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Tropiduchidorum tribūs in electro includitur

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The family Tropiduchidae Stål, 1854, as it is currently taxonomically recognized, is one of the most morphologically and ecologically diversified group of planthoppers, covering over 180 genera and over 650 described species. The modern members of the group are discriminated to 29 tribes, living in wide spectrum of habitats – from deserts and semi-deserts to tropical rainforests, worldwide.

Fossil record of the family is best known from the inclusions in fossil resins, however its presumed oldest fossil comes from Late Cretaceous of Botswana sedimentary deposits. Better documentation of this family we know due to the Eocene Baltic amber. The three extinct tribes – Austrini Szwedo et Stroiński, 2010, Jantaritambini Szwedo, 2000, Patollini Szwedo et Stroiński, 2013 – were already described from Baltic amber, and the only recent tribe – Elicini Melichar, 1915 – presents the known fossil from this resin – *Tritophania patruelis* Jacobi, 1938; one more extinct tribe from Middle Eocene Green River Formation, Emilianini Shcherbakov, 2006 is known (Bourgoin 2017), but its taxonomic placements needs to be reinvestigated.

Alas, for the moment we do not have any report of true Tropiduchidae from the earliest Late Cretaceous Burmese amber, a few fossils were reported from the Lowermost Eocene amber of Oise, France. These fossils do not match to the currently recognized groups and deserve at least tribal status. Also Baltic amber brought spectacular finding of huge tropiduchid planthopper inclusion representing another new tribe of the subfamily Elicinae (Szwedo & Stroiński 2017, in print). More fossil Tropiduchidae were reported from the Miocene Dominican and Mexican ambers – these represent mainly the tribe Cyphoceratopini, widely distributed recently in the tropical and subtropical areas of the New World. However, surprising finding was made among Dominican amber inclusions – the fossil hardly matching the modern tribes and exceeding in its morphological features the known disparity of the modern taxa. It must be mentioned that a few more fossils, coming from the sedimentary deposits of Paleogene age, are awaiting formal descriptions as well.

All these fossils, but amber inclusions in particular, present morphological disparity equal to this presented by modern taxa. Some phenomena observed in the representatives of the modern fauna, e.g. “issidization syndrome” introduced by Gnezdilov (2013) are present among modern forms of Tropiduchidae, but present also in extinct tribes Austrini and Patollini. The new, singular finding from the Baltic amber presents another extreme in morphology – the “flatoidinization syndrome” and mimetic abilities of this planthopper. Together with these unique forms the more typical morphologically Tropiduchidae are known as fossils entombed in amber.

Observed taxonomic diversity and morphological disparity of the fossil Tropiduchidae results in a number of questions concerning the evolutionary history of the group, its

adaptations, and causes of extinctions of some lineages. These fossils also put important challenges to the recent classification system of the family, its definition, content and subdivisions.

References

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