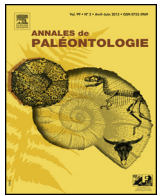




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Original article

A new species of maimetshid wasp (Insecta: Hymenoptera) in Siberian Cretaceous amber



Une nouvelle espèce de guêpe maimetshide (Insecte : Hyménoptère) dans l'ambre crétacé de Sibérie

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ABSTRACT

A new fossil wasp belonging to the extinct evaniomorphan family Maimetshidae is described from Santonian amber of Yantardakh, in the Taimyr Peninsula, northern Siberia. *Iberomaimetsha pallida* sp. nov. is represented by a single female and is distinguished from the other two species of the genus most notably in its wing venation. A modified key to the world Maimetshidae is proposed to include the new species.

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RÉSUMÉ

Une nouvelle guêpe fossile appartenant aux Maimetshidae, une famille éteinte d'Evaniomorphes, est décrite de l'ambre santonien de Yantardakh, dans la Péninsule du Taimyr, en Sibérie du Nord. *Iberomaimetsha pallida* sp. nov. est représentée par une unique femelle et se distingue essentiellement des deux autres espèces du genre par sa nervation alaire. Une clé modifiée des Maimetshidae du monde est proposée pour inclure cette nouvelle espèce.

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1. Introduction

Cretaceous ambers from the Taimyr Peninsula, in northern Siberia, have yielded a diverse array of fossil hymenopterans, and 40 species have been described in 18 families since the first descriptions of crabronid, chrysidoid, and ichneumonid wasps more than 40 years ago (Evans, 1973; Townes, 1973). Among the recorded families, the extinct Maimetshidae was erected to accommodate the single species *Maimetsha arctica* known only from the Santonian amber of Yantardakh (Rasnitsyn, 1975). It was initially considered to be an intermediate between Megalyridae and Ceraphronoidea

(Rasnitsyn, 1975), but recently the results of a genus level phylogenetic analysis of Megalyridae and other evaniomorphan families retrieved Maimetshidae as sister to Trigonalysidae, yet with an uncertain classification within the Evaniomorpha (see details in Vilhelmsen et al., 2010).

The family had remained monotypic until the recent discoveries of an additional ten genera and twelve species from both imprint fossils and amber inclusions, all Cretaceous in age (Perrichot et al., 2004, 2011; Rasnitsyn and Brothers, 2009; Perrichot, 2013). Remarkably, maimetshids are now recorded from all major Cretaceous amber deposits except that of New Jersey (Raritan Formation), but they remain poorly documented as imprint fossils even from insect-rich rock deposits such as those of the Early Cretaceous Yixian Formation in northeastern China. More than four decades after the first collecting of amber in the Taimyr Peninsula, a

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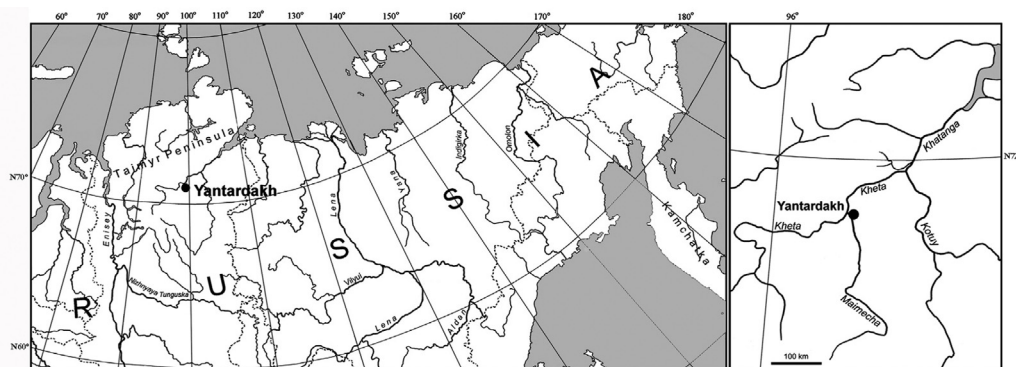


Fig. 1. Maps showing the Taimyr Peninsula and the location of Yantardakh.
Cartes montrant la Péninsule du Taimyr et la localisation de Yantardakh.

new expedition has been realized in 2012 by members of the Borissiak Paleontological Institute and the Institute of Developmental Biology of Moscow (Rasnitsyn et al., 2016). More than 3000 new arthropod inclusions have been retrieved, mostly from the Santonian deposit of Yantardakh, among which two specimens that are assignable to Maimetshidae. One specimen is too poorly preserved for assignment to any genus, whereas the other one displays sufficient features for comparison with other known fossils of the family. A first examination revealed that it differs from *Maimetsha*, the type genus and only other maimetshid described from Taimyr amber (Rasnitsyn, 1975). Instead, the new specimen appeared very similar to the two known species of *Iberomaimetsha*, a genus which was recently described from Albian Spanish amber (Perrichot et al., 2011). The Siberian morphotype, differing from the Spanish species mostly in its wing venation, is described herein as a new species. A modified key for the identification of the world Maimetshidae is also proposed.

