

A new species of *Chalcochiton* (Diptera: Bombyliidae) from Morocco

Jozef Dils

Abstract. *Chalcochiton maghrebi* sp. n. is described from Morocco. The new species is compared with the West Palaearctic *Chalcochiton* species known from Morocco: *C. maroccanus* Zaitzev, 2006, *C. merlei* Zaitzev, 2006, *C. atlantica* Dils, 2008 and especially with *C. holosericeus* (Fabricius, 1794) which the new species resembles most.

Samenvatting. *Chalcochiton maghrebi* sp. n. wordt uit Marokko beschreven. De nieuwe soort wordt vergeleken met de West-Palaeartische *Chalcochiton*-soorten bekend uit Marokko: *C. maroccanus* Zaitzev, 2006, *C. merlei* Zaitzev, 2006, *C. atlantica* Dils, 2008, maar vooral met *C. holosericeus* (Fabricius, 1794) die het meest op de nieuwe soort lijkt.

Résumé. *Chalcochiton maghrebi* sp. n. est décrite du Maroc. Cette nouvelle espèce est comparée avec les espèces de *Chalcochiton* paléarctiques occidentales connues du Maroc : *C. maroccanus* Zaitzev, 2006, *C. merlei* Zaitzev, 2006, *C. atlantica* Dils, 2008 et surtout avec *C. holosericeus* (Fabricius, 1794) qui ressemble le plus à la nouvelle espèce.

Key words: *Chalcochiton maghrebi* – New species – Morocco.

Dils J.: Krekelberg 149, 2940 Hoevenen. jozef.dils@telenet.be

Introduction

The genus *Chalcochiton* Loew, 1844, formerly considered a subgenus of the large genus *Cytherea* Fabricius, 1794, but treated now as a separate genus (Evenhuis & Greathead 1999), is restricted to the Palaearctic region and contains 11 species (Zaitzev 2006).

In the European fauna three species of *Chalcochiton* are recognised: *C. holosericeus* (Fabricius, 1794), *C. pallasii* (Loew, 1856) and *C. hispanicus* Zaitzev, 2006. *C. semiargyra* (Strobl, 1906), mentioned in Fauna Europaea (Greathead 2013) actually belongs to the genus *Cytherea* (see Evenhuis & Greathead 1999). According to Greathead (2013) these species are distributed as follows: *C. holosericeus*: Corsica, Croatia, France, Italy, Sardinia, Sicily, Spain, outside Europe in North Africa, the Near East, East Palaearctic; *C. pallasii*: Bulgaria, Greece (also N Aegean Islands), Italy, Macedonia, S European Russia, outside Europe in the Near East; *C. hispanicus*: Spain. Thus far, four *Chalcochiton* species have been mentioned from the Moroccan fauna: *C. holosericeus* (see Evenhuis & Greathead 1999), *C. maroccanus* Zaitzev, 2006, *C. merlei* Zaitzev, 2006, and *C. atlantica* Dils, 2008, the latter three described from Morocco.

During all our collecting trips to Morocco (2005–2016), in a great number of localities we found several *Chalcochiton* specimens, of which the males very closely resembled *C. holosericeus*, but we never found a typical *C. holosericeus* (Fig. 12) specimen amongst them. We have also observed female specimens in copula with those males, and these were very different from the females known as *C. holosericeus*. Of course this doesn't mean that *C. holosericeus* does not occur in Morocco, but we failed to discover that species.

After having dissected the genitalia of *C. holosericeus* males from Sardinia and the genitalia of specimens from Morocco, we concluded that the genitalia characters do not show significant diagnostic differences in this group. On the contrary, the differences in external characters are obvious and seem to be diagnostic to separate the two species. The differences in habitus of both species

are constant and, in a blind test, we could easily separate the *C. holosericeus* specimens from Sardinia, from those of Morocco. For this reason, we started to examine them closer and found minor, but constant differences in the males while the females seem to be more suitable for the diagnosis of the two taxa. We concluded that we deal with two separate but allied species and the *Chalcochiton* specimens from Morocco belong to a new species, which is described hereafter.

