

## Two new *Epidapus* species from the Seychelles islands (Diptera: Sciaridae)

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### INTRODUCTION

The dipterous family Sciaridae (Black Fungus Gnats) is found on every continent and is characterised by its large number of species and individuals. Despite their ecological importance, these micro-Diptera have been largely neglected because of their small body-size (usually 0.7-15 mm in tropical regions), their often cryptic lifestyle and the difficulties involved with their identification.

According to a species inventory, more than 2,400 valid sciarid species have been described worldwide (Menzel & Mohrig (2000) and subsequent publications). Very little is known about the Sciarid fauna of the Seychelles islands. Only 12 species have been previously recorded from Seychelles, described by Enderlein (1911, 1912) and Kieffer (1912) in the genera *Sciara* Meigen (8 species), *Ceratiosciara* Enderlein (1), *Amesicrium* Enderlein (1), *Psectrosciara* Kieffer (1) and *Scythropochroa* Enderlein (1). Of those, *Amesicrium nanum* Enderlein, 1911 (Cecidomyiidae) and *Psectrosciara mahensis* Kieffer, 1912 (Scatopsidae) did not belong to the family Sciaridae.

To date, 69 species belong to the genus *Epidapus* Haliday worldwide, of which 56 are recent, 12 are fossil and 1 are fossil and recent species. They are distributed in the subgenera *Cornepidapus* Menzel & Mohrig, 2000 (2 species), *Epidapus* Haliday, 1851 s.str. (35), *Macrotarsus* Mohrig, 2004 (4), *Pseudoaptanogyna* Vimmer, 1926 (22), *Pseudoepidapus* Mohrig, 1982 (2) and 4 species where the subgenus if not known. *Epidapus pallidus* (Séguy, 1961), that was described by Séguy as *Afrosciara pallida* and combined by Menzel & Heller (2007) in the subgenus *Pseudoaptanogyna* is also included therein. *Epidapus pallida* and the two new *Epidapus* species were collected during the project "Indian Ocean Biodiversity Assessment 2000-2005" of the Nature Protection Trust of Seychelles. Thus there are now 3 *Epidapus* species known from Seychelles. The new species are described and figured in detail in this publication.

All specimens were prepared as permanent mounts for microscopic examination using Canada balsam as mountant. They are deposited in the collections of Deutsches Entomologisches Institut, ZALF e.V., Müncheberg, Germany, and the University Museum of Zoology, Cambridge, UK. The morphology of the adults and the terminology (naming and description of characteristics of Sciaridae, technical terms) comply with Menzel & Mohrig (1997, 2000).

## SPECIES DESCRIPTIONS

### *Epidapus (Epidapus) gracilipes* Menzel spec. nov. (Figs 1-4)

Type locality. North Island (Seychelles).

Type material. Holotype: male, on *Lantana camara*, Malaise trap, 30.7.-1.8.2000, leg. J. Gerlach. Paratypes: 1 male, same data as holotype; 4 males, Silhouette, Mon Plaisir (Seychelles), Malaise trap, 8.7.-6.8.2000, leg. Gerlach.

Location of types. Holotype in the collection of German Entomological Institute, Müncheberg, Germany. Paratypes in the collections of German Entomological Institute, Müncheberg (3 males) and University Museum of Zoology, Cambridge, UK (2 males).

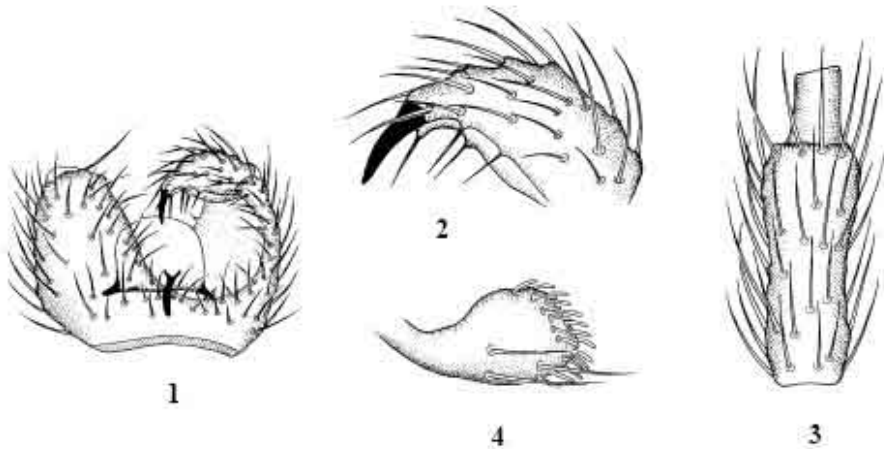
Etymology. The new species was given the name “gracilipes” on the basis of distinctly narrow and long legs (latin: gracilis = narrow, dainty; pes = leg).

