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Review Report for the Ph.D thesis

submitted to Charles University in Prague
Faculty of Science, Department of Zoology

Title: Taxonomy of Oriental Enicocephalidae (Heteroptera: Enicocephalomorpha) and morphological novelties of new taxa.
Author: Petr Baňař
Supervisor: Prof. RNDr. Pavel Štys, CSc.

Dear Dr. Markéta Martinková, Vicedean

I thank you for the invitation to review the Ph.D. thesis of Petr Baňař which I accept and submit herein the review report as requested.

1/ General comments

1,1 The submitted thesis presents eight taxonomic studies of the Heteropteran suborder Enicocephalomorpha in the form of a collection of seven published papers (A-G) and one unpublished manuscript (H). As a result of scientific cooperation with other authors Petr Baňař signes them as co-author, except for one paper (D), where he is the first author.

1,2 All papers deal with descriptions of new species, their external morphology with interpretation of known and newly recognized characters and the involved taxonomic questions. They are of high scientific importance which is already verified by the publication in renowned high ranking journals as Acta Entomologica Musei Nationalis Pragae (A); Zootaxa (B,C,D,E) and European Journal of Entomology (G).

1,3 The authors provide original results of their investigations and examination of material from own or institutional collections. The applied methods and the interpretation and presentation of results correspond to international standard. Their findings of unreported characters are useful for systematic classification of species within families and subfamilies. The given illustrations (SEM -photos, colour photos and line drawings) underline the presented results and facilitate understanding reported morphological structures.

1,4 References of concerned literature are extensive and cover the present state of knowledge of Enicocephalomorpha in relation to the specific taxonomic questions raised in each article.

2/ Specific comments

2,1 The title of the thesis "Taxonomy of Oriental Enicocephalidae (Heteroptera: Enicocephalomorpha) and morphological novelties of new taxa", is partly misleading and contradicting, as only four (C,D,E,H) of the eight papers concern "Oriental Enicocephalidae", others as (A) concern New Caledonia, (B,F) the Neotropics and (G) the African fauna.

2,2 Even if the author states (p.15) that "for purposes of this work the term "Oriental" Region includes (1) southernmost east Palaearctic to South-east Asia, (2) Indian Region, (3)South-east Asia to Wallacea, (4) Papuan Region and (5) Pacific Regions, it is not evident what the purpose might be.

2,3 In addition, the term "Oriental Region" is unanimously used in zoo- and biogeographical literature as pertaining to Indian subcontinent, SE-Asia and southernmost part of Palaearctics, Great Sunda Islands and Philippines. Papuan and Pacific Regions are never part of it and are treated as separate Regions (as African- and Neotropical Regions). These global faunal zones and divisions are recognized since G. De Lattin 1967 (Grundriss der Zoogeographie), E.Mayr 1967 (Artbegriff und Evolution) and also stressed by P. Štys 2008 in his paper "Zoogeography of Enicocephalomorpha (Heteroptera)".

3/ General questions to the defendant

3,1 The author states on p.14: "The infraorder Enicocephalomorpha is the basalmost group of Heteroptera, sister to all remaining Heteroptera (Euheteroptera) (Štys 1989). For better evaluation of the newly observed morphological characters it would be interesting to know which autapomorphies led to this classification.

3,2 How far is there a molecular evidence e.g. by barcoding data for the classification of Enicocephalomorpha as basal suborder of Heteroptera?

3,3 In paper (D) "a key to genera of Enicocephalidae without forewing basal cell" is announced, however, the key refers only to the subfamily Enicocephalinae. As these seven genera keyed originate and are distributed in different zoogeographical regions or subregions: 2 (USA=Nearctic), 1 (Australian), 2 (Madagascar), 1 (Sabah = Oriental), 1 (Taiwan = Oriental, but also recorded from New Guinea = Australian and Hawaii = Pacific) and obviously represent heterogeneous taxa, it is questioned how far a grouping based on two characters of wing venation can reflect true relationship – as expected for monophyletic groups.

3,4 In paper (A) a "droplet-shaped rasplike microscupture " on fore coxae is described and figured (Fig.8). The authors hypothesize that this structure forms a strigulatory device, the sculptured coxa acting as a "file" and the sharp lateral edge of probasisternum as a "scraper". However, is not explained how this might function as it is not evident, which movement the legs have to and can make to get the coxal microstructure rubbed along the probasisternal edge.

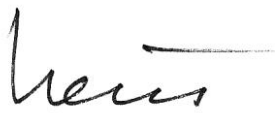
3,5 Because of the great global number of undescribed Enicocephalid taxa mentioned and their importance for the Heteropteran phylogeny it might be of great interest, which future perspective the author anticipates for his supposed studies on Enicocephalomorpha achieving further pertinent scientific results and which time schedule is envisaged.

4/ Conclusion

4,1 Summarizing, the thesis addresses interesting and relevant topics of Heteropteran taxonomy and morphology and demonstrates the authors ability of critical thinking and scientific teamwork in this specific field.
The thesis meets the requirements imposed on a PhD. dissertation in Zoology.

4,2 I clearly recommend its acceptance.

Sincerely



E.Heiss

Innsbruck, 17.10.2013

Copy: P. Baňař
P. Štys