Three new *Adelphenaldis* species (Hymenoptera: Braconidae: Alysiinae) from Africa, with first descriptions of the female of *A. subsurrectionis* (Fischer) and the male of *A. claricornis* (Fischer)

F.J. Peris-Felipo^{1*}, G.R. Broad², S.A. Belokobylskij³ & R. Jiménez-Peydró¹

¹Laboratorio de Entomología y Control de Plagas, Instituto Cavanilles de Biodiversidad y Biología Evolutiva,

c/. Catedrático José Beltrán 2, 46980 Paterna, Valencia, Spain

²Department of Life Sciences, Natural History Museum, Cromwell Road, London SW7 5BD, U.K.

³Zoological Institute, Russian Academy of Sciences, St. Petersburg, 199034, Russia, and Museum and

Institute of Zoology, Polish Academy of Sciences, Wilcza 64, Warszawa 00-679, Poland

Three new species of the genus *Adelphenaldis* from Africa (including Madagascar) are described: *Adelphenaldis capensis* sp. n., *A. mesoafricanus* sp. n., and *A. noyesi* sp. n. The female of *A. subsurrectionis* (Fischer, 2003) and the male of *A. claricornis* (Fischer, 1993) are recorded for the first time and described.

Key words: Braconidae, Alysiinae, Adelphenaldis, new species, taxonomy, Africa, Madagascar.

INTRODUCTION

Braconidae is the second largest family of Hymenoptera, belonging to the superfamily Ichneumonoidea with approximately 60 000 known species around the worldwide. The majority of these species are primary parasitoids of immature stages of Lepidoptera, Coleoptera and Diptera (Yu *et al.* 2012).

The Alysiinae is an exceptionally rich subfamily within the Braconidae with approximately 2300 described species (Yu *et al.* 2012) separated in two large and polymorphic tribes, Alysiini and Dacnusini (Shenefelt 1974). Species of Alysiini are parasitoids of a wide variety of Diptera-Cyclorrhapha species, mainly in humid habitats and ephemeral substrata. In contrast, Dacnusini are almost exclusively specialized on leaf- and stemmining hosts, predominantly species in the families Agromyzidae, Ephydridae and Chloropidae. Furthermore, Alysiini are distributed across all regions while Dacnusini are mainly known from the temperate and boreal regions of the northern hemisphere (Peris-Felipo & Jiménez-Peydró 2013).

The genera of the *Aspilota*-group form a quite well differentiated group within the tribe Alysiini (van Achterberg 1988) and include *Adelphenaldis* Fischer, 2003, *Alithia* Cameron, 1906, *Aspilota* Foerster, 1862, *Carinthilota* Fischer, 1975, *Cubitalostigma* Fischer, 1998, *Dinostigma* Fischer, 1966, *Dinotrema* Foerster, 1862 (including *Synaldotrema* Belokobylskij & Tobias, 2002),

*Author for correspondence. E-mail: francisco.peris@uv.es

Eudinostigma Tobias, 1986, Grandilota Fischer, 2002, Leptotrema Van Achterberg, 1988, Lysodinotrema Fischer, 1995, Neorthostigma Belokobylskij, 1998 (stat. resurr.), Orthostigma Ratzeburg, 1844 (including Africostigma Fischer, 1995 and Patrisaspilota Fischer, 1995), Panerema Foerster, 1862, Pterusa Fischer, 1958, Regetus Papp, 1999, and Synaldis Foerster, 1862. Recently Peris-Felipo et al. (2012) published world keys to Adelphenaldis species, which included 26 species. However, this is still a poorly studied genus. Some authors (van Achterberg, 1988) include Adelphenaldis in the genus Aspilota Foerster, 1862, because of the only difference (complete absence of cuqu1) is very rarely (for example, in Aspilota louiseae van Achterberg, 1988) gradual one with a few specimens having cuqu1 desclerotized. Such intermediate forms are present as exception in this group of genera and final decision about generic status can be resolved after their phylogenetic analysis including morphological and especially biochemical data.

