



***Fenghuangor imperator* gen. et sp. nov. of Fulgoridiidae from the Middle Jurassic of Daohugou Biota (Hemiptera: Fulgoromorpha)**

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Abstract

A new genus of giant Fulgoridiidae, *Fenghuangor imperator* **gen. et sp. n.**, from the Middle Jurassic Biota of Daohugou, Inner Mongolia, North-East China is described. Its characters are discussed as well as family features in respect to new findings from the Jurassic.

Key words: *Fenghuangor* **gen. nov.**, *F. imperator* **sp. nov.**, Fulgoridiidae, Middle Jurassic, Daohugou, China, fossil

Introduction

Fossil planthoppers were believed to be not very diverse, however this opinion has changed with new findings and descriptions of new taxa. Currently the hemipteran suborder Fulgoromorpha groups three major superfamilies (Szwedo *et al.* 2004). Permian Coleoscytoidea Martynov, 1935 (Coleoscytidae Martynov, 1935) were slightly aberrant planthoppers with some morphological peculiarities. Permian and Triassic Surijokocixioidea Shcherbakov, 2000 (Surijokocixiidae Shcherbakov, 2000) seems not to be a monophyletic lineage, however the knowledge of these forms is very limited. The third superfamily—Fulgoroidea Latreille, 1807, known since the Jurassic, comprises nearly 30 extinct and extant families.

Fossil planthoppers represent a unique chance to provide new insights into evolution of the group. Fossils test and/or complete morphological and molecular studies based only on recent taxa (Shcherbakov 1996; Bourgoïn & Campbell 2002; Urban & Cryan 2007, 2009). The fossil material from the Jurassic gives an opportunity to re-explore the basal evolution of the group and to provide a comparative analysis of the only set of characters shared by all these basal ‘cixiid-like’ families (Shcherbakov 2007a, b; Bourgoïn & Szwedo 2008). ‘Cixiid-like’ families is a group of planthoppers, believed to be the basal one, with units sharing numerous plesiomorphies and still not resolved relationships among them. Fulgoridiidae is one family of ‘cixiid-like’ complex, known so far from Jurassic deposits of Europe and Asia (Szwedo *et al.* 2004).

The family Fulgoridiidae was established by Handlirsch in 1939 as a subfamily of the Fulgoridae. Emeljanov (1987) rejected the placement of Fulgoridiidae within the Hemiptera, and suggested that the group represents cad-dis-flies Trichoptera or butterflies Lepidoptera. Shcherbakov (1996) postulated to include it as a subfamily within Cixiidae, but without formal substantiation, and his opinion was not universally accepted. A new superfamily Fulgoridioidea was postulated by Hamilton (1992, 1996) for this family plus a non-named family proposed to comprise the extinct genus *Karajassus* Martynov, 1927. *Karajassus* from the Upper Jurassic of Karatau, is placed in Membracoidea family Karajassidae as stated by Shcherbakov (1992). Sorensen *et al.* (1995) consider the fossil superfamily Fulgoridioidea to be an extinct grade to the modern Fulgoroidea.