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Morphology and identification of the pupae of seven species of the genus *Otiorhynchus* Germar, 1822 (Coleoptera, Curculionidae, *Otiorhynchini*)

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Abstract

The pupae of *Otiorhynchus armadillo* (Rossi, 1792), *O. aurifer* Boheman, 1843, *O. crataegi* Germar, 1824, *O. meridionalis* Gyllenhal, 1834, *O. porcatus* (Herbst, 1795) and *O. salicicola* Heyden, 1908, are described and illustrated for the first time. The pupa of *O. sulcatus* (Fabricius, 1775) is redescribed and illustrated. Characteristic features including chaetotaxy and habitus, measurements and a key to the species based on the pupae are also presented.

Key words: Coleoptera, Curculionidae, *Otiorhynchus* (*Otiorhynchus*) *armadillo*, *O.* (*Otiorhynchus*) *aurifer*, *O*. (*Pocodalemes*) *crataegi*, *O*. (*Otiorhynchus*) *meridionalis*, *O*. (*Lolatismus*) *porcatus*, *O*. (*Otiorhynchus*) *salicicola*, *O*. (*Dorymerus*) *sulcatus*, morphology, pupa, key, species identification.

Introduction

The tribe Otiorhynchini includes thirteen Palaearctic genera: *Cirrorhynchus*, *Dodecastichus*, *Kocheriana*, *Limatogaster*, *Meiranella*, *Otiorhynchus*, *Neotournieria*, *Parameira*, *Pavesiella*, *Parotiorhynchus*, *Rhynchotious*, *Solariola*, *Tylotus*; divided into 105 subgenera and about 1500 species (Magnano 1998, Alonso-Zarazaga & Lyal 1999). Even though the systematic position of some species is still disputable, the *Otiorhynchus* complex is one of the most diverse groups of Curculionidae in the world (Magnano 1998). Almost 80 subgenera and more than 1030 species have been recorded from Europe (Magnano 1998, Alonso-Zarazaga 2011), and a few of them have been introduced to North America, Australia and other regions, where they have caused serious damage to cultivated plants (Zimmerman 1962, Warner & Negley 1976, Miller 1979, May 1993). In spite of the great number of broad-nosed weevil species and their role in environmental processes and agriculture, the knowledge about their life-cycles and the number of described preimaginal stages is low.

Otiorhynchus species are generalist feeders with many host plants (including cultivated plants). Larvae of Otiorhynchini are root-eating, and pupation takes place in the soil (Smith 1932, Bogs & Braasch 1988, Gill et al. 2003). With this contribution on *Otiorhynchus* pupae we continue our work on the description of preimaginal stages of soil-dwelling weevils (see also Gosik et al. 2010 on *Pachyrhinus lethierryi* and Gosik & Sprick (in press) on the larvae of 3 *Otiorhynchus* species). The objectives of this contribution are to provide descriptions and illustrations of pupae of the following species: *Otiorhynchus* (*Otiorhynchus*) *armadillo* (Rossi, 1792), *O.* (*Otiorhynchus*) *aurifer* Boheman, 1843, *O*. (*Pocodalemes*) *crataegi* Germar, 1824, *O*. (*Otiorhynchus*) *meridionalis* Gyllenhal, 1834, *O*. (*Lolatismus*) *porcatus* (Herbst, 1795), *O*. (*Otiorhynchus*) *salicicola* Heyden, 1908, and to redescribe the pupa of *Otiorhynchus (Dorymerus) sulcatus* (Fabricius, 1775).

The pupae of the six aforementioned species are described for the first time; however, the pupa of *Otiorhynchus sulcatus* is redescribed to compare with descriptions in older papers (Dyckerhoff 1926, Tempel 1928, Barrett 1930, Scherf 1964, May 1994), particularly concerning differences in number of setae on selected body parts and different terminology.

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