In this paper, three new Afrotropical species of the genus *Adelphenaldis* are described and illustrated, *viz. A. capensis* sp. n., *A. mesoafricanus* sp. n., and *A. noyesi* sp. n. Also, the female of *A. subsurrectionis* (Fischer, 2003) and the male of *A. claricornis* (Fischer, 1993) are first recorded and described. Briefly, *Adelphenaldis* can be recognized amongst the Alysiini by the following combination of characters: forewing pterostigma linear; first and second submarginal cells confluent; head with anterior tentorial pit enlarged reaching level of eye, with oblique subocular depression present and vertical malar suture absent.

MATERIAL AND METHODS

For the terminology of the morphological features and sculpture, measurements and wing venation nomenclature see Fischer (1973); for measurements of the length and width of mandibles and abbreviations for ocellar proportions (POL, OOL and OD) see Peris-Felipo et al. (2013). Species were identified using the keys of *Adelphenaldis* species by Peris-Felipo et al. (2012). In the key, additional features useful for recognizing a particular species are listed after a dash (–). The material was imaged using Hitachi S-4100 scanning electron microscopes in the Electron Microscopy Service of the University of Valencia (SCSIE) with a beam of 2 kV and without sputter coating. Some photographs were taken with a Leica MZ16 stereomicroscope and using the Leica Application Suite[®] imaging system. The types of newly described species are deposited in the collection of the Natural History Museum (London, UK; BMNH) and Zoological Institute, Russian Academy of Sciences (ZISP).

TAXONOMY

Adelphenaldis capensis Peris-Felipo, sp. n.,

Figs 1–12

Etymology. Named after Cape Province, the type locality of this new species.

Type material. Holotype: \mathcal{P} , South Africa, Cape Province, Somerset East, November 1930, Brit. Mus. 1930-593 (R.E. Turner leg.) (BMNH). Paratype: \mathcal{P} , same data as holotype (BMNH).

Description

Female (holotype) (Fig. 1).

Head (Figs 2, 6) entirely smooth; in dorsal view 1.8 times as wide as median length, 1.5 times as wide as mesoscutum, with rounded temples behind eye. Eye in lateral view 1.8 times as high as wide and 0.8 times as wide as temple medially. POL 1.65 times OD; OOL 3.1 times OD. Face 1.25 times as wide as high; inner margins of eyes subparallel. Clypeus slightly curved ventrally, 2.6 times as wide as high. Mandible widened towards apex, 1.15 times as long as its maximum width. Upper tooth of mandible (Fig. 3) longer than lower tooth; middle tooth wide basally and narrowed towards

apex, rounded apically; lower tooth shorter than upper tooth, rounded apically. Antenna (Figs 4, 5) thick, 16-segmented. Scape twice as long as pedicel. First flagellar segment 2.25 times as long as its apical width, 1.1 times as long as second segment; second segment twice as long as its maximum width. Third to eleventh flagellar segments 1.65–1.85 times and twelfth to fourteenth segments 2.1–2.2 times as long as their maximum width respectively.

Mesosoma (Fig. 7) 1.4 times as long as high (lateral view). Mesoscutum (Fig. 8) 0.85 times as long as maximum width. Notauli developed in anterior quarter only, mainly absent on horizontal surface of mesoscutum. Mesoscutal pit absent. Prescutellar depression smooth, with lateral carinae. Precoxal suture present, not reaching anterior and posterior margins of mesopleuron. Posterior mesopleural furrow smooth. Propodeum (Fig. 9) smooth, with complete median longitudinal carina crossing from anterior to posterior margins. Propodeum with notches laterally. Propodeal spiracle relatively small, 0.45 times as long as distance between spiracle and apical margin of propodeum.

Wings (Fig. 12). Length of forewing 2.5 times its maximum width. Radial cell reaching apex of wing, 4.0 times as long as its maximum width. Vein r3 2.5 times as long as veins r1 + r2. Nervulus weakly postfurcal. Brachial cell closed, short, widened apically, 3.0 times as long as its maximum width. Hind wing 6.5 times as long as its maximum width.

Legs (Fig. 11). Hind femur 4.6 times as long as its maximum width. Hind tibia weakly widened towards apex, about 7.2 times as long as its maximum subapical width, 1.1 times as long as hind tarsus. First segment of hind tarsus 1.5 times as long as second segment.

