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Revision of the Afrotropical Lycorininae (Ichneumonidae; Hymenoptera) with description of a new species from South Africa

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Abstract

We revise the Afrotropical Lycorininae and describe *Lycorina yui* Rousse & van Noort **sp. nov.** from South Africa. An illustrated key to Lycorininae species of the Afrotropical region is provided. *Lycorina continentalis* (Benoit, 1953) is considered a junior synonym of *Lycorina fici* Seyrig, 1932, and is newly reported from Uganda and South Africa. Online dichotomous and interactive Lucid keys are available at http://www.waspweb.org.

Key words: Africa, Afrotropical region, identification key, koinobiont parasitoid wasp, taxonomy, systematics

Introduction

Lycorininae is a small subfamily of Ichneumonidae, containing the single genus *Lycorina* Holmgren, 1859 with 31 species worldwide (Yu *et al.*, 2012). The subfamily is easily distinguished by two obvious autapomorphic features, *i.e.* a central triangular area delimited by deep lateral grooves on tergites 2–4, and the expanded antero-lateral corner of the propodeum engaging the metanotum with a small hook (Gauld *et al.*, 1997) (Figs 5F, 6F). Adults also exhibit other characteristic features such as strongly impressed sub-ocular sulci; strong epomiae produced forward into an acute tooth; the sub-metapleural carinae basally produced into a rounded lobe; and the ovipositor tip with a distinct dorsal nodus dorsally and small ventral teeth. Moreover, the cephalic structure of larvae exhibit an unique assemblage of both ecto- and endoparasitoid features, including denticulate mandibular teeth and spiracles lacking a closing system (Townes, 1970).

Although the synapomorphy of the subfamily remains uncontested, its relationship to other ichneumonid lineages has still to be resolved. Recent cladistic investigations failed to give an unambiguous result, primarily because of the aberrant structure in Lycorininae of the D2 region of the 28S rDNA gene (Quicke *et al.*, 2009). Lycorininae are currently considered to be part of the ophioniform subfamilies group, primarily based on the ovipositor structure where the upper valve is subdivided in two interlocked halves (Quicke *et al.*, 1994). Furthermore, recent observations showed that Lycorininae have pedunculate and anchored eggs (Coronado-Rivera *et al.*, 2004), traditionally considered to be an autapomorphy defining the subfamily Tryphoninae, which is also included within the ophioniformes. However, Tryphoninae are considered as potentially paraphyletic and similar anchored eggs have also been reported in other ophioniforms, Anomaloninae and Tersilochinae (Quicke *et al.*, 2009).

In addition to their unresolved phylogenetic relationships, their biology also remains partially unresolved. Lycorininae are known to be koinobiont larval-pupal parasitoids of weakly concealed micro-lepidopterans (Coronado-Rivera *et al.*, 2004). One Palaearctic species has recently been discovered to oviposit into the anus of a previously paralyzed host (Shaw, 2004). The main question centers on whether they are ecto- or endoparasitoids, contrasting support provided by their strange larval cephalic capsule and the structure of their ovaries (Coronado–

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