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Monograph

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Revision of the Afrotropical *Asobara* Foerster, 1863 (Hymenoptera: Braconidae: Alysiniinae), with the descriptions of twenty five new species

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Abstract. The Afrotropical (including Malagasy Subregion) species of the genus *Asobara* Foerster, 1863, are revised. In addition to the redescribed 15 known species, 25 new species are described and illustrated, viz., *Asobara abyssiniensis* Peris-Felipo, sp. nov., *A. caboverdensis* van Achterberg, sp. nov., *A. carinata* Peris-Felipo, sp. nov., *A. cracentis* van Achterberg, sp. nov., *A. elongitarsis* van Achterberg, sp. nov., *A. fletcheri* Peris-Felipo, sp. nov., *A. harrinmithensis* Peris-Felipo, sp. nov., *A. kawandensis* Peris-Felipo, sp. nov., *A. kibalensis* van Achterberg, sp. nov., *A. laticlypeata* van Achterberg, sp. nov., *A. mediana* van Achterberg, sp. nov., *A. mellicephalata* van Achterberg, sp. nov., *A. natalensis* Peris-Felipo, sp. nov., *A. notleyi* Peris-Felipo, sp. nov., *A. robusta* van Achterberg, sp. nov., *A. sarae* Peris-Felipo, sp. nov., *A. somersetensis* Peris-Felipo, sp. nov., *A. stubbsi* Peris-Felipo, sp. nov., *A. taylori* Peris-Felipo, sp. nov., *A. vanalpheni* van Achterberg, sp. nov., *A. vanharteni* van Achterberg, sp. nov., *A. victoriana* Peris-Felipo, sp. nov., *A. zaprionae* van Achterberg, sp. nov., *A. zimbabweana* Peris-Felipo, sp. nov., *A. zululana* Peris-Felipo, sp. nov. Moreover, the following new combination is suggested: *Asobara pulchricornis* (Szépligeti, 1911) comb. nov. A key to all Afrotropical (including Malagasy) species is provided for the first time.

Keywords. *Asobara*, parasitoids, flies, Afrotropical, Madagascar, new species, key.

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Introduction

The genus *Asobara* Foerster, 1863, can be recognised amongst the genera of the tribe Alysiini by the first flagellar segment usually shorter than 2nd segment, vein M+CU of hind wing distinctly shorter than vein 1-M or vein cu-a absent; the precoxal sulcus at least medially distinctly impressed and with some (micro-) crenulae, vein m-cu of fore wing antefurcal or interstitial and the open first subdiscal cell wide (Wharton 2002; Zhu *et al.* 2017). The known hosts of the species of *Asobara* belong mainly to the dipteran families Drosophilidae and Tephritidae (Yu *et al.* 2016). This genus is distributed worldwide and includes 47 valid species (Yu *et al.* 2016; Guerrieri *et al.* 2016), of which 15 species are known in the Afrotropical Region (Peris-Felipo *et al.* 2014a). In this paper 25 new species of genus *Asobara* from the Afrotropical Region are described, which makes this region the most speciose for this genus; next is the Oriental Region with 18 species, but several undescribed species have also been examined.

The purpose of this work is a complete review of species of *Asobara* from Afrotropical region (including Madagascar and Yemen). The revision includes descriptions of all available type material, illustrations of their main characters, and preparation of a new original key to the Afrotropical species.

Material and methods

For the terminology of morphological features, sculpture and measurements see Peris-Felipo *et al.* (2014b); for wing venation nomenclature see van Achterberg (1993); for measurements of the marginal cell see Peris-Felipo and Belokobylskij (2017).

Material was imaged using a Keyence® VHX-2000 Digital Microscope and Adobe Photoshop® imaging software. The types of described species are deposited in the collection of the Natural History Museum (London, UK; BMNH), Naturalis Biodiversity Center (Leiden, the Netherlands, RMNH), Biologiezentrum (Linz, Austria; OLML), Naturhistorisches Museum Wien (Vienna, Austria; NHMW), Hungarian Natural History Museum (Budapest, Hungary, HNHM), Muséum national d'Histoire naturelle (Paris, France; MNHN), Museum für Naturkunde (Berlin, Germany, NHMB), Musée Royal de l'Afrique centrale (Africa Museum, Tervuren, Belgium; MRAC), Zoological Institute of the Russian Academy of Sciences (St Petersburg, Russia; ZISP), Zoologische Staatssammlung München (Munich, Germany; ZSSM) and the F.J. Peris-Felipo Entomological Collection (Basel, Switzerland; PFEC) (Peris-Felipo Entomological Collection).

Results

Taxonomy

Class Insecta Linnaeus, 1758
Order Hymenoptera Linnaeus, 1758
Family Braconidae Nees, 1811
Subfamily Alysiinae Leach, 1815
Tribe Alysiini Leach, 1815

Genus *Asobara* Foerster, 1863

Diagnosis

Mandibles large, simple, tridentate. Upper tooth normally wide; median tooth usually rather narrow and long (sometimes wide and short); lower tooth wide and with small angle ventrodistally. Anterior tentorial pits short, remaining far from edge of eyes. First flagellar segment distinctly shorter than 2nd segment or of similar length. Mesoscutum with mesoscutal pit usually present; notauli usually present only in anterior part of mesoscutum (sometimes reaching mesoscutal pit); precoxal sulcus always present;

Moreover, it is necessary to emphasize that one of the most peculiar characters of Afrotropical *Asobara* is the large number of species having contrastingly pale apical or subapical segments of the female antenna, a common feature among tropical species in general. From 40 known Afrotropical species almost 60% possess this feature and about 25% (mainly specimens known from old type material) have the apical part of antennae missing; most likely they will fit in, at least partly, with the general trend.

In agreement with the taxonomical results for the Afrotropical region (resulting in the description of 25 species new for science), a future revision of Oriental and Australasian *Asobara* will show that the species diversity of this genus is equally high and also includes many taxa new for science. This first revision of all Afrotropical species is a very important step in the recognition of species of *Asobara* worldwide.

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