Zootaxa 4150 (5): 566–570
http://www.mapress.com/j/zt/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://doi.org/10.11646/zootaxa.4150.5.3
http://zoobank.org/urn:lsid:zoobank.org:pub:6883687F-3631-4AE8-BAC4-706B340FC230

New South African species of the genus *Idiasta* Foerster, 1863 (Hymenoptera: Braconidae: Alysiinae), with a key to the Afrotropical and Malagasy taxa

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Abstract

A new species from South Africa, *Idiasta iaiaorum* **sp. nov.**, is described and illustrated. A key for determination of the Afrotropical and Malagasy *Idiasta* species is provided.

Key words: Braconidae, Alysiinae, *Idiasta*, Afrotropical region, new species, key

Introduction

Members of the genus *Idiasta* possess the large number of plesiomorphic character states that define the *Phaenocarpa* genera complex, and are mainly recognised by fore wing vein 2-SR longer than 3-SR (Wharton 2002). This worldwide genus has about 50 described species (Yu *et al*. 2012, Fischer and Beyarslan 2012); of these only seven species occur in the Afrotropical region (together with Madagascar) (Yu *et al*. 2012). Very little is known about their biology although Wharton (1984) recorded *Idiasta* as parasitoids of the cyclorraphan dipteran family Muscidae.

In this paper, a new species, *Idiasta iaiaorum* **sp. nov.**, is described and illustrated from the fauna of the Republic of South Africa. A new key for the determination of Afrotropical *Idiasta* species is provided.

Material and methods

For terminology of morphological features and sculpture as well as for measurements see Peris-Felipo *et al*. (2014), for wing venation nomenclature see van Achterberg (1993). The material was imaged using Digital Microscope Keyence® VHX-2000 and Adobe Photoshop® imaging system. The types of described species are deposited in the collections of Biologiezentrum Linz (Linz, Austria; OLML) and Zoological Institute of the Russian Academy of Sciences (St Petersburg, Russia; ZISP).

Taxonomy

Order Hymenoptera Linnaeus, 1758

Family Braconidae Nees, 1811

Subfamily Alysiinae Leach, 1815

 Accepted by J. Jennings: 1 Jul. 2016; published: 16 Aug. 2016

Genus *Idiasta* Foerster, 1863

Type species: *Alysia* (*Alysia*) *maritima* Haliday, 1838.

Diagnosis. Mandibles with three teeth, its ventral and diagonal ridges well developed. First flagellomere equal or shorter than second flagellomere. Pterostigma of fore wing broad, discrete, wedge-shaped; 2-SR longer (sometimes distinctly) than 3-SR. Hind wing with m-cu well developed; M+CU generally equal to or longer than 1M.

Hosts. Muscidae (Diptera).

Idiasta iaiaorum Peris-Felipo, sp. nov.

(Figs 1, 2)

Etymology. Named in honour Mª Amparo Orts (Valencian “iaia” meaning "grandmother") and Vicente Felipo (Valencian “iaio” meaning "grandfather") for their valuable help to the first author.

Description. Female. Head. In dorsal view, 1.7 × as wide as median length, 1.5 × as wide as mesoscutum, smooth, with temple rounded behind eyes, eyes broader than temples. Eye in lateral view about as high as wide and 2.7 × as wide as temple medially. POL 1.1 × OD; OOL 3.4 × OD. Face 1.5 × as wide as high, with sparse setae; inner margins of eyes subparallel. Clypeus 2.1 × as wide as high, slightly curved ventrally. Paraclypeal fovea short, not crossing half distance between clypeus and eye. Mandible 3-dentate, widened towards apex, 1.6 × as long as its maximum width. All teeth wide; upper tooth slightly longer than lower tooth; middle tooth rather short, slightly longer than upper tooth, distinctly pointed towards apex; lower tooth subrounded. Antenna 34-segmented, about twice as long as body. Scape 1.7 × as long as pedicel. First flagellomere 3.0 × as long as its apical width. Second flagellomere 10.5 × as long as maximum width, 2.2 × as long as first flagellomere. Third flagellomere 8.6 × first flagellomere, penultimate 3.0 ×, and apical segment 3.7 × as long as their width accordingly.