Metasoma (Fig. 11) distinctly compressed. First tergite (Fig. 10) mainly smooth, very finely striate apically, weakly widened towards apex, 2.35 times as long as its apical width. Ovipositor 1.2 times as long as first tergite, distinctly shorter than metasoma, 0.65 times as long as hind femur.

Colour. Body brown to dark brown. Legs light brown. Wings hyaline. Pterostigma brown.

Body length 1.9 mm; forewing length 1.8 mm.

Variation. Body length 1.90–1.95 mm; forewing length 1.80–1.85 mm. Mandible 1.15–1.20 times as long as its maximum width. First flagellar segment 2.25–2.30 times as long as its apical width. Mesoscutum 0.85–0.90 times as long as maximum



Figs 1–6. Adelphenaldis capensis (female). 1, Habitus, lateral view. 2, Head, lateral view. 3, Mandible. 4, Antenna. 5, Basal segments of antenna. 6, Head, dorsal view.

width. First metasomal tergite 2.35–2.40 times as long as its apical width.

Male. Unknown.

Diagnosis

According to the key by Peris-Felipo *et al.* (2012), this new species is similar to *A. brunicorpus* Fischer, 2003 and *A. subsurrectionis* (Fischer, 2003). *Adelphenaldis capensis* sp. n. differs from these two species in having the first flagellar segment 2.25 times as long as its maximum width (3.0 times in *A. brunicorpus* and *A. subsurrectionis*), hind femur 4.25 times as long as its maximum width (5.0 times in *A. brunicorpus* and 3.5 times in *A. subsurrectionis*), first metasomal tergite 2.35 times as long as its apical width (2.0 times in *A. brunicorpus*), and face 1.25 times as long as high (1.8 times in *A. brunicorpus* and 1.75 times in *A. subsurrectionis*).



Figs 7–12. Adelphenaldis capensis (female). 7, Mesosoma, lateral view. 8, Mesonotum. 9, Propodeum. 10, First metasomal tergite. 11, Mid and hind legs, metasoma, ovipositor, lateral view. 12, Fore- and hind wings.

In Peris-Felipo *et al.*'s. (2012) key, *A. capensis* can be accommodated as follows:

- 23. Hind femur 4.25–5.00 times as long as its maximum width23a
- Hind femur 2.5–3.5 times as long as its maximum width24
- 23a. Hind femur 5.0 times as long as its maximum width.
- Mandible almost as long as wide. First

flagellar segment 3.0 times as long as its maximum width. First metasomal tergite 2.0 times as long as its apical width. Body length 1.2 mm. South Africa

- 23b Mandible 1.15 times as long as wide. First flagellar segment 2.25 times as long as its

maximum width. Face 1.25 times as long as high. Head in dorsal view 1.8 times as wide as its median length. Antenna 14-segmented. Body length 1.90–1.95 mm. South Africa A. capensis Peris-Felipo, sp. n. (?)

Mandible 1.55 times as long as wide. First flagellar segment 2.8 times as long as its maximum width. Face 2.0 times as long as high. Head in dorsal view 1.5 times as wide as its median length. Antenna 16–19-segmented. Body length 1.7–1.8 mm. Kenya A. mesoafricanus Peris-Felipo, sp. n. (?)

Adelphenaldis mesoafricanus Peris-Felipo, sp. n., Figs 13–24

Etymology. Named after its discovery in the central part of Africa.

Type material. Holotype: 9, Kenya, 15 mls. NE Kisumu (nr. Lake Victoria), xi.1979 (M.D. Croft leg.) (BMNH). Paratypes: 49, same data as holotype (BMNH); 19, same data as holotype (ZISP).

Description

Female (holotype) (Fig. 13).