Chalcochiton maghrebi sp. n.

Material examined:

Please notice that not all co-ordinates are written in the same Lat/Lon format. The used Lat/Lon formats are Hddd.ddddd; Hddd.mm.mmm and Hddd mm ss.s depending on the format printed on the labels of the specimens.

Holotype ♂: Morocco, Agadir, Temsia, 17-03-2009, N30°21'13.8" W9°23'47.9", 60 m, leg. Dils-Faes.

Allotype ♀: Morocco, Taroudant, Tafinegoult, 21-03-2011, N30.73406 W8.43095, 300 m, leg. Dils-Faes.

Paratypes:

6♂ 16♀, Morocco, Agadir, Temsia, 17-03-2009, N30°21'13.8" W9°23'47.9", 60 m, leg. Dils-Faes.

2♂, Morocco, Beni Mellal, Naour, 23-04-2008, N32°28'42.3" W5°58'56.7", 1100 m, leg. Dils-Faes.

2♀, Morocco, Agadir, Imsouane, 09-04-2009, N30°53'9" W9°46'49.4", 270 m, leg. Dils-Faes.

2♀, Morocco, Taroudant, Tizi-n-Test, 29-03-2006, N30°45'14.8" W8°48'50.9", 700 m, leg. Dils-Faes.

6♂ 1♀, Morocco, Tiznit, 11 km N of Guelmim, 13-03-2009, N29°8'26.4" W10°5'48.2", 400 m, leg. Dils-Faes.

1♂, Morocco, Ouarzazate, Agouim, 18-04-2008, N31°9'6" W7°26'36.5", 1700 m, leg. Dils-Faes.

2♂, Morocco, Es Semara, Mesti, 09-04-2008, N29°16'3.8" W10°7'63.8", 250 m, leg. Dils-Faes.

1♂, Morocco, Ben Slimane, Sidi Betache, 04-05-2010, N33°34.795' W6°64.984', 400 m, leg. Dils-Faes.

3♂ 7♀, Morocco, Tiznit, Sidi Ifni, 16-03-2009, N29°26'40.2" W10°6'24.7", 100 m, leg. Dils-Faes.

