



## An extraordinary new genus and three new species of Acostemmini (Hemiptera: Cicadellidae: Deltocephalinae) from Madagascar with comments on the morphology and classification of the tribe

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### Abstract

The circumscription and morphological characterization of the deltocephaline tribe Acostemmini is revised based on discoveries of new and poorly known taxa from recent collections in Madagascar and from examination of the type specimens of *Alocoelidia fulva* Evans, *Iturnoria insulana* Evans, and *Protonesis delegorguei* Spinola. *Alocoelidia* Evans 1954, *Caelidioides* Signoret 1880, *Iturnoria* Evans 1954, and *Protonesis* Spinola 1850 were previously placed in Coelidiinae but were later removed from the subfamily and until now have been unplaced to subfamily are placed here in Deltocephalinae: Acostemmini, **new placement**. A new genus and species, *Ikelibeloha cristata* **gen. n., sp. n.**, are described that have an unusually modified structure of the head and a large, crested pronotum. Molecular data (28S, Histone H3 genes) were obtained for *Ikelibeloha* and *Iturnoria*, and analyzed with other members of Deltocephalinae. Results of the phylogenetic analyses show strong support for the monophyletic clade ((*Acostemma*, *Eryapus*), (*Ikelibeloha*, *Iturnoria*)) and thus a relationship between previously described Acostemmini, *Ikelibeloha*, and *Iturnoria* has strong statistical support, and a close relationship is inferred between these and the morphologically similar *Alocoelidia*, *Caelidioides*, and *Protonesis*. Two new species of *Alocoelidia*, *A. maura* **sp. n.** and *A. chasei* **sp. n.** are described, and the genus is redescribed. The male genitalia of *Caelidioides tristis* (Signoret), *Iturnoria insulana*, *Alocoelidia fulva*, and *Acostemella rubra* Evans are illustrated and described for the first time. The female genitalia of *A. fulva*, *C. tristis* and *I. insulana* are described and the first and second valvulae of *C. tristis* are illustrated. The habitus and face of *Protonesis delegorguei* are illustrated and the genus is redescribed. The characters traditionally used to define Acostemmini are reviewed with notes on their known degrees of variation, and characters that differentiate Acostemmini from the closely related tribe Stegelytrini are discussed. The type of *Malagasiella minima* Evans was also examined, and *Malagasiella* Evans, 1954 is considered a junior synonym of *Doratulina* Melichar, 1903 (Deltocephalinae: Stenometopiini), **syn. n.** giving the new combination *Doratulina minima* (Evans) **comb. n.**

**Key words:** Coelidiinae, Stegelytrini, Stenometopiini, *Stirellus*, *Doratulina*, taxonomy, classification, phylogeny

### Introduction

The deltocephaline leafhopper tribe Acostemmini includes 12 genera and 26 valid species including those transferred to the tribe and described here. It is one of the earliest diverging lineages of Deltocephalinae, splitting from the ancestral deltocephaline lineage after Stegelytrini, the earliest diverging lineage (Zahniser & Dietrich, 2010). It is most diverse in Madagascar but some species are also found in southern Africa, Seychelles and other Indian Oceanic islands, India, Sri Lanka, and New Guinea. Recent observations of museum specimens and recently collected material from Madagascar show that several new genera and many new species await description and suggest that the species level diversity of the tribe is likely at least 3 times that which is described now, and perhaps even higher. Several recent discoveries have prompted a review of the morphology, classification, and phylogeny of Acostemmini. The first of these is the rediscovery of the type specimens of *Alocoelidia fulva* Evans and *Iturnoria insulana* Evans in the Muséum National d'Histoire Naturelle (Paris). These genera were described from Madagascar by