Further division of Alona Baird, 1843: separation and position of Coronatella
Dybowski & Grochowski and Ovalona gen.n. (Crustacea: Cladocera)

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Abstract

We investigate morphology and taxonomic rank of several Alona species related to A. rectangula Sars, 1861. Despite high morphological intraspecific variability, a number of synapomorphies shows that taxa related to A. rectangula are sufficiently different in external and internal morphology from “true” Alona Baird, 1843. These are removed from Alona into separate genera. The rare West-African A. holdeni Green 1962 is redescribed and we describe a new species from North Africa, Arabia and islands in the Western Indian Ocean. We reinstate the name Coronatella Dybowski & Grochowski to receive A. rectangula, A. holdeni, and a new species, C. anemae. Sharing several synapomorphies, the subantarctic species A. weinecki Studer appears related to A. meridionalis Sinev, 2006. We assign them to Ovalona gen.n., similar in morphology to Coronatella, but with less limb reductions. At a higher level, we discuss morphology and distribution of both genera and of the similar A. elegans-group. To situate Coronatella within the subfamily, we introduce a “Coronatella-branch”, a group of medium-sized Aloninae with limb reductions, comprising Coronatella, Leberis, Celsinotum, A. dentifera, A. monacantha and possibly Karualona and A. verrucosa-group, in comparison with a “Hexalona-branch” and Alona s.str. Adaptations to life in temporary pools and salinity tolerance may have played an important role in separation and radiation of a Coronatella-branch.

Key words: Alona rectangula group, Coronatella holdeni, Coronatella anemae n. sp., Alona weinecki, Ovalona gen.n., Chydroridae, taxonomy, limb morphology, distribution

Introduction

Alona Baird, 1843 is considered an artificial, polyphyletic taxon (Van Damme & Dumont in press), and recent taxonomic work aims towards a better classification by assignment of its species and an increased resolution in morphological descriptions (e.g., Dumont & Silva-Briano 2000; Sinev 2004b; Sinev et al. 2004; Sinev et al. 2005). Redescription of poorly known and marginal species of Alona Baird, 1843, allows a better understanding of the composition of the taxon and evolution in the Aloninae. Alona Baird, 1843 contains several species groups of which the centre is A. quadrangularis (Sinev 2006; Van Damme & Dumont in press), which compared to other species groups seems relatively conserved in morphology. Species related to Alona pulchella, A. rectangula and A. verrucosa are variable and create taxonomical tangles. Delineation of each of these groups, an estimate of their variability, distribution, ecology, and higher classification, are missing. As with earlier allocations of the Alona diaphana/davidi-group to Leberis, the Alona karua-group to Karualona, or Alona eximia-group to Nicsmirnovius (Sinev et al. 2005; Dumont & Silva-Briano 2000; Van Damme et al. 2003), the A. rectangula-complex is a group in need of revision. A tricky exercise, because several small rectangula-like Alona species are poorly described. The A. rectangula-complex has a general external morphology of smaller Aloninae and the lumping of such taxa with similar body shape in Alona has added to our current problems in classification. External morphology can be very similar, whereas limb morphology, a powerful phylogenetic tool for these micro-crustaceans, may differ strongly. A. rectangula is a particularly complex case. Frey (1988) revised and discussed complexity of this taxon and Sinev (2001b) noted that A. rectangula sensu lato is only surpassed in number of records and synonyms within the Chydroridae by Chydrorus sphaericus. In this paper, we (re)describe several species assumed closely related to A. rectangula: A. weinecki Studer, A. holdeni Green, and a new species from Northern Africa/Arabia (earlier described as A. bukobensis, see Ekman, 1904; as Lynceus), in comparison to European A. rectangula Sars. Morphology of limbs of these taxa is documented for the first time. We examined material of Alona weinecki from Marion and Heard Islands, eastern subantarctic. Sars (1909), Paggi (1987) and Frey (1988) provided previous taxonomical comments on Alona weinecki, but limb morphology was not previously compared in detail. A description of limbs of Alona holdeni, a rare and poorly known species from West Africa (Green 1962), is made from toptotypical material. We discuss their morphology in comparison with Alona rectangula and note on intraspecific (of the new species) and interspecific variation. We give comments on distribution patterns...