Mesosoma. In lateral view, 1.5 × as long as high. Mesoscutum (dorsal view) 0.9 × its maximum width, smooth. Notauli present on horizontal surface of mesoscutum reaching mesoscutal pit. Mesoscutal pit short and oval. Prescutellar depression subquadrate, smooth, median carina present, lateral carina absent. Precoxal sulcus present, wide, crenulate, reaching anterior and posterior margins of mesopleuron. Posterior mesopleural furrow crenulate below. Propodeum almost completely rugose-reticulate, with distinct and almost complete curved median longitudinal carina. Propodeal spiracles relatively small.

Wings. Length of fore wing 3.3 × its maximum width. Marginal cell ending at apex of wing, 4.3 × as long as its maximum width. Vein 2-SR 1.4 × as long as vein 3-SR; vein SR1 5.7 × as long as vein 3-SR. Vein m-cu antefurcal. Vein cu-a strongly postfurcal. Subdiscal cell closed distally, 4.0 × as long as its maximum width. Vein CU1a arising from middle of distal margin of subdiscal cell. Hind wing 5.2 × as long as its maximum width.

Legs. Hind femur 6.2 × as long as its maximum width. Hind tibia weakly widened towards apex, 9.5 × as long as its maximum subapical width, 0.9 × as long as hind tarsus. First segment of hind tarsus 1.4 × as long as second segment.

Metasoma. First tergite weakly widened towards apex, twice as long as its apical width, striate. Ovipositor 4.5 × as long as first tergite, 1.2 × as long as metasoma, 2.5 × as long as hind femur, 0.5 × as long as fore wing.

Colour. Head, mesosoma and mandible dark brown. Propleuron, legs and metasoma brown. Scape, pedicel and ovipositor yellow. Flagellomeres mainly brown but 22nd to 28th flagellomeres white. Wings distinctly evenly darkened; pterostigma brown.

Length. Body 2.7 mm; fore wing 2.7 mm; hind wing 2.0 mm.

Variation. Body 2.5–2.8 mm; fore wing 2.5–2.8 mm; hind wing 1.8–2.0 mm. Eye in lateral view 2.3–2.7 × as wide as temple medially. Antenna 33–34-segmented. Second flagellomere 10.0–11.0 × as long as its maximum width. Mandible 1.5–1.6 × as long as its maximum width. Marginal cell 4.2–4.3 × as long as its maximum width. Vein SR1 5.5–5.7 × as long as vein 3-SR. Vein 2-SR 1.35–1.45 × as long as vein 3-SR. Hind femur 6.0–6.2 × as long as its maximum width. First metasomal tergite 2.0–2.2 × as long as its apical width. Ovipositor 4.4–4.5 × as long as first tergite, 1.1–1.2 × as long as metasoma, 2.3–2.5 × as long as hind femur.

Male. Body length 2.5–2.6 mm; fore wing 2.6–2.7 mm; hind wing 1.6–1.7 mm. Antenna 35–36-segmented. Second flagellomere 2.3 × as long as first. Vein SR1 5.0–5.1 × as long as vein 3-SR. Flagellomeres mainly brown, but 25th to 29th flagellomeres white. Otherwise similar to female.