Head (Figs 14, 18) entirely smooth; in dorsal view 1.5 times as wide as its median length, 1.45 times as wide as mesoscutum, with rounded temples behind eye. Eye in lateral view 1.65 times as high as wide and as wide as temple medially. POL 1.4 times OD; OOL 2.6 times OD. Face twice as wide as high; inner margins of eyes subparallel. Clypeus slightly curved ventrally, 2.75 times as wide as high. Mandible (Fig. 15) widened towards apex, 1.55 times as long as its maximum width. Upper tooth of mandible shorter than lower tooth; middle tooth wide basally and narrowed towards apex, pointed apically; lower tooth longer than upper tooth, rounded apically. Antenna (Figs 16, 17) thick, 19-segmented. Scape 1.55 times as long as pedicel. First flagellar segment 2.8 times as long as its apical width, 1.1 times as long as second segment; second segment 2.35 times as long as its maximum width. Third to sixteenth flagellar segments 2.3–2.8 times, seventeenth segment 3.15 times and eighteenth segment 3.5 times as long as their maximum width, respectively.

Mesosoma (Fig. 19) 1.1 times as long as high (lateral view). Mesoscutum (Fig. 20) 0.95 times as long as maximum width. Notauli developed in anterior quarter only, mainly absent on horizontal surface of mesoscutum. Mesoscutal pit absent. Prescutellar depression smooth, without lateral

carinae. Precoxal suture present, not reaching anterior and posterior margins of mesopleuron. Posterior mesopleural furrow entirely smooth. Propodeum (Fig. 21) smooth, with complete median longitudinal carinae crossing from anterior to posterior margins. Propodeal spiracle relatively small, 0.4 times as long as distance between spiracle and apical margin of propodeum.

Wings (Fig. 24). Length of forewing 3.1 times its maximum width. Radial cell reaching apex of wing, 4.5 times as long as its maximum width. Vein r3 2.3 times as long as veins r1 + r2. Nervulus weakly postfurcal. Brachial cell closed, short, widened apically, 3.15 times as long as its maximum width. Hind wing 6.9 times as long as its maximum width.

Legs (Fig. 23). Hind femur 4.25 times as long as its maximum width. Hind tibia weakly widened towards apex, about 7.75 times as long as its maximum subapical width, 1.1 times as long as hind tarsus. First segment of hind tarsus twice as long as second segment.

Metasoma (Fig. 23) distinctly compressed. First tergite (Fig. 22) almost smooth, weakly widened towards apex, 2.1 times as long as its apical width. Ovipositor 0.75 times as long as first tergite, distinctly shorter than metasoma, 0.65 times as long as hind femur.

Colour. Body brown to dark brown. Legs light brown. Wings hyaline. Pterostigma brown.

Body length 1.75 mm; forewing length 1.85 mm.

Variation. Body length 1.7–1.8 mm; forewing length 1.8–1.9 mm. POL 1.35–1.40 times OD; OOL 2.60–2.65 times OD. Face 2.0–2.1 times as wide as high. Mandible 1.50–1.55 times as long as its maximum width. Antenna 16–19-segmented. Scape 1.50–1.55 times as long as pedicel. First flagellar segment 2.7–2.8 times as long as its maximum width; second segment 2.30–2.35 times as long as its maximum width. Mesoscutum 0.95–1.00 times as long as maximum width. Propodeal spiracle 0.40–0.45 times as long as distance between spiracle and apical margin of propodeum. Hind tibia 7.70–7.75 times as long as its maximum subapical width.

Male. Unknown.

Diagnosis

According to the key by Peris-Felipo *et al.* (2012), this new species is similar to *A. brunicorpus* Fischer, 2003 and *A. resurrectionis* (Fischer, 1993). *Adelphenaldis mesoafricanus* sp. n. differs from two these



Figs 13–18. Adelphenaldis mesoafricanus (female). 13, Habitus, lateral view. 14, Head, lateral view. 15, Mandible. 16, Antenna. 17, Basal segments of antenna. 18, Head, dorsal view.

species in having the mandible 1.55 times as long as wide (almost as long as wide in *A. brunicorpus* and 1.25 times in *A. resurrectionis*), middle flagellar segments 2.3–2.8 times as long as their maximum width (1.8 times in *A. brunicorpus* and 2.0 times in *A. resurrectionis*), hind femur 4.25 times as long as its maximum width (5.0 times in *A. brunicorpus* and 3.0 times in *A. resurrectionis*), face 2.0 times as long as high (1.5 times in *A. resurrectionis*), and propodeal spiracle relatively small (large in A. resurrectionis).

