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## Five new species of *Disepyris* Kieffer, 1905 (Hymenoptera: Bethylidae), with emended generic diagnosis

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### Abstract

Five new species of *Disepyris* Kieffer (Hymenoptera: Bethylidae) are described and illustrated: *D. kenyaensis* Lim & Azevedo, **sp. nov.** (Kenya), *D. fessus* Lim & Azevedo, **sp. nov.**, *D. mongoliaensis* Lim & Azevedo, **sp. nov.**, *D. prolatatus* Lim & Azevedo, **sp. nov.** (Mongolia), *D. niveus* Lim & Azevedo, **sp. nov.** (United Arab Emirates) and the genus is first recorded from Yemen, based on a female of *D. guigliae* (Benoit). The diagnosis of *Disepyris* is emended by a combination of following characteristics: head with palpal formula 6:3; ventral surface of antennal flagellomeres III–XI with one pair of parallel basiconic sensillae; clypeus with median lobe distinctly wider than lateral lobe; eyes with sparse, very minute hairs; occipital carina present; mesonotum with notauli weakly carinate, present on anterior half of mesoscutum, median area without transverse foveolate or punctate groove; propodeal spiracle present antero-dorsally on propodeal disc, lateral surface of propodeum strigate; forewing without postmarginal vein, long radial flexion line present, medial flexion line divided into two apical lines. Legs polished without sculpture, appressed pubescence absent; mesotibia with sparse, short spines on apical half; hind basitarsus with one row of comb ventrally.

**Key words:** taxonomy, radial flexion line, medial flexion line, basiconic sensillae, Old World

### Introduction

Kieffer (1905) created the genus *Disepyris* based on female by a combination of the following main characteristics: the mesonotum as long as pronotum and without parapsidal signum; the scutellum with broad transverse basal groove; the fore femora bulging from their base; the forewing with costal and subcostal veins fused, radial vein short as long as basal vein. In addition, Terayama (2004) delimited the genus by the large eyes, the absence of notauli, large pterostigma, the short radial vein and the presence of long setae on foretarsi.

*Disepyris* Kieffer is a relatively small genus of Bethylidae with nine species from the Old World: seven species from Afrotropical (Algeria, Libya, Morocco, United Arab Emirates), two species from Oriental region (India) (Gordh & Móczár 1990; Barbosa & Azevedo 2014a). Azevedo and Guimarães (2006) made the first list of Yemenite Bethylidae genera based on amount of specimens collected from 1999 to 2002, however, *Disepyris* has not been recognized until now from the country.

The goal of the present study is to describe five new species of *Disepyris* from the Old World countries, Kenya, Mongolia and United Arab Emirates with diagnostic illustrations and to record the genus based on a female *D. guigliae* (Benoit) new to bethylid fauna of Yemen. In addition, we improve the generic diagnosis.

### Material and methods

The examined material was kindly provided from Antonius van Harten (UAE, United Arab Emirates), Robert

as in *Bakeriella*, *Holepyris*, whereas *Chlorepbris* has three terminal lines and remain genera have four terminal lines apically. The wings as a morphological structure have some advantages from the viewpoint of phylogenetic studies (Perfilieva, 2010) and contributes important and informative morphological characters to both higher- and lower-level classification (Miko *et al.*, 2014). The system of flexion and fold lines remains relatively conserved and the usefulness of these features can be used (Miko *et al.*, 2014). Venation patterns are the most characteristic structures of wings because of aerodynamic importance associated with specific flight system and of specialized functional purposes, and there are marked differences between forewing and hind wing in a species. In addition, venation patterns are used as an index for the identification of species and for understanding the evolutionary relationships of groups (Shimmi *et al.*, 2014). Insect wing venation provides the structural support for the wing membrane and the configuration of wing veins changes in specific ways with evolutionary change in body size, so these characteristics of wings can be used for phylogenetic studies (Danforth, 1989).

5) Mesoscutum: Kieffer (1905) indicated that the absence of parapsidal signum and Terayama (2004) referred the absence of notaulus. However, we found *Disepbris* with weak carinate notauli present on anterior half of mesoscutum as in *Formosiebris*, whereas other genera in Epyrinae have distinct grooved notauli (except absence in *Laelius*).

Consequently, we can diagnose *Disepbris* species by having following characteristics: body with long, suberect or erect hairs; head with palpal formula 6+3; ventral surface of antennal flagellomeres III–XI with one pair of parallel basiconic sensillae in female; median clypeus elevated, not carinate in middle in profile, median clypeal lobe wider than lateral lobe; compound eyes with sparse, very short hairs; occipital carina present; mesonotum with notaulus carinate, present on anterior half of mesoscutum; median area without transverse foveolate or punctate groove; parapsidal signum with transverse punctate groove; mesoscutellar disc broadly rounded apically; propodeal spiracle present antero-dorsally on propodeal disc; lateral surface of propodeum distinctly strigate; forewing with postmarginal vein absent; basal vein without recurrent vein; radial vein almost longer than basal vein, long radial flexion line present; medial flexion line divided into two lines apically; legs polished without appressed pubescence; foretarsus with delicate long hairs; mesotibia with sparse, short spines on apical half; hind basitarsus with comb ventrally in female.

Alencar & Azevedo (2013) studied three species of *Disepbris* in their phylogenetic relationships of Epyrinae. Further detailed studies on *Disepbris* should be carried out in order to understand the phylogenetic relationships with related genera.

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