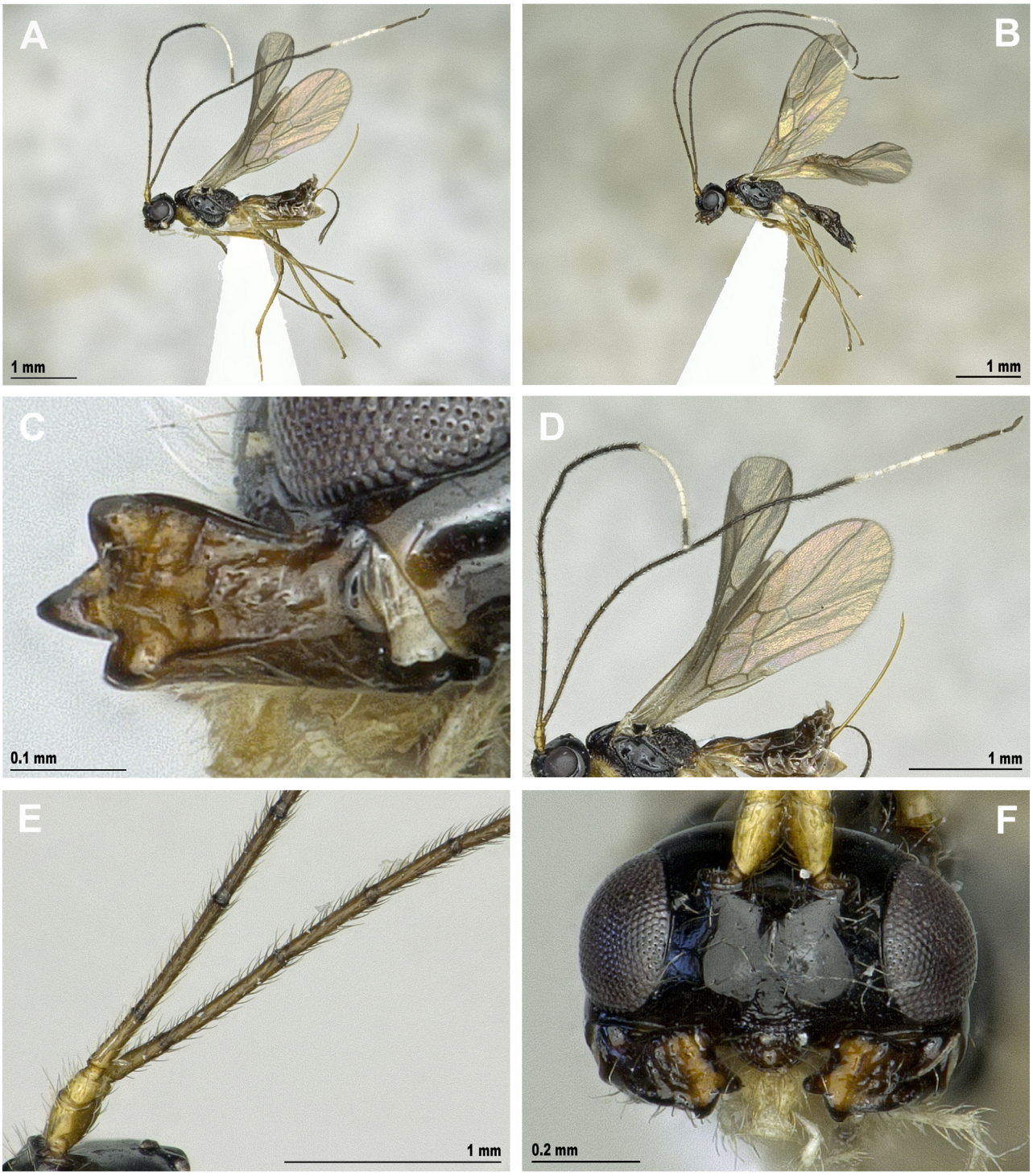

FIGURE 1. *Idiasta iaiaorum* **sp. nov.** (A, C–F female, holotype; B male, paratype) A, B. Habitus, lateral view. C. Mandible. D. Antenna. E. Basal segments of antenna. F. Head, front view.

Type material. Holotype: female, South Africa (RSA), KwaZulu-Natal Province, 35 km N Port Edward, 30º45'S 30º09'E, 450 m, 28.xii.2009 (leg. J. Halada) (OLML). Paratypes: 18 females, 31 males, same label as in holotype (OLML, ZISP).

Comparative diagnosis. This new species is similar to the Afrotropical *Idiasta curtimembrum* Fischer, 2004, but differs from it in having the eye in lateral view 2.3–2.7 × as wide as temple medially (1.5 × in *I. curtimembrum*), vein SR1 4.8 × as long as vein 3-SR (4.3 × in *I. curtimembrum*), and dark antenna with several white flagellomeres in its apical half (without pale flagellomeres in apical half in *I. curtimembrum*).