Description. Male (colour of specimens bleached by preservative): Eyebridge complete, 2 facets wide (sometimes also 3 facets wide in middle). Antennae long; basal segments of antennae spherical and brown; 4th flagellomere 3.2 to 3.5 times as long as wide; setae of antennae very coarse, strongly curved so lying almost parallel to surface and brown; setae longer than segment width; basal part about 2.5 times as long as wide and without sensillae; necks of flagellomeres unicolorous pale brown, sharply connected and distinctly attenuated; neck of 4th flagellomere, 1.3 to 1.5 times longer than width of base and about 1/3 length of segment. Prefrons with 4 to 7 coarse setae. Forehead with 4 to 8 long, strong setae. Labrum and labellum distinctly reduced. Palpi small, with 1 segment and pale brown; basal segment very short, ovoid and with 3 to 4 setae; sensory area without margin and either at side or at apex; sensillae long and curved. Thorax narrow, flat and pale brown. Postpronotum bare. Anteppronotum with only 1 coarse bristle (rarely with 2) on each side. Mesonotum yellow, only marginal part slightly brown; setae of mesonotum sparse, coarse and brown with only 5 to 8 lateral setae. Scutellum well differentiated, with some short setae and 2 long, strong, marginal setae. Katapisternum attenuated wedge shaped (foreleg widely separated from p2/p3). Mediotergite distinctly tapered and with smaller bristle group (3 to 4 bristles). Postthoracic episternum without bristles. Coxae and legs narrow and yellow (slightly smokey due to fine microtrichia); femur of foreleg narrow and not swollen; foretibia without spines among setae; apex of foretibia with sparse patch of bristles without margin (without diagnostic difference from other tibial setae); all tibial spurs short, pen-like and narrow; one spur on each of p2 and p3 distinctly reduced; tibia of p3 without posterodorsal row of spines; apex of tibia of p3 without cirlet of spines; tarsal segments not flattened or keel shaped. Claws without teeth, narrow and slightly curved. Wings pale; base of wings wedge shaped, with distinctly reduced anal area; posterior wing veins very weak (not distinct); wing membrane and posterior wing veins without macrotrichia; x distinctly longer than y, both bare; M-stem very weak and longer than M-fork; M-fork short and triangular and widely divergent; R, R1 and R5 with weak, dorsal macrotrichia; R with 3 macrotrichia; R1 without or with 1 to 2 macrotrichia; R5 with weak, sparse macrotrichia (9 to 12 macrotrichia over entire length); R1 very short, merging with c well before base of M-fork;  $R1 = 0.4 \text{ to } 0.5 R$ ;  $C = 3/4 w$  (M-stem, CuA-stem and x-y index on pale and damaged

wings not visible). Halteres pale with long stalk; haltere-head index = 2.6 to 2.9; haltere head short, with a reduced row of bristles (bare or with 1 to 5 bristles). Abdomen yellow-brown, with sparse, finer, shorter and paler setae. Hypopygium wider than high and pale brown; gonocoxites with coarse, long bristles; ventral base of genitalia without basal lobe or group of bristles; inner side of gonocoxites with very long setae; gonostyles triangular and tapered, pointed at apex and short (about 1.8 times as long as wide); apex of gonostyles slightly curved inwards and downwards, narrow apical tooth on lobe in attenuation of outer side of gonostyles without central process; inner side of gonostyles slightly emarginated with 3 to 4 coarse setae as far as middle (all shorter than tooth; only 1 bristle at base of tooth on higher socket and hyaline, similar to a spine); setae on apex of gonostyles sparse, coarse and long. Tergite IX trapezoid with widespread coarse bristles. Tegmen membranous, wider than high and with very short basal process; apex of tegmen high and rounded; area of teeth in specimen not identifiable. Aedeagus short and strong, with funnel shaped, flat and weakly sclerotised base. Size: 0.8-1.0 mm.

Female: Unknown.

