Alvamaja chlorometallica gen. n., sp. n. from Europe – the first metallic Rhinophoridae (Diptera)

Knut Rognes

Alvamaja chlorometallica gen. n., sp. n. is described from the southern part of Serbia. It has a perplexing combination of characters for an oestroid fly: green metallic body colour with silvery pollinosity; absence of swollen subscutellum; a small metathoracic spiracle without lappets, latter represented by small anterior and posterior fringes; prealar seta long and strong, close to suture and longer than any of the notopleural setae; postalar wall with 1–3 setae; an elongate lower calypter, with an inner edge diverging from the long axis of the fly and bare on upper surface; cell r₄₊₅ of wing stalked, stalk moderately long; bend of vein M angulated with a small appendix, and the second costal sector bare below. Its systematic position among the oestroid flies is discussed. A phylogenetic analysis performed with NONA suggests that it belongs in the Rhinophoridae. A new genus is created for it since it does not fit into any of the currently recognised genera of Rhinophoridae.

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Introduction

In June 2008 Liekele Sijstermans of the Zoological Museum in Amsterdam sent me photographs of a metallic green calypterate fly he had found in the collections and could not identify with the aid of existing literature. Subsequent examination of the specimens made me believe that they belonged to a new species in the family Rhinophoridae. In view of the fact that they represented the first metallic rhinophorid fly ever known, and that they did not accommodate easily into any of the accepted rhinophorid genera in other features, it seemed justified to assign the material to a new genus. The purpose of the present paper is to describe and diagnose the new genus and species, and to discuss and establish its systematic position.

Material and methods

Depositories

OUMNH Oxford University Museum of Natural History, Hope Entomological Collections, Oxford, United Kingdom.
ZMAN Zoölogisch Museum, Universiteit van Amsterdam, Amsterdam, Netherlands.

Abbreviations

Terminology

Photography
Photographic methods as described in Rognes (2009).

Phylogenetic analysis
The data matrix of Pape & Arnaud (2001) was supplemented by the data for the new species described here (Table 1) and analysed with the parsimony program NONA (Goloboff 1993). All characters were treated as unordered and only unambiguous support for clades was considered (option amb-). The command sequence was hold 15 000; mult* 100; max*;

Two trees were obtained each of 191 steps (not counting the internal steps within the polymorphic terminals), the strict consensus of which is shown in Fig. 17. The support of the clades (Bremer support) was calculated in NONA (hold 15 000; bsupport 5;) and the support values entered in Fig. 17. Trees were output and printed through WinClada (Nixon 2002) and printouts photographed for further treatment in Photoshop Elements.

The data file alvamaja.ss containing the data matrix and the character and state names can be downloaded from http://home.gethome.no/~akrognes/PublicationsInZoology.htm or as supplementary material to this paper on the journal’s website.

Table 1. Characters of Alvamaja chlorometallica gen. n., sp. n. added to the matrix of Pape & Arnaud (2001: Table 2, p. 293). Character numbers and states are explained in that paper and in Rognes (1997).

<table>
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<th>Taxon</th>
<th>11111111112</th>
<th>22222222223</th>
<th>33333333334</th>
<th>44444444445</th>
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<td>Alvamaja</td>
<td>01011100010</td>
<td>00020300011</td>
<td>11010011011</td>
<td>0001???????</td>
<td>??????????</td>
</tr>
</tbody>
</table>

The genus Alvamaja gen. n. has only a single species, Alvamaja chlorometallica sp. n., known only from the male sex.

Distribution
Europe (Serbia).

Alvamaja chlorometallica sp. n.
Figs 1–16.

Type material. Holotype: ♂, Serbia, Vranjska Banja (42°33’ N, 22°00’ E) [co-ordinates obtained from Google Earth], 13.vi.1963 (C.A.W. Jeekel) (dissected; dissected parts in glycerol in vial on pin; abdominal T1–4 glued to carton on pin, T5 lost; right hind leg glued to carton, right hind tarsus lost; three distal tarsomers of right middle tarsus lost). Paratypes. 2 ♂, same data as holotype, labelled as paratype 1 and paratype 2. All types have identical original labels which are shown as insets on Fig. 1. All material is in ZMAN.

Etymology
The specific epithet chlorometallica is a latinized word to be treated as an adjective in the nominative singular, and is derived from chloros (Greek, meaning green) and metallum (Latin, meaning metal), referring to the shining green metallic body colour.

Diagnosis
Alvamaja chlorometallica sp. n. is recognisable on the following combination of characters which is unique among oestroid flies: Ground colour black; thorax and abdomen green metallic with silvery pollinosity; head with genal dilation 0.2 × eye height; eye large, oval in outline; frons much longer than face; vibrissal angle behind a vertical line through lunula; vibrissa level with lower eye margin; a typical rhinophorid metathoracic spiracle, small and without lappets, latter represented by small anterior and posterior fringes; prealar seta long and strong, close to suture and longer than any of the notopleural setae; postalar wall with 1–3 short setae; an elongate lower calypter, with an inner edge diverging from the long axis of the fly and bare on upper surface; cell r_{4,5}