According to the key by Fischer (2008), this new species is similar to the Palaearctic *Idiasta pallida* Papp, 1994. However, *I. iaiaorum* **sp. nov.** differs from *I. pallida* in having the hind femur 6.0–6.2 × as long as its maximum width (5.0–5.4 × in *I. pallida*), the first metasomal tergite 2.0–2.2 × as long as its apical width (1.5–1.7 × in *I. pallida*), vein 2-SR about 1.4 × as long as vein 3-SR (almost equal in *I. pallida*), and both sexes with several whitish flagellomeres (only females with several whitish flagellomeres in *I. pallida*).

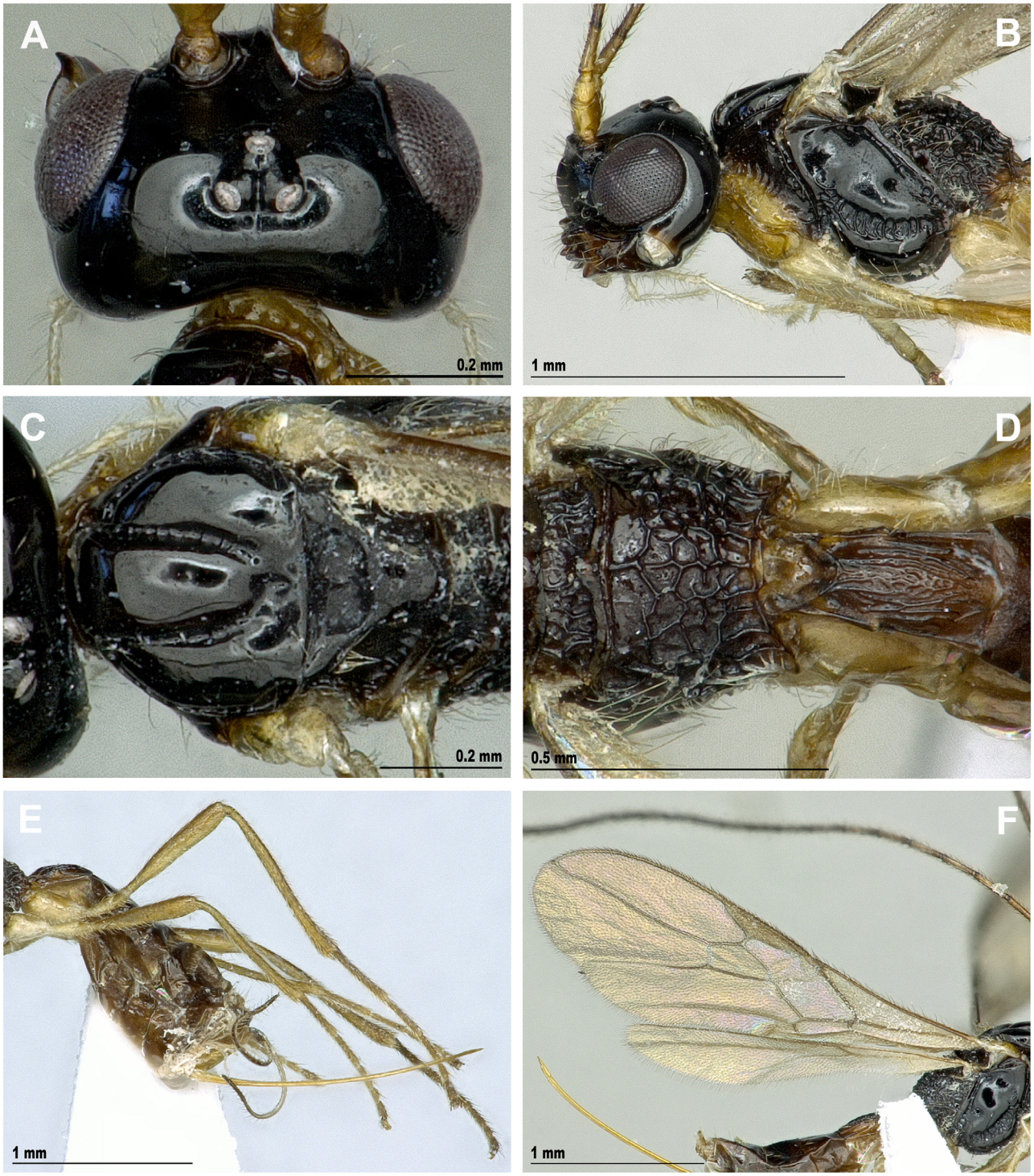

FIGURE 2. *Idiasta iaiaorum* **sp. nov.** (female, holotype) A. Head, dorsal view. B. Head and mesosoma, lateral view. C. Mesonotum, dorsal view. D. Propodeum and first metasomal tergite, dorsal view. E. Hind leg, metasoma and ovipositor. F. Fore and hind wings.