2. Material and methods

The studied specimen is preserved in amber from Yantardakh, in the Taimyr Peninsula, northern Siberia (Fig. 1). This is the largest and best-studied insect-bearing site of the Kheta Formation that is exposed along the Romanikha and Maimecha rivers. The Yantardakh site is a cliff on the right bank of the Maimecha river, 3 km upstream of its mouth (GPS coordinates: 71°18'26"N 99°33'46"E). The amber containing the specimen was collected in 2012 from the top of the Kheta Formation, among lignitic lenses interbedded within sandstones, and is Santonian in age (Zherikhin and Sukatsheva, 1971; Rasnitsyn et al., 2016).

The specimen is contained in a small piece of clear orange amber that was polished in order to remove the weathered surface and provide an optimal view of the fossil. Photographs were taken under both incident and transmitted light using a Canon 5D Mark II camera attached to a Leica MZ APO stereomicroscope, and stacks of photographs taken at different focal planes were merged using HeliconFocus software (HeliconSoft Ltd.). Line drawings were made with a camera lucida and digitally processed using Illustrator CS5 software. Measurements were made using the ocular micrometre of the stereomicroscope. The morphological terminology follows that used and illustrated by Perrichot et al. (2011) for Maimetshidae.

3. Systematic palaeontology

Family MAIMETSHIDAE Rasnitsyn, 1975

Genus *Iberomaimetsha* Ortega-Blanco, Perrichot & Engel, 2011.

Type species: *Iberomaimetsha rasnitsyni* Ortega-Blanco, Perrichot & Engel, 2011, p. 433, figs. 5–7.

Included species: *I. nihtmara* Ortega-Blanco, Delclòs & Engel, 2011; *I. pallida* Perrichot & Perkovsky, sp. nov.; *I. rasnitsyni* Ortega-Blanco, Perrichot & Engel, 2011.

The generic diagnosis by Ortega-Blanco, Perrichot & Engel (in Perrichot et al., 2011) is followed.

Iberomaimetsha pallida Perrichot & Perkovsky, sp. nov.

Figs. 2–3

Type material. Holotype PIN 3311/1360 (female), in amber of Yantardakh, Taimyr Peninsula, northern Siberia; upper Kheta Formation, Santonian. Preserved in a small piece of orange amber measuring 4 × 3.5 × 2 mm, and contacting the amber surface so that the left side of body is largely missing. Housed in the Borissiak Paleontological Institute (PIN) of the Russian Academy of Sciences, Moscow.

Etymology. The specific epithet is derived from the Latin *pallidus* and refers to the pale, depigmented integument of the holotype.

Diagnosis. The new species has the following unique combination of characters within the genus: mandibles asymmetrical, right 4-toothed, left 3-toothed (vs. symmetrical, each 3-toothed in *I. rasnitsyni*); forewing with pterostigma linear (vs. slightly widening apically in *I. rasnitsyni*), vein 2Rs+M shorter than 1m-cu and shorter than cell [1Rs] (vs. longer in *I. nihtmara*); vein 2m-cu arising just basad to 2rs-m (vs. at midlength between 1rs-m and 2rs-m in *I. rasnitsyni*); cell [1M] rhomboidal, nearly as large as [2Cu] (vs. smaller than [2Cu] in *I. nihtmara*); apicalmost abscissa of Cu arising from almost apical posterior margin of [2Cu] (vs. at midlength of [2Cu] in *I. rasnitsyni*); hind wing vein Rs with first section very short, straight, more-or-less orthogonal to chord length of wing (vs. long, sinuate, oblique in *I. rasnitsyni*).

Description. *Female.* Integument densely covered with short, recumbent pubescence.

Head hypognathous, transverse, its width approximately 1.2 × its height, about twice as broad as long; compound eyes oval, bulging; vertex without longitudinal median sulcus; occipital carina present, fine; ocelli distant from compound eyes, median ocellus separated from lateral ocelli by approximately one ocellar diameter, lateral ones separated from each other by about two ocellar diameters; anterior half of frons with a faint longitudinal sulcus; antennae filiform, inserted in shallow depression between compound eyes, closer to each other than to compound eye margin; toruli ring-like, distinctly raised, separated from each other by half a torulus diameter; radicle distinct, drop-shaped; scape compact, laterally compressed, approximately as long as high and twice as long as broad, with base distinctly convex, apex shallowly concave; pedicel inserted eccentrically into scape's apical concavity,

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