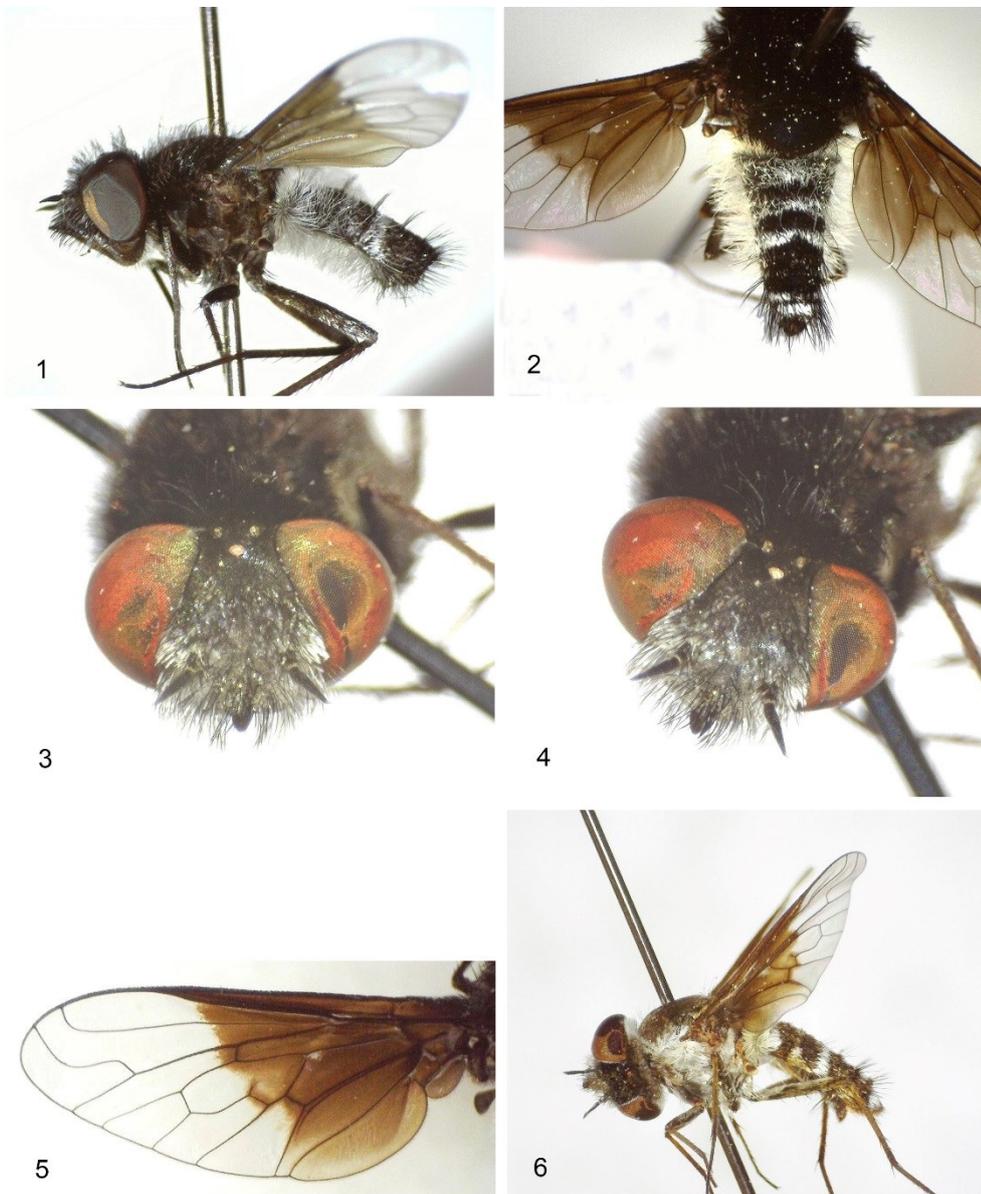
3♂, Morocco, Tiznit, 27 km E of Tiznit, 16-03-2009, N29°37'10.9" W9°57'4.7", 125 m, leg. Dils-Faes.

2♂ 1♀, Morocco, Agadir, Temsia, 06-04-2009, N30°20'37" W9°23'49", 70 m, leg. Dils-Faes.

2♂, Morocco, Azilal, Azilal, 11-04-2010, N31°57.138' W6°33.336', 1400 m, leg. Dils-Faes.

- 19♂, Morocco, Casablanca, Mansouria, 05-05-2010, N33°47.361' W7°13.476', 25 m, leg. Dils-Faes.
 1♂, Morocco, Marakech, Asni, 12-04-2010, N31°12.918' W8°02.225, 1000 m, leg. Dils-Faes.
 1♂ 2♀, Morocco, Tiznit, Mesti, 23-03-2006, N29°16'29.1" W10°8'22.1", 280 m, leg. Dils-Faes.
 1♂, Morocco, Agadir, imsouane, 28-03-2010, N30°53.161' W9°46.817', 270 m, leg. Dils-Faes.
 3♂, Morocco, Rommani, Merchouch, 04-05-2010, N33°34.118 W6°45.196', 400 m, leg. Dils-Faes.
 2♂, Morocco, Beni Slimane, SE Beni Slimane R404, 15-04-2006, N33°32'19.6" W6°58'23.8", 330 m, leg. Dils-Faes.
 1♂, Morocco, Tafraout, Tizi Mlil, 13-04-2008, N29°44'1" W8°50'17.2", 1650 m, leg. Dils-Faes.
 1♂, Morocco, Taroudant, Tafinegoult, 21-03-2011, N30.73406 W8.43095, 700 m, leg. Dils-Faes.
 3♂, Morocco, Ouarzazate, Tizi-n-Tiniffitt, 15-04-2010, N30°42.868' W6°34.326', 1500 m, leg. Dils-Faes.
 1♂, Morocco, Agadir, Tioulit, 27-03-2008, N29°53'28" W9°00'0.2", 1200 m, leg. Dils-Faes.
 2♂, Morocco, Oujda, El Aioun, 24-04-2010, N34°35.065 W2°25.680, 600 m, leg. Dils-Faes.

