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Taxonomy, host-plant associations and phylogeny of African *Crotalaria*-feeding seed beetles (Coleoptera, Chrysomelidae, Bruchinae): the *Conicobruchus strangulatus* (Fåhraeus) species group

BRUNO P. LE RU^{1,2}, ALEX DELOBEL³, ZOLTÁN GYÖRGY⁴,
GWENAËLLE GENSON⁵ & GAEL J. KERGOAT^{5,6}

¹Unité de Recherche IRD 072, African Insect Science for Food and Health (icipe), PO Box 30772, Nairobi, Kenya.

E-mail: bleru@icipe.org

²IRD/CNRS, Laboratoire Evolution Génomes Spéciation, Avenue de la terrasse, BP1, 91198, Gif-sur-Yvette, France and Université Paris-Sud 11, 91405 Orsay, France

³Muséum National d'Histoire Naturelle, 45 rue Buffon, 75005 Paris, France. E-mail: delobel.alex@aliceadsl.fr

⁴Department of Zoology, Hungarian Natural History Museum, H-1088 Budapest, Baross u. 13, Hungary.

E-mail: gyorgy@zoo.nhmus.hu

⁵INRA - UMR 1062 CBGP (INRA/IRD/Cirad, Montpellier SupAgro), 755 Avenue du Campus Agropolis, 34988 Montferrier-sur-Lez, France. E-mail: kergoat@supagro.inra.fr

⁶Corresponding author

Abstract

A small group of six morphologically related seed beetles (Coleoptera: Chrysomelidae: Bruchinae) belonging to the *Conicobruchus* genus is reviewed. Species in this group for which host-plants are known feed on various species of *Crotalaria* (Fabaceae, Crotalariaeae). Here we provide diagnoses and a dichotomous key for all six species. The following synonymies are proposed: *Conicobruchus cicatricosus* (Fåhraeus, 1839) (= *Bruchus cicatricosus pallidioripennis* Pic, 1941) **syn. nov.**; *Conicobruchus strangulatus* (Fåhraeus, 1839) (= *Bruchus hargreavesi* Pic, 1933) **syn. nov.** The corresponding *Conicobruchus strangulatus* species group is hereby designated. New host-plant data are also included, which correspond to the results of recent collections of legume pods in East Africa. In addition we carried out molecular phylogenetic analyses on a representative sampling of *Conicobruchus* species (including the six species of interest). The latter allow us to assess the monophyly of the group of interest and to unravel their evolutionary relationships. Molecular phylogenetic analyses also indicate that at least two lineages of *Conicobruchus* successfully shifted toward Crotalariaeae during the course of their diversification.

Key words: Crotalariaeae, host-plants, molecular phylogenetics, morphology, systematics

Introduction

Seed beetles (Coleoptera, Chrysomelidae, Bruchinae) constitute a subfamily of moderate size that encompass about 1,700 species (Johnson *et al.* 2004). Bruchines are found in all continents (except Antarctica) and are more diverse in tropical regions (Southgate 1979). Their larvae are endophagous and usually develop inside seeds. Though collectively seed beetles are known to be able to attack more than 32 plant families, the majority of species are specialized on legume (Fabaceae) seeds (Johnson 1970, 1981, 1989). Almost all seed beetle species have a narrow host-plant range, and feed on a restricted set of plant species that usually belong to the same genus or botanical tribe (Johnson 1989). Phylogenetically related bruchine species usually feed on plants from the same tribe, a pattern referred as taxonomic conservatism in host-use (Kergoat *et al.* 2004, 2007). The history of bruchine taxonomy and systematics is complex (Borowiec 1987), especially because seed beetle groups have been usually defined on the basis of external morphological characters that are often homoplasious (Kergoat & Silvain 2004). It is only in last three decades that internal morphology (especially male genitalia) has been systematically taken into

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