



Description of the male of *Megalava truncata* Perrichot (Hymenoptera: Megalyridae) in Early Cretaceous amber from El Soplao (Spain)

RICARDO PÉREZ-DE LA FUENTE¹, VINCENT PERRICHOT^{2,3}, JAIME ORTEGA-BLANCO³,
XAVIER DELCLÒS¹ & MICHAEL S. ENGEL³

¹ Departament d'Estratigrafia, Paleontologia i Geociències Marines, Facultat de Geologia, Universitat de Barcelona, Martí i Franquès s/n, 08028 Barcelona, Spain. E-mail: perezdelafuente@ub.edu; xdelclos@ub.edu

² CNRS UMR 6118 Géosciences and Observatoire des Sciences de l'Univers de Rennes, Université Rennes 1, Campus de Beaulieu bât. 15, 263 avenue du Général Leclerc, 35042 Rennes Cedex, France. E-mail: vincent.perrichot@univ-rennes1.fr

³ Division of Entomology (Paleoentomology), Natural History Museum, and Department of Ecology & Evolutionary Biology, 1501 Crestline Drive – Suite 140, University of Kansas, Lawrence, Kansas 66045, USA. E-mail: geoortega@yahoo.es; msengel@ku.edu

Abstract

A new fossil of megalyrid wasp recently discovered in Early Cretaceous (Albian) amber from El Soplao (Cantabria, Spain) is described as the male of *Megalava truncata* Perrichot, 2009, originally described from Peñacerrada I (= Moraza) amber (Burgos, Spain). The new specimen permits a more thorough description of the genus *Megalava*, which was established originally from a single, fragmentary specimen lacking the metasoma, and also permits a discussion on the characters of phylogenetic value for the clade [*Megazar* + *Megalava*].

Key words: Mesozoic, amber, wasps, Megalyroidea, taxonomy, Spain

Introduction

Studies on Megalyridae, or long-tailed wasps, have gained a significant shift in the last years with the record of several extinct and extant taxa from the Northern Hemisphere (Perrichot 2009; Mita *et al.* 2007; Mita & Konishi 2011), while former knowledge essentially revealed a Southern Hemisphere distribution. Whereas the family currently comprises 51 Recent species segregated into eight genera, principally distributed in tropical areas of the Southern Hemisphere and around the equator, but also present in Southeast Asia and Japan, the fossil record shows 13 species in one Recent and six extinct genera ranging from the Early Cretaceous (Albian) to the Eocene (see Vilhelmsen *et al.* 2010a). The biology of Megalyridae remains poorly understood but the few observations of some species of *Megalyra* suggest they are mostly idiobiont parasitoids of immature stages of beetles and more rarely sphecid wasps (Naumann 1987; Shaw 1990), both of which are found in Spanish ambers (Peñalver & Delclòs 2010).

Phylogenetic analyses including the recent findings support sister-group relationships of Megalyroidea (comprising the sole Megalyridae) with Ceraphronoidea (Vilhelmsen *et al.* 2010a), a hypothesis followed by several other studies (Gibson 1985; Sharkey 2007; Vilhelmsen *et al.* 2010b; Vilhelmsen 2011; Sharkey *et al.* 2012) while a few works suggest relationships with Trigonalyoidea (Davis *et al.* 2010; Heraty *et al.* 2011). The mesothoracic spiracle exposed in the upper corner of the pronotum and completely surrounded by pronotal cuticle has been suggested as a synapomorphy shared with Ceraphronoidea (Gibson 1999), though in *Megazar* Perrichot, 2009 the pronotal cuticle forms a posterior notch making the spiracle free posteriorly (Perrichot 2009: fig. 16.3). However, contrasting results arise from the absence of a clear set of autapomorphies, as megalyrids are recognized by a unique combination of characters otherwise found individually in some other hymenopteran families (see discussion in Vilhelmsen *et al.* 2010a): (1) the antennae inserted below the ventral margin of the compound eyes, (2) well-developed subantennal grooves, (3) a flat mesoscutum longitudinally divided by a median mesoscutal sulcus