- 4♂, Morocco, Beni Melal, El Ksiba, 23-04-2006, N32°34'34.3" W6°3'2", 870 m, leg. Dils-Faes.
 6♂ 10♀, Morocco, Tiznit, El Mrabtine, 22-03-2006, N29°20'6.1" W10°8'18.4", 70 m, leg. Dils-Faes.
 9♂, Morocco, Fez, 10 km SE Bir Tamtam, 28-04-2008, N33°55'8.9" W4°34'8.6", 700 m, leg. Dils-Faes.
 2♂, Morocco, Fez, 27 km E Bir Tamtam, 27-04-2008, N34°8.053' W4°29.524', 500 m, leg. Dils-Faes.
 2♂, Morocco, Tanger-Tetouane, Souk-El-Kolla, 21-05-2012, N35.04661 W5.56461, 150 m, leg. Dils-Faes.
 5♂, Morocco, Tanger-Tetouane, Bab Taza, 24-05-2012, N35.10277 W5.27766, 375 m, leg. Dils-Faes.
 4♂, Morocco, Taza-Al Hoceima, 10 km S of Mjara, 13-05-2012, N34.51643 W5.24864, 80 m, leg. Dils-Faes.
 1♀, Morocco, Khemmiset Province, Merchouch, 07-05-2016, N33.56868 W6.75331, 400 m, leg. Dils-Faes.
 2♂, Morocco, Meknes-Tafilalet, Mrirt, 08-05-2012, N33.31226 W5.47106, 1000 m, leg. Dils-Faes.
 2♂, Morocco, Meknes-Tafilalet, Fes, 13-05-2012, N34.11562 W5.01214, 650 m, leg. Dils-Faes.



Figs 1–6. *Chalcochiton maghrebi* sp. n.

1. Holotype ♂, lateral view.
 2. Holotype ♂, dorsal view.
 3. Holotype ♂, head, dorsal view.
 4. Holotype ♂, head, dorsal view.
 5. Holotype ♂, wing.
 6. Allotype ♀, lateral view.

Description

Abbreviations:

T = tergite; ST = sternite

Male (Fig. 1):

Measurements: head width 2.9 mm, frons width 0.7 mm, side ocellus separated from eye margin 0.1 mm, flagellum 0.6 mm, pedicel 0.1 mm, scape 0.1 mm.

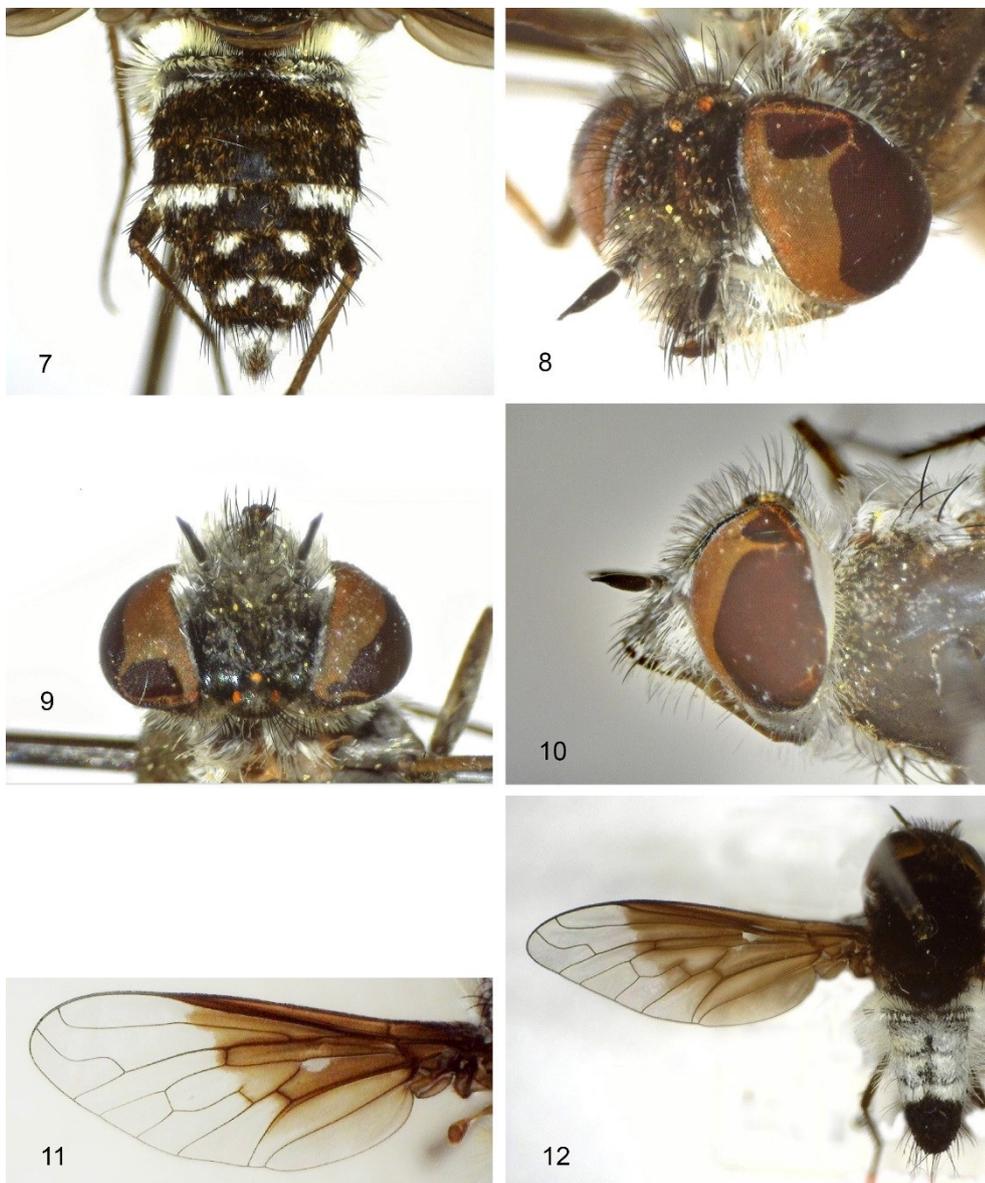
Head (Figs 3, 4): frons with vertical frontal depression. Ground colour black, all hairs black, small iridising scales spread on frons and face, some long white scales on face along eye margin and clypeus. Scape and pedicel with black setae, flagellum ventral with minute white hairs. Occiput with black hairs and postgena with brown hairs.

Thorax (Fig. 2): velvety black, no small iridising scales, all hairs and setae black except for white scales on prosternum. The black hairs become, depending on the illumination angle of your light source, a brownish tinge. Scutellum dull black, with long black hairs.

Abdomen (Fig. 2): T1 with erect white hairs, T2 white hairs and occasionally black setae on posterior edge, T3 to T7 black setae at posterior margins. T2 to T7 with black scales. T2,3 and 4 anteriorly with white scales, leaving a black posterodorsal triangle free. T6 occasionally and T7 with white scales on posterior margin. ST1 to ST4 with white hairs and scales, ST5 and 6 with back hairs and scattered white scales, ST7 also with white scales on posterior edge.

Wings (Fig. 5): squama dark brown with brown fringes. Vein r-m in the middle of discal cell. m-m vein with inwardly directed appendix. Basal 2/3 of the wing with brown pattern with sharply defined edges, extending from the apex of vein r1 through vein r-m, the basal half of discal cell, enclosing vein m-cu to the apex of anal cell. Halteres dark brown.

Legs: black, coxae with white scales and black setae, femora with fine black hairs and scales, hind legs ventrally with some black setae, tibia and tarsi with spines and fine black scales, pulvilli as long as claws.



Figs 7–11. *Chalcochiton maghrebi* sp. n.

7. Allotype ♀, dorsal view.

8. Allotype ♀, head, dorsal view.

9. Allotype ♀, head, dorsal view.

10. Allotype ♀, head, lateral view.

11. Allotype ♀, wing.

12. *C. holosericeus* ♂, dorsal view.

Female (Fig. 6):

Measurements: head width 2.9 mm, frons width 1.0 mm, side ocellus separated from eye margin 0,3 mm, flagellum 0.5 mm, pedicel 0.1 mm, scape 0.1 mm.

Head (Figs 8–10): ground colour black. Forehead with vertical frontal depression. Small iridising scales spread on frons and clypeus. Black erect hairs descending, between the antennae, to the clypeus, reaching the buccal cavity. Sides of clypeus and inner eye margin with white hairs and scales. Small tufts of white scales near the eye margin at the level of the antennae. Occiput brownish dusted, with white hairs and small iridising scales. A few black hairs along upper eye margin. Scape with black setae and white scales, pedicel with few black hairs and flagellum ventral with minute white hairs.



Fig. 13. *Chalcochiton holosericeus* (Fabricius, 1794) ♀.

Thorax: mesonotum and scutellum black with a more or less reflective surface, black hairs and iridising short scales. White scales from humeral callus as far as transverse suture. Mesopleuron, sternopleuron, metapleuron lateral lobe and mesopleuron with white hairs and scales.

Abdomen (Fig. 7): T1 with white erect hairs and white scales on the posterior edge, in the centre of the tergite

some brown scales and hairs. On T2 to T6, all posterior erect hairs black, and with decumbent black and brown scales. T2, T3 and T4 at anterior sides, T5 and T6 near the middle with spots of white scales. T7 with white scales and posteriorly placed black hairs. Sternites 1 to 4 with white hairs and scales. ST5, 6 and 7 with black hairs and black and brown scales.

Wings (Fig. 11): squama dark brown with white fringes. The brown infuscation isn't as dark as in the male and let the anal lobe clear. Stem of halteres somewhat lighter brown and paler brown capitulum.

Legs: coxae black with white scales and setae. Femur3 ventrally with some black setae, tibia and tarsi with spines and fine brownish scales, pulvilli as long as claws.

Diagnosis

The new species is most closely related to *Chalcochiton holosericeus* (Fabricius, 1794), but clearly differs from it in the following characters: white scales on the abdomen don't cover the entire surface of tergites 2, 3 and 4, they always leave a black triangle free.

The most characteristic distinctive feature of the new species are in the female, with the presence of small brown scales on the abdomen and two spots of white scales along the midline of tergites 5 and 6.

The new species described by Zaitsev (2006) from Morocco, *C. maroccanus* Zaitsev, 2006 and *C. merlei* Zaitsev, 2006, are lacking the brown scales and the two large spots of white scales on T4, not reaching the midline of the tergite. The tergites of *C. atlantica* Dils, 2008 do not have any white hairs.

Acknowledgements

We would like to thank Dr Jurate De Prins, Willy De Prins and Guy