Conversely, *A. mesoafricanus* is similar to *A. capensis* sp. n. but differs in having the mandible 1.55 times as long as wide (1.15 times in *A. capensis*), first flagellar segment 2.8 times as long as its maximum width (2.25 times in *A. capensis*), face 2.0 times as long as high (1.25 times in *A. capensis*), and head in dorsal view 1.5 times as wide as its median length (1.8 times in *A. capensis*).



Figs 19–24. Adelphenaldis mesoafricanus (female). 19, Mesosoma, lateral view. 20, Mesonotum. 21, Propodeum. 22, First metasomal tergite. 23, Mid and hind legs, metasoma, ovipositor, lateral view. 24, Fore- and hind wings.

Adelphenaldis mesoafricanus can be accommodated in Peris-Felipo *et al.*'s. (2012) key as described under *A. capensis*.

Adelphenaldis noyesi Peris-Felipo, sp. n.,

Figs 25-36

Etymology. Named in honour of Dr John Noyes for his valuable introduction in the study of Hymenoptera diversity and for collecting the type material of this species.

Type material. Holotype: 9, Madagascar, Tamatave, Perinet, 27.iv–03.v.1983 (J.S. Noyes and M.C. Day leg.) (BMNH). Paratypes: 29, same data as holotype (BMNH); 19, same data as holotype (ZISP); 29, Kenya, Nairobi, Karen, 1982 (C.F. Dewhurst leg.) (BMNH).

Description

Female (holotype) (Fig. 25).

Head (Figs 26, 30) entirely smooth; in dorsal view



Figs 25–30. Adelphenaldis noyesi (female). 25, Habitus, lateral view. 26, Head, lateral view. 27, Mandible. 28, Antenna. 29, Basal segments of antenna. 30, Head, dorsal view.

1.75 times as wide as its median length, 1.5 times as wide as mesoscutum, with rounded temples behind eye. Eye in lateral view 1.55 times as high as wide and 1.3 times as wide as temple medially. POL 1.5 times OD; OOL 3.0 times OD. Face 1.5 times as wide as high; inner margins of eyes subparallel. Clypeus slightly curved ventrally, 2.85 times as wide as high. Mandible (Fig. 27) not widened towards apex, 1.5 times as long as its maximum width. Upper tooth of mandible shorter than middle and lower teeth; middle tooth narrowed towards apex, pointed apically; lower tooth rounded apically. Antenna (Figs 28, 29) thick, 14-segmented. Scape 2.25 times as long as pedicel. First flagellar segment 2.5 times as long as its apical width, as long as second segment; second segment twice as long as its maximum width. Third flagellar segment twice as long as wide.



Figs 31–36. Adelphenaldis noyesi (female). 31, Mesosoma, lateral view. 32, Mesonotum. 33, Propodeum. 34, First metasomal tergite. 35, Mid and hind legs, metasoma, ovipositor, lateral view. 36, Fore- and hind wings.

Fourth to sixth flagellar segments 1.75–1.85 times and seventh to twelfth segments 1.55–1.65 times as long as their maximum width respectively.

Mesosoma (Fig. 31) 1.1 times as long as high (lateral view). Mesoscutum (Fig. 32) 0.95 times as long as maximum width. Notauli developed in anterior quarter only, mainly absent on horizontal surface of mesoscutum. Mesoscutal pit absent. Prescutellar depression smooth, with two lateral

carinae. Precoxal suture present, not reaching anterior and posterior margins of mesopleuron. Posterior mesopleural furrow entirely smooth. Propodeum (Fig. 33) sculptured, with wide pentagonal areola. Propodeal spiracle relatively small, 0.4 times as long as distance between spiracle and apical margin of propodeum.

Wings (Fig. 36). Length of forewing 2.8 times its maximum width. Radial cell reaching apex of

wing, 4.5 times as long as its maximum width. Vein r3 2.5 times as long as veins r1 + r2. Nervulus weakly postfurcal. Brachial cell closed, short, widened apically, 2.8 times as long as its maximum width. Hind wing about 8.0 times as long as its maximum width.

Hind femur 3.25 times as long as its maximum width. Hind tibia weakly widened towards apex, about 7.2 times as long as its maximum subapical width, 1.25 times as long as hind tarsus. First segment of hind tarsus 1.3 times as long as second segment.