Key to the Afrotropical species of the genus *Idiasta*

The holotype of *I. postscutellaris* Szepligeti, 1908 (Tanzania) is missing from the Swedish Museum of Natural History in Stockholm where it was housed (H. Vårdal, Curator, personal communication) and original description of this species (Szepligeti, 1910) has not any characters allowing distinguish it from all other *Idiasta* species. As result, we have not included this species in our key.

1. Eye in lateral view 2.3–2.7 × as wide as temple medially. Vein SR1 5.0–5.7 × as long as vein 3-SR. Body length 2.5–2.8 mm. South Africa . . . . . ***I. iaiaorum* sp. nov.** (♀♂)
- Eye in lateral view 0.8–1.5 × as wide as temple medially. Vein SR1 1.9–4.3 × as long as vein 3-SR **2**
2(1). Second flagellomere 1.1–1.3 × as long as first segment **3**
- Second flagellomere1.6–2.0 × as long as first segment **4**
3(2). Head in dorsal view 1.5 × as wide as median length. Vein SR1 3.4 × as long as vein 3-SR. Second flagellomere 1.1 × as long as first segment. Notauli not reaching mesoscutal pit. Prescutellar depression with lateral carinae. Body length 4.0 mm. Madagascar . . . . . ***I. madagascariensis*** Granger (♀)
- Head in dorsal view 2.0 × as wide as median length. Vein SR1 2.5 × as long as vein 3-SR. Second flagellomere 1.3 × as long as first segment. Notauli reaching mesoscutal pit. Prescutellar depression without lateral carinae. Body length 4.0 mm. Zambia. . . . . ***I. chingolaensis*** Fischer (♀)
4(2). First metasomal tergite 1.9 × as long as its apical width. Eye in lateral view 1.5 × as wide as temple medially. Vein SR1 4.3 × as long as vein 3-SR. Body length 1.9 mm. Madagascar . . . . . ***I. curtimembrum*** Fischer (♂)
- First metasomal tergite 1.0–1.1 × as long as its apical width. Eye in lateral view 0.8–1.2 × as wide as temple medially. Vein SR1 1.9–3.3 × as long as vein 3-SR. **5**
5(4). Vein SR1 3.0–3.3 × as long as vein 3-SR. Vein m-cu interstitial. Body length 6.5 mm. Uganda . . . . . ***I. hiomae*** Fischer (♀)
- Vein SR1 1.9–2.2 × as long as vein 3-SR. Vein m-cu postfurcal **6**
6(5). Eye in lateral view 0.8 × as wide as temple medially. Prescutellar depression subrectangular, with lateral carinae. Vein SR1 1.9 × as long as vein 3-SR. Head, mesosoma and first metasomal tergite brown, rest part of body brownish black. Body length 5.5 mm. Ethiopia, India . . . . . ***I. magna*** (Papp) (♂)
- Eye in lateral view 1.0 × as wide as temple medially. Prescutellar depression subquadrate, without lateral carinae. Vein SR1 2.2 × as long as vein 3-SR. Body, legs and tegula yellow to reddish yellow. Body length 6.25 mm. Kenya. . . . . ***I. snizecki*** Fischer (♀)

Acknowledgements

We are very thankful to Martin Schwarz (Biologiezentrum, Linz, Austria; OLML), for providing the material for the study. We also want to thank Isabelle Zuecker, Matthias Borer and Daniel Burckhardt (Naturhistoriches Museum, Basel, Switzerland) for their kindness and help during our work with photosystem in the Museum. This work was supported for the second author by grants given by the Russian Foundation for Basic Research (projects No. 16–04–00197) and the Russian State Research Project (No. 01201351189).

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