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Revision of the genus *Metoisops* (Hemiptera: Heteroptera, Miridae, Isometopinae) from late Eocene European amber

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Abstract

Metoisops akingbohungbei, *M. groehni*, *M. punctatodiffusus*, *M. intergerivus*, *M. grabenhorsti*, *M. variabilis*, and *M. consimilis* are described as new species from the late Eocene Baltic, Ukrainian, (Rovno) and Saxonian (Bitterfeld) amber. The new diagnosis of the genus *Metoisops* and also all species of this genus presented, along with illustrations. An analysis of all studied specimens referring to of *Metoisops* from different Eocene European amber demonstrates the great variability of their features, and allows for differentiation of species. Ratios of the width and length of body, eye, vertex, antennal and rostral segments, pronotum, mesoscutum and scutellum, claval commissura, length of hind femur, tibia and tarsus, corium and cuneus length, as well as ratio of membrane cell's width and length of all 9 species of the genus *Metoisops* are presented.

Key words: Hemiptera, Heteroptera, Miridae, Isometopinae, *Metoisops*, extinct, species, new species, Eocene Baltic, Rovno and Saxonian amber

Introduction

Representatives of the subfamilies Isometopinae, Cylapinae, and likely also Psallopinae are dominant mired groups in the European amber fauna (Popov & Herczek, 2008; Popov et al, 2011). However, members of these subfamilies are still quite poorly investigated, and their actual number of species present at the time must have been much greater. These three subfamilies are recognized as the “basal” Miridae (e.g. Gorczyca, 2000), and relationships among them are of great interest for understanding their historical development (Konstantinov, 2003). Undoubtedly the discovery of the fossil bugs from these subfamilies in Baltic, Ukrainian (Rovno), Saxonian (Bitterfeld), French, and even Dominican amber clearly indicates that appearance and spreading of these peculiar mirid groups happened during not later than the early Cenozoic. For instance, the oldest psallopine mirids were recently described from the Lowermost Eocene French (Oise) amber and it was included in the same genus *Isometopsalops* from Baltic amber (Vernoux et al. 2010). Another psallopine bug referring to the extant genus *Psallops* was recently described from Dominican amber (Herczek, 2011). But there are still many undescribed fossil Isometopinae, Psallopinae (including the extant genus *Psallops*), and especially Cylapinae, where representatives of the first subfamilies are being presently described in this work.

This article is a continuation of a series of joint works on the systematic of fossil plant bugs (Miridae) of the closely related subfamilies Isometopinae, Cylapinae, and Psallopinae from the Eocene European amber fauna by the authors. The first fossil Isometopinae were described from Baltic amber: *Electromyiomma weitschati* Popov & Herczek, *E.schultzi* Popov & Herczek, *E. polonicum* Popov & Herczek, *Metoisops kerzhneri* Popov & Herczek, and *Myiomma voigti* Popov & Herczek (Popov & Herczek, 1992). Later, several other isometopins were also described from Baltic amber: *Archemyiomma carvalhoi* Herczek (Herczek, 1993), *Metoisops punctatus* Popov & Herczek (Popov & Herczek, 1993), *Electroisops ritzkowskii* Herczek & Popov (Herczek & Popov, 1997), *Hoffeinsoria robusta* Herczek & Popov. (Herczek & Popov, 2012), and *Archemyiomma schaeferi* Herczek & Popov (Herczek et al., 2013). This paper is an attempt to trace the variability among established species of *Metoisops* and estimate the character differentiation.

rugulose. Head, calli and mesoscutum shiny and bare; pronotum, basal part of the scutellum and whole hemelytra with deep punctuation reclining setae arising from articulate punctures; antennae covered with short adpressed hairs about as long as an antennal segment thick (Figs. 23, 24). Head moderately transverse, some more twice as wide as long, distinctly wider than anterior margin of pronotum. Vertex moderately 2.1x narrower than dorsal width of eye; eyes globular; Antennal segment 2 is 1.1x longer than combined length of 3rd and 4th segments, 2nd segment 5.73x longer than 1st, 4th segment 1.3x longer than 3rd. Pronotum trapezoidal, moderately transversal, 1.8x as wide as long; calli weakly developed, intercallian pit weakly expressed; ratio length posterior/anterior 1.63x wider than median length; posterior margin weakly convex. Visible portion of mesoscutum narrow, scutellum 3.87x longer than mesoscutum. Claval commissura rather long, ratio length claval commissure/mesoscutum+scutellum 1.54. Corium length is 5.1x longer than the length of cuneus and 1.6x as long as wide; large cell of hemelytral membrane very long, 2.4x as long as wide. Hind tibia 3.57x longer than tarsus; 1st tarsal segment of hind leg quite short, 2nd segment 1.77x longer.

Dimensions. Length of body 2.73, width 1.10; length of head 0.28, width 0.62, dorsal width of eye 0.25, width of vertex 0.12; antennal segments I:II:III:IV= 0.15:0.86:0.34:0.44; rostral segments I:II:III:IV= 0.29:0.39:0.34:0.319; length of pronotum 0.52, width 0.57 (ant.) and 0.93 (post.); length of mesoscutum 0.08; length of scutellum 0.31; claval commissure 0.60; length of hind femur 0.70, width 0.15; length of tibia 1.25; length of tarsus 0.35 (I+II = 0.13+0.23).

Etymology. From consimilis (lat.)—like in all species.

Specimens Examined. Holotype, ♂, Nr. 1131/1; light yellow and small-sized piece of amber (10 x 9 x 2 mm) of almost square shape which embedded into artificial resin (14 x 14 x 6 mm). The specimen from the collection of C.Hoffeins and W.H.Hoffeins (Hamburg) will be deposited at the Senckenberg Deutsches Entomologisches Institut (SDEI), München, Germany.

Remarks. Despite possessing the largest recorded second antennal segment, claval commissure length and the longest hind tibia, this specimen shares some of its characters with other species of *Metoisops* such as: ratio dorsal width of eye/ width of vertex (2.0–2.08)—*M. kerzhneri*; ratio width/length pronotum (1.72–1.82)—*M. punctatus*, *M. grabenhorsti*, *M. intergerivus*, *M. punctatodiffusus*, and *M. variabilis*, and also ratio length antennal segment IV/III = 1.25–1.29—*M. punctatus*.

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