Metasoma (Fig. 35) distinctly compressed. First tergite (Fig. 34) almost smooth, weakly widened towards apex, 1.75 times as long as its apical width. Ovipositor 0.6 times as long as first tergite, distinctly shorter than metasoma, 0.5 times as long as hind femur.

Colour. Body brown to dark brown. Legs light brown. Wings hyaline. Pterostigma brown.

Body length. 1.3 mm; forewing length 1.55 mm.

Variation. Body length 1.30–1.40 mm; forewing length 1.55–1.60 mm. POL 1.50–1.55 times OD; OOL 3.0–3.1 times OD. Clypeus 2.8–2.9 times as wide as high. Mandible 1.50–1.55 times as long as its maximum width. Scape 2.25–2.30 times as long as pedicel. Mesoscutum 0.90–0.95 times as long as maximum width. Propodeal spiracle 0.40–0.45 times as long as distance between spiracle and apical margin of propodeum. Hind femur 3.2–3.3 times as long as its maximum width. Hind tibia 7.1–7.2 times as long as its maximum subapical width. Ovipositor 0.60–0.65 times as long as first tergite, and 0.50–0.55 times as long as hind femur.

Male. Unknown.

Diagnosis

According to the key by Peris-Felipo *et al.* (2012), this new species is similar to *A. magnaerata* (Fischer, 1993) and *A. paraclypealis* (Fischer, 1967). *Adelphenaldis noyesi* sp. n. differs from these two species in having the first flagellar segment 2.5 times as long as its maximum width (5.0 times in *A. magnaerata* and 3.5 times in *A. paraclypealis*), hind femur 3.25 times as long as its maximum width (4.0 times in *A. magnaerata*), first metasomal tergite 1.75 times as long as its apical width (2.0 times in *A. magnaerata* and *A. paraclypealis*), face 1.5 times as wide as high (2.0 times as wide as high in *A. magnaerata* and 1.7 in *A. paraclypealis*), and first flagellar segment 2.5 times as long as its maximum width (3.5 times in *A. paraclypealis*). In Peris-Felipo *et al.*'s. (2012) key, *A. noyesi* can be accommodated as follows:

- First flagellar segment 2.5 times as long as its maximum width. First metasomal tergite 1.75 times as long as its apical width. Face 1.5 times as long as high. Body length 1.3–1.4 mm. Kenya, Madagascar
- First flagellar segment 3.5–5.0 times as long as its maximum width. First metasomal tergite 2.0 times as long as its apical width. Face 1.7–2.0 times as long as high......13a
- 13a. First flagellar segment 5.0 times as long as its width. Head 1.5 times as wide as median length. Body length 1.8 mm. Australia
 - First flagellar segment 3.5 times as long as
- its width. Head 1.9 times as wide as median length. Body length 1.5 mm. U.S.A.
 - A. paraclypealis (Fischer) (ð)

Adelphenaldis claricornis (Fischer, 1993),

Figs 37–48

- *Synaldis claricornis* Fischer 1993a: 461; 1993b: 569.
- *Adelphenaldis claricornis* Fischer 2003: 43; Papp 2007: 14; Peris-Felipo *et al.* 2012: 295; Yu *et al.* 2012.

Material examined. ♀ (holotype), Congo, Brazzaville, park, 22.xii.1963 (Balogh et Zicsi leg.) (NHMW). ♂, South Africa, Port St. Johns, Pondoland, 15–31.viii.1923, Brit. Mus. 1923–463 (R.E. Turner leg.) (BMNH).

Description

Male (first record) (Fig. 37).

