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## Biology and morphology of immature stages of *Adosomus roridus* (Coleoptera: Curculionidae: Lixinae)

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### Abstract

Mature larva and pupa of *Adosomus* (s. str.) *roridus* (Pallas, 1781) (Curculionidae: Lixinae: Cleonini) are described and compared with ten other taxa of Cleonini with known larvae. This weevil is an oligophagous species on the Asteraceae family. From our observations in Slovakia, we found active adults from April to September in dry sunny places within extensively used or fallow vineyards and in ruderal vegetation with host plants. The weevil is a root borer - larvae, pupae and fresh adults were collected from the root necks and roots of Common Tansy (*Tanacetum vulgare* L.) and rarely from Mugwort (*Artemisia vulgaris* L.). Each plant was usually occupied by one larva, or more rarely with two or three larvae. The new generation of adult individuals appeared from early summer to autumn. Both larvae and some of the adults overwinter, which is quite unique within Cleonini.

**Key words:** mature larva, pupa, host plant, Asteraceae, *Artemisia*, *Tanacetum*, life history, central Europe, Palaearctic region

### Introduction

Weevils from the subfamily Lixinae Schoenherr, 1823 (Coleoptera, Curculionidae) are medium or large-sized beetles mainly found in the Palaearctic region, especially in Asia. The subfamily contains approximately 1,500 species (Meregalli 2014). Lixinae is sometimes regarded as part of Molytinae (Oberprieler *et al.* 2007) or Curculioninae (Lawrence & Newton 1995), but more often, Lixinae is considered a separate subfamily (e.g., Alonso-Zarazaga & Lyal 1999, Löbl & Smetana 2013). Lixinae belong to fairly derived weevil groups, and in general, they are separated into two tribes: Cleonini Schoenherr, 1826 and Lixini Schoenherr, 1823 (Löbl & Smetana 2013); Meregalli (2014) divides the groups into three tribes, with the third tribe being Rhinocyllini Lacordaire, 1863. Although general phylogenetic analysis of the entire tribe is still in progress (Meregalli 2014, Meregalli & Silvestro unpubl.), there are some preliminary results for Mediterranean and Afrotropical taxa (Meregalli & Silvestro 2008). Until recently, the immature stages of Lixinae were largely unknown and understudied (Anderson 1987). Current knowledge mainly focuses on the Lixini, for which several studies describing the morphology of immature stages have been published (*Larinus* Dejean species: Zotov 2009a, 2010; Gosik & Skuhrovec 2011; *Lixus* F. species: Scherf 1964; Lee & Morimoto 1988; Nikulina 2001, 2007; Zotov 2009a, b; Nikulina & Gültekin 2011; Gosik & Wanat 2014; Skuhrovec & Volovnik in press; *Rhinocyllus conicus* (Frölich, 1792): May 1994). Knowledge of the immature stages of Cleonini remains limited because the immature stages of only 10 species have been described in detail, by Hoffmann (1950), Scherf (1964), Zotov (2011) and Stejskal *et al.* (2014).

The Palaearctic genus *Adosomus* Faust, 1904 belongs to the Cleonini tribe and comprises 9 known species (Meregalli & Fremuth 2013). This genus is classified into three subgenera: *Adosomus* Faust, 1904 (2 species), *Pseudoadosomus* Arzanov, 2005 (4 sp.) and *Xeradosomus* Arzanov, 2005 (3 sp.). The only European species is *A.*