



Description of a new fossil *Anthoxyela* species (Hymenoptera, Xyelidae) from Yixian Formation of Northeast China

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Abstract

This paper reports a new species *Anthoxyela orientalis* **sp. nov.** referred to the genus *Anthoxyela* Rasnitsyn, 1977 of the subfamily Macroxyelinae (Symphyta, Xyelidae). This fossil was collected from the Yixian Formation of western Liaoning, China. Based on characters of this specimen, the diagnosis of the genus *Anthoxyela* is revised.

Key words: Insect fossil, *Anthoxyela*, Macroxyelinae, Yixian Formation

Introduction

Xyelidae are the earliest known Hymenoptera in fossil record. They have been found in the Triassic deposits of Australia, South Africa and Kyrgyzstan, and became diverse toward the upper Lower Jurassic (Rasnitsyn, 1969, 1980; Schlüter, 2000; Riek, 1955). In the Jurassic period, they were the dominant group of Hymenoptera and must have occurred in far greater variety. The family can be divided into 6 subfamilies including more than 36 genera in the Mesozoic and Cenozoic (Rasnitsyn, 1966, 1969, 1980, 2006; Rasnitsyn, 2002; Ren *et al.*, 1995; Krassilov & Rasnitsyn, 1982).

Recently we discovered a well-preserved fossil of Xyelidae from the Yixian Formation at Huangbanjigou Village of the Shangyuan Township, Beipiao City, western Liaoning Province, China. After detailed examination, we consider this specimen belonging to the genus *Anthoxyela* (Xyelidae, Macroxyelinae). This is an extinct genus erected in 1977 by Rasnitsyn. Three species have been recorded from Lower Cretaceous of Transbaikalia (Rasnitsyn, 1977, 1990; Krassilov & Rasnitsyn, 1982,).

The age of the Yixian Formation is still being debated and three opinions have been offered: the Late Jurassic (Liu *et al.*, 2007; Ren *et al.*, 1997; Zheng *et al.*, 2003), transition from the Late Jurassic to Early Cretaceous (Chen *et al.*, 2004; Wang *et al.*, 2005, 2004), and the Early Cretaceous (Li *et al.*, 2001; Pang *et al.*, 2002; Swisher *et al.*, 1999; Zhou *et al.*, 2003). However, due to lack of widespread fossil specimens to provide more evidences, we still can not draw a final, definitive conclusion about its age. Here, we tentatively follow Wang *et al.* (2004, 2005) in considering the Yixian Formation as the Late Jurassic to Early Cretaceous.

Material and methods

The specimen was examined under a Leica MZ 12.5 dissecting microscope and illustrated with the aid of camera lucida attached to the microscope. The figure is drawn by CorelDraw 12.0 and Photoshop CS 10.0. The specimen studied here is deposited in the Key Lab of Insect Evolution and Environmental Change, Col-