Head (Figs 38, 42) entirely smooth; in dorsal view 1.9 times as wide as median length, 1.5 times as wide as mesoscutum, with rounded temples behind eye. Eye in lateral view 1.55 times as high as wide and 1.75 times as wide as temple medially. POL 1.35 times OD; OOL 2.45 times OD. Face 1.5 times as wide as high; inner margins of eyes subparallel. Clypeus slightly curved ventrally, 3.0 times as wide as high. Mandible (Fig. 39) widened towards apex, 1.6 times as long as its maximum width. Upper tooth of mandible shorter than lower tooth; middle tooth wide basally and narrowed towards apex, rounded apically; lower tooth longer than upper tooth, rounded apically. Antenna (Figs 40, 41) thick, 16-segmented. Scape 1.65 times as long as pedicel. First flagellar segment Peris-Felipo et al.: New Adelphenaldis species (Hymenoptera) from Africa



Figs 37–42. Adelphenaldis claricornis (male). 37, Habitus, lateral view. 38, Head, lateral view. 39, Mandible. 40, Antenna. 41, Basal segments of antenna. 42, Head, dorsal view.

4.0 times as long as its apical width, 1.3 times as long as second segment; second segment 3.0 times as long as its maximum width. Third to thirteenth flagellar segments 2.1–2.4 times and fourteenth segment 2.8 times as long as their maximum width respectively.

Mesosoma (Fig. 43) 1.1 times as long as high (lateral view). Mesoscutum (Fig. 44) 1.1 times as long as maximum width. Notauli developed in

anterior quarter only, mainly absent on horizontal surface of mesoscutum. Mesoscutal pit present, elongate. Prescutellar depression smooth, without lateral carinae. Precoxal suture present, not reaching anterior and posterior margins of mesopleuron. Posterior mesopleural furrow entirely smooth. Propodeum (Fig. 45) smooth, with complete median longitudinal carina crossing from anterior to posterior margins. Propodeal sides



Figs 43–48. Adelphenaldis claricornis (male). 43, Mesosoma, lateral view. 44, Mesonotum. 45, Propodeum. 46, First metasomal tergite. 47, Hind leg, metasoma and ovipositor, lateral view. 48, Fore- and hind wings.

with notches. Propodeal spiracle relatively small, 0.35 times as long as distance between spiracle and apical margin of propodeum.

Wings (Fig. 48). Length of forewing 2.65 times its maximum width. Radial cell reaching apex of wing, 4.2 times as long as its maximum width. Vein r3 2.1 times as long as veins r1 + r2. Nervulus weakly postfurcal. Brachial cell closed, short, widened apically, 3.2 times as long as its maximum width.

Hind wing 6.5 times as long as its maximum width.

Legs (Fig. 47). Hind femur 3.75 times as long as its maximum width. Hind tibia weakly widened towards apex, about 11.8 times as long as its maximum subapical width, 1.1 times as long as hind tarsus. First segment of hind tarsus 1.85 times as long as second segment.

Metasoma (Fig. 47) distinctly compressed. First tergite (Fig. 46) mainly smooth, very finely striate

apically, weakly widened towards apex, twice as long as its apical width.

Colour. Body and legs brown to dark brown. Wings hyaline. Pterostigma brown.

Body length 1.5 mm; forewing length 2.05 mm.

Female (original description in Fischer 1993). Body length 1.5 mm. Antenna 19-segmented. First flagellar segment 4.0 times as long its maximum width. Mandible 1.3 times as long as wide. Hind femur 3.75 times as long as its maximum width. Face 1.66 times as long as high.

Diagnosis

According to the key by Peris-Felipo *et al.* (2012), *A. claricornis* is similar morphologically to *A. propoglabra* (Fischer, 1993) but differs in having the middle flagellar segments 2.5 times as long as their maximum width (2.0 times in *A. propoglabra*), hind femur 4.5 times as long as its maximum width (4.0 times in *A. propoglabra*), mesoscutal pit elongate (rounded in *A. propoglabra*), and the first metasomal tergite 2.0 times as long as its apical width (2.2 times in *A. propoglabra*).

Adelphenaldis subsurrectionis (Fischer,

2003), Figs 49-60

Synaldis subsurrectionis Fischer, 2003: 51

Adelphenaldis subsurrectionis Papp 2007: 15; Peris-Felipo *et al.* 2012: 296; Yu *et al.* 2012.

Material examined. 2^Q, South Africa, Cape Province, Somerset East, October 1930, Brit. Mus. 1930–561 (R.E. Turner leg.) (BMNH).

Description

Female (first record) (Fig. 49).