Remarks. The new species is extremely narrow and dainty. It has similarities to *Epidapus strenuus* Mohrig, 2004 from Papua New Guinea and *Epidapus parvus* Mohrig, 1999 from New Zealand (Mohrig & Jaschhof 1999, Mohrig 2004). It differs from both species in the following characteristics: thorax very flat and attenuated; coxae and legs very narrow; legs long; all tibiae without spines among setae, posterodorsal row of spines on posterior tibia missing; flagellomeres distinctly longer (more than 3 times as long as wide), with longer necks and dense setae; katapisternum flat and distinctly backwards pointing; tegmen high; apex of gonostyles curved under with apical tooth on lobe; inner side of gonostyles without hyaline spines (with only 3 to 4 stronger and longer setae).



**Figs 1-4.** *Epidapus gracilipes* Menzel, male. 1) hypopygium (ventral view). 2) gonostyle (ventral view). 3) 4th flagellomere. 4) palpus (lateral view).

*Epidapus (Macrotarsus) nanus* Menzel spec. nov.

(Figs 5-10)

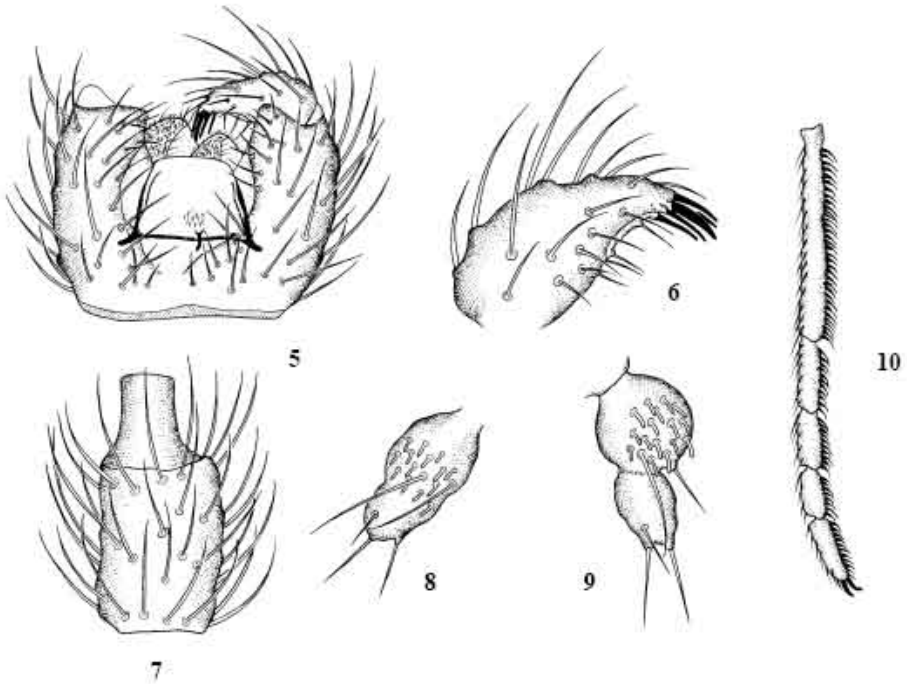
Type locality. North Island (Seychelles).

Type material. Holotype: male, on *Lantana camara*, Malaise trap (M11), 30.7.-1.8.2000, leg. J. Gerlach. Paratypes: 1 male, same data as holotype; 4 males, Silhouette, Mon Plaisir (Seychelles), Malaise trap (M6), 8.7.-6.8.2000, leg. Gerlach.

Location of types. Holotype in the collection of German Entomological Institute, Müncheberg, Germany. Paratypes in the collections of German Entomological Institute, Müncheberg (3 males) and University Museum of Zoology, Cambridge, UK (2 males). Etymology. The name describes the small size of the species (latin: nanus = diminutive).

