Cu fork. Hind wing with Cu between M + Cu fork and cu-a shorter than r-m, cu-a almost as long as RS before r-m, subparallel to M+Cu. Legs with trochantelli triangular, mid trochanter shorter than long, hind (?) tibia with short, slender spur and several strong spines apically, no distinct spines apparent on tibial side surface. Metasomal base rounded, segment 1 longest, segments 2-5, as preserved, of subequal height. Tergum 6 seemingly with strong dorsal or lateral tooth, unless being formed by broken tergum margin. Sting more or less straight, sheath straight, narrow, tapering toward apex, seemingly entire. Body length ca. 16 mm, fore wing length 9.5 mm (9.0 mm from wing base to apex of cell 3r).

Material examined: Holotype female MNHN-LP-B. 848826 a, b; the La Pedrera de Meià fossil site, Montsec Range, central Lleida Province, Spain; Lower Cretaceous (possibly Barremian).

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