The old-world Zygonini tr. nov. (Hemiptera, Cercopoidea, Clastopteridae), with new taxa from the related Machaerotinae

K.G. ANDREW HAMILTON
Research Branch, Agriculture and Agri-Food Canada, K.W. Neatby Building, Central Experimental Farm, Ottawa, Ontario, Canada K1A 0C6. E-mail: hamiltona@agr.gc.ca

Abstract

Three new species of old-world Clastopteridae belonging to Machaerotinae are described, two in new monobasic genera: Allox transfigurata (Hindolini) from Borneo and Irridiculum deformatum (Machaerotini) from Sulawesi. One new species Machaeropsis dramatica (Hindolini) is described from Borneo. It is the first male known from the genus and shows that Machaeropsis Melichar is not synonymous with Metaenderleinia Lallemand. Five other new species are described, belonging to a new, related tribe Zygonini. Two of these new species (Ambonga lanceolata and Pseudomachaerota cucullata) belong to formerly monobasic genera from Madagascar incorrectly assigned to Cercopidae and Aphrophoridae respectively. These are related to 3 new genera: (1) from Madagascar, Pseudoclastoptera with new species P. irrubesco and P. invidia; from sub-Saharan Africa, (2) Zygon with 1 new species Z. desegregatum, and (3) Hemizygon, the latter with 2 new combinations from Pseudomachaerota: H. grande (Maa) and H. saturnus (Linnavuori). Zygon is possibly the most basal genus in Clastopteridae, according to its remarkable antennal characters with 5 different types of sensilla that show how basiconic and coeloconic sensilla are homodynamous. Genera related to Zygon are widely divergent from other spittlebugs as measured by mDNA “barcode” data from the COI gene.

Key words: Cercopoidea, Clastopterinae, Machaerotinae, Zygonini, new genera, new species

Introduction

Froghoppers or Cercopoidea are insects needing extensive revisionary work because published information on the world fauna of approximately 3000 described species remains in a rudimentary state. Very few species, even among the most distinctive genera, have been adequately characterized and illustrated and there are many taxa that are new to science or poorly known. Even the higher taxa are only provisional and require a phylogenetic framework.

The first stage in discussing the complexities of the superfamily (Hamilton 2001) involved defining three monophyletic families: (1) a new family Epipygidae for rare neotropical insects previously assigned to Aphrophora Germar and Eicissus Fowler, (2) a broader definition of Clastopteridae to include “Machaerotidae,” and (3) redefinition of Cercopidae (to include “Aphrophoridae”) for insects known as “spittlebugs” whose nymphs produce large bubbles in plant sap. The reference to the family-group name Machaerotinae being published before Clastopteridae (Maa 1963) was shown to be erroneous, thus establishing Clastopteridae Dohrn (1859) as the name of the clade embracing Machaerotidae Stål (1866). This first contribution to this phylogenetic study also presented evidence that the tube-dwelling Machaerotinae and the spittle-producing Clastopterinae are linked by eight intermediate “aphrophorid” genera: Abbalomba Distant, Beesoniella Lallemand, Grellaphia Schmidt, Nyanja Distant, Patriziana Lallemand, Pseudomachaerota Melichar, Sepullia Stål and Tremapterus Spinola. Seven of these have greatly enlarged antennal ledges containing deep antennal pits like those of Clastoptera Germar. The exact position of the eighth, Pseudomachaerota, was not resolvable until examination of unsorted specimens from southern Africa in several collections found additional related genera, and recent surveys in Madagascar discovered still more examples that are described in this contribution.
sequence analyses were enabled by funding from the Government of Canada through Genome Canada and the Ontario Genomics Institute in support of the International Barcode of Life project. We thank Paul Hebert and colleagues at the Canadian Centre for DNA Barcoding of the University of Guelph for carrying out the sequence analysis. Photographs were provided by J. Elsaesser (AAFC). Helpful comments on the manuscript were contributed by V. Thompson, Metropolitan University, NY and J. Cryan, New York State Museum, Albany.

References

http://dx.doi.org/10.11646/Zootaxa.3640.1.4
http://dx.doi.org/10.1111/j.1365-3113.2009.00520.x
http://dx.doi.org/10.1017/s0007485300055595
http://dx.doi.org/10.1080/1488386.2001.9712551
http://dx.doi.org/10.1046/j.1440-6055.2002.00266.x