Description. Male (colour of specimens bleached by preservative): Eyebridge complete, 2 to 3 facets wide. Antennae short; basal segment of antennae spherical and dark; 4th flagellomere, 1.9 to 2.1 times as long as wide; setae of antennae coarse, long, erect and dark brown, slightly longer than segment width; basal part rough, about 1.5 times as long as wide and without sensillae; necks of flagellomeres unicolorous brown, sharply connected and slightly attenuated (neck of 4th flagellomere only 1.1 times as long as width of base; neck of 6th flagellomere distinctly longer and narrower); neck of 4th flagellomere 0.5 to 0.6 times length of basal part. Prefrons with 4 to 5 coarse and distinctly long setae. Forehead bare or with only 1 fine bristle. Labrum and labellum distinctly reduced. Palpi small, pale brown with distinct tendency to reduction to 1 segment (if 2 segments, then apical segment only small and slight and partially fused to basal segment); basal segment very short and spherical with 1 to 2 setae, 2nd segment with 2 to 3 setae (if palpi with 1 segment, then with 4 to 6 setae); sensory area very small, without margin and at side; sensillae short and fine. Thorax brown, yellow laterally. Postpronotum bare. Anteppronotum with only 2 to 3 coarse lateral setae. Mesonotum yellow-brown, only marginal parts slightly darker; setae on mesonotum coarse and dark brown with some stronger lateral setae. Scutellum flat and poorly differentiated with some short setae and 2 long, strong marginal setae. Katepisternum elongated wedge shape (foreleg widely separate from p2/p3). Mediotergite with smaller group of bristles (3 to 4 bristles). Posterior episternum without bristles (with 1 small bristle in only one specimen). Coxae and legs strong and yellowish (slightly smokey due to fine microtrichia); femur of foreleg not distinctly swollen; foretibia without spines among setae, but usually with 2 to 4 stronger setae; apex of foretibia with sparse patch of bristles without margin (setae on apex of tibia only slightly coarser and longer); tibial spurs narrow, pen-like and relatively long; one spur on each of p2 and p3 distinctly reduced; tibia of p3 with weak posterodorsal row of coarser, darker spines; apex of tibia of p3 without circlet of spines; all tarsal segments flattened, keel shaped and with a dense, coarse row of setae. Claws without teeth, narrow and slightly curved. Wings wide and relatively short; base of wings only slightly tapered, with relatively well developed anal area; all posterior wing veins very weak (not distinct); wing membrane slightly smokey due to dense microtrichia; wing membrane and posterior wing veins without macrotrichia;  $x = 1.0$  to  $1.4 y$ , both bare; CuA-stem weak, about  $1/3 x$ ; M-fork narrow; R, R1 and R5 with only dorsal macrotrichia; R with 5 to 7 macrotrichia; R1 with 2 to 3 macrotrichia; entire

length of R5 with dense macrotrichia (15 to 17 macrotrichia); R1 very short merging with c well before base of M-fork;  $R1 = 0.7 R$ ;  $C = 2/3 w$  (M-stem and area of M-fork on damaged wings not recognisable). Halteres brown and short, with reduced stalk; haltere-head index = 2.0 to 2.3; head with 1 to 2 rows of bristles (6 to 10 bristles). Abdomen pale brown with finer and darker setae. Hypopygium wider than high and pale brown; gonocoxites and gonostyles with coarse, long bristles; ventral base of genitalia without basal lobe or group of bristles; inner side of gonocoxites with very long setae; gonostyles short, triangular and distinctly tapered (about 1.8 times as long as width of base); apex of gonostyles with sparse bristles and, in attenuation of outer side, with a narrow tooth without central process, with 4 hyaline spines near tooth (1 spine above, 2 spines adjacent and 1 spine below tooth; all spines at most as long as tooth); upper half of inner side of gonostyles with slight emargination and short setae; tergite IX short, trapezoid with widespread long, strong bristles. Tegmen membranous, only slightly wider than high and trapezoid; apex of tegmen highly arched, flattened and without central process; basal structure very short; area of teeth very small with fine, single tipped teeth (not identifiable in some specimens). Aedeagus short, with flat, funnel-like and weakly sclerotised base. Size: 0.8-1.0 mm.  
 Female: Unknown.



Figs 5-10. *Epidapus nanus* Menzel, male. 5) hypopygium (ventral view). 6) gonostyle (ventral view). 7) 4th flagellomere. Figs 8-9, one- and two-segmented palpus (lateral view). 8) tarsal segments of hind leg (lateral view).

Remarks. *Epidapus nanus* is close to *Epidapus primus* Mohrig, 2004 from Papua New Guinea (Mohrig 2004). Both have keel-like tarsal segments on p1 to p3 and short and triangular gonostyles with a narrow tooth on apex. There is no identifiable difference in antennal structure. In contrast to the new species, *E. primus* Mohrig is distinctly larger (= 1.8 mm). Also, the eyebridge of *E. primus* Mohrig is 4 facets wide, the palpi have more segments (2 or 3 distinct segments), there is a much denser patch of bristles on apex of foretibia, stronger keel and lobe shaped tarsal segments and narrower gonostyles with 2 hyaline spines. *Epidapus nanus* has a narrower eyebridge, more distinctly reduced (usually 1 segment) palpi, a sparse patch of bristles on foretibia, a trapezoid tegmen as well as shorter, more compact gonostyles with 4 hyaline spines.

#### ACKNOWLEDGEMENTS

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