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The evolution of animal diversity: a comparative approach

Abstract Book



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THE AFROTROPICAL 24TH AND 28TH *ONTHOPHAGUS* SPECIES GROUPS OF D'ORBIGNY (COLEOPTERA: SCARABAEIDAE)

Onthophagus is commonly regarded as the largest genus in the Scarabaeidae family, comprehending nowadays more than 2500 species with a worldwide spreading distribution, and showing essentially coprophagous habit although necrophagous species are not uncommon. They are tunnelling, and exhibit a simple behaviour with a limited male-female cooperation. Besides, they are also characterized by an extremely successful evolutionary strategy. In recent studies, it was highlighted that the genus *Onthophagus* may be, or may be not, monophyletic on the basis of the species dataset used in the phylogenetic analysis, or the applied phylogenetic method, being employed both morphological and molecular approaches. Lately, various new genera were described, and part of the species were removed from the speciose genus *Onthophagus*, whose oldest lineages can be found in Africa, and the youngest in Australia and New World (Philips 2016). A major issue concerns the systematic evaluation of the species groups proposed in the past and maintained so far by convenience and easiness in the use of tested dichotomous keys. In this framework, it was set agoing a large joint survey project on the revision of the 32nd species groups established by d'Orbigny in 1913 for Afrotropical *Onthophagus*. Here, the species included by the French author in the 24th and 28th groups were examined. At present seven species are included in the 28th group, showing a Western African distribution, while more than fifty species, with a widespread distribution in the Afrotropical region, are listed in the 24th group. In the species of both groups the vertex carina is usually modified into a horn, a tubercle or a lamina, more markedly in major males. The differential forms of vertex are seemingly related to extremely differently-shaped internal structures, as male and female genitalia and epipharynx, which were here examined and their features were compared. The conformation of vertex carina and these structures (either primary or secondary sexual traits, or also not depending on sexual selection) showed congruent, well-differentiated patterns in all the species examined.

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