Head (Figs 50, 53) entirely smooth; in dorsal view 1.5 times as wide as median length, 1.6 times as wide as mesoscutum, with rounded temples behind eye. Eye in lateral view 1.5 times as high as wide and 1.2 times as wide as temple medially. POL 1.6 times OD; OOL 3.25 times OD. Face 1.65 times as wide as high; inner margins of eyes subparallel. Clypeus slightly curved ventrally, 3.25 times as wide as high. Mandible (Fig. 51) widened towards apex, 1.10–1.15 times as long as its maximum width. Upper tooth of mandible shorter than lower tooth; middle tooth wide basally and narrowed towards apex, rounded apically; lower tooth rounded apically. Antenna (Figs 52, 53) thick, 14-segmented. Scape 2.1 times as long as pedicel. First flagellar segment 2.5 times as long as its apical width, as long as second segment; second segment 2.2 times as long as its maximum width. Third to fourth flagellar segments 2.1–2.3 times, fifth to eleventh segments 1.7–1.8 times and twelfth segment 2.2 times as long as their maximum width respectively.

Mesosoma (Fig. 55) 1.2 times as long as high (lateral view). Mesoscutum (Fig. 56) 0.95 times as long as maximum width. Notauli developed in anterior quarter only, mainly absent on horizontal surface of mesoscutum. Mesoscutal pit absent. Prescutellar depression smooth, with two lateral carinae. Precoxal suture present, not reaching anterior and posterior margins of mesopleuron. Posterior mesopleural furrow entirely smooth. Propodeum (Fig. 57) smooth, with complete median longitudinal carina crossing from anterior to posterior margins. Propodeal sides with notches. Propodeal spiracle relatively small, 0.45 times as long as distance between spiracle and apical margin of propodeum.

Wings (Fig. 60). Length of forewing 2.9 times its maximum width. Radial cell reaching apex of wing, 4.75 times as long as its maximum width. Vein r3 2.15 times as long as veins r1 + r2. Nervulus weakly postfurcal. Brachial cell closed, short, widened apically, 3.6 times as long as its maximum width. Hind wing 6.9 times as long as its maximum width.

Legs (Fig. 59). Hind femur 3.25 times as long as its maximum width. Hind tibia weakly widened towards apex, about 8.5 times as long as its maximum subapical width, 1.1 times as long as hind tarsus. First segment of hind tarsus twice as long as second segment.

Metasoma (Fig. 59) distinctly compressed. First tergite (Fig. 58) mainly smooth, very finely striate apically, weakly widened towards apex, 2.1 times as long as its apical width. Ovipositor 1.4 times as long as first tergite, distinctly shorter than metasoma, as long as hind femur.

Colour. Body and legs brown to dark brown. Wings hyaline. Pterostigma brown.

Body length 1.65 mm; forewing length 1.7 mm.

Variation. Body length 1.65–1.70 mm; forewing length 1.7 mm. Mandible 1.10–1.15 times as long as its maximum width. Mesoscutum 0.90–0.95 times as long as maximum width.

Male (see Fischer 2003 for description of male). Body length 1.5 mm. Antenna 18-segmented. First flagellar segment 3.0 times as long its maximum width. Hind femur 3.5 times as long as its maximum width. First metasomal tergite 2.5 times as long as its apical width. Face 1.75 times as long as high.



Figs 49–54. Adelphenaldis subsurrectionis (female). 49, Habitus, lateral view. 50, Head, lateral view. 51, Mandible. 52, Antenna. 53, Basal segments of antenna. 54, Head, dorsal view.

Diagnosis

According to the key by Peris-Felipo *et al.* (2012), *A. subsurrectionis* is similar to *A. resurrectionis* (Fischer, 1993) but differs from it in having the mandible almost as long as wide (1.25 times in *A. resurrectionis*), propodeum with notches (without notches in *A. resurrectionis*), propodeal spiracle relatively small (large in *A. resurrectionis*), and upper tooth of mandible with curved carina (without carina in *A. resurrectionis*).

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Figs 55–60. Adelphenaldis subsurrectionis (female). 55, Mesosoma, lateral view. 56, Mesonotum. 57, Propodeum. 58, First metasomal tergite. 59, Mid and hind legs, metasoma, ovipositor, lateral view. 60, Forewing.

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