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A new lophopid genus as another piece in the biogeographical history puzzle of the family in the Sunda Shelf (Hemiptera: Fulgoromorpha: Lophopidae)

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Abstract

A new Lophopidae genus *Binaluana* **gen. nov.** and species *B. emarginata* **sp. nov.** from Palawan are described. Characters are given in order to distinguish this new genus from *Bisma* and *Zejeja* that share general figure with it. The morphological characters are coded for the genus and a new phylogenetic analysis using parsimony is performed. The Lophopidae remain monophyletic and *Binaluana* is placed as sister group of the genus *Bisma*. (*Zejeja* (*Binaluana*+*Bisma*)) is monophyletic and emerges at the base of the *Zejeja*⁺ group. The place of *Binaluana* within the Lophopidae is discussed along with its historical biogeographic origin.

Key words: Auchenorrhyncha, Fulgoroidea, planthopper, new genus, new species, taxonomy, Southeast Asia, island biogeography

Introduction

Actually, 44 genera representing 146 species are described for the Lophopidae, 4 of which are fossils (Bourgoin 2015). Phylogenetic analysis showed that four main monophyletic lineages can be recognised, Carriona⁺ group with its only representative *Carriona* Muir, 1931, Makota⁺, Sarebasa⁺ and Bisma⁺ (Soulier-Perkins 2001). The Bisma⁺ group contains 17 genera and its distribution goes from Sri Lanka to Papua New Guinea and from South China to Australia. *Bisma* Distant, 1906 is found in Sri Lanka, South India and Hainan but the 8 other basal taxa of this lineage are noticeably present in the Malay-Indonesian regions, with *Aluma* Distant, 1909 and *Zejeja* Melichar, 1915 both present in Borneo, *Lapithasa* Melichar, 1914, *Asantorga* Melichar, 1915, *Pseudotyxis* Soulier-Perkins, 1998 and *Pseudocorethrura* Melichar, 1915 respectively endemic to Philippines, Ambon, Java and Sulawesi. *Apia* Distant, 1909 is found in the Malay Peninsula and on the islands Siberut and Sipora and finally *Menosca* Stål, 1870 is more largely distributed to the Philippines, Borneo and Myanmar. The 8 most apical Bisma⁺ taxa are grouped in a clade that extends its geographic distribution in New Guinea and a few adjacent islands with one genus found in Australia (Soulier-Perkins & Stroiński 2013). At a first look, the new genus described here seems to show some resemblances to the genera *Zejeja* and *Bisma*. It was found in Palawan, which is congruent with the general distribution of those basal taxa.

Material and methods

Material. The studied specimen comes from the entomological collection of the Moravian museum in Brno (MZM). Labels reported verbatim with square brackets “[]” indicating individual labels separated by commas.

Preparation and observation. The abdomen of the specimen examined was cut off and cleared for 20 minutes in warm (50°C) 10% KOH with a few drops of chlorazol black (CAS No. 1937-37-7) for dyeing the ectodermic genital ducts based on the method introduced by Carayon (1969). Dissections and cleaning of genital structures were performed in distilled water. Final observations were done in glycerine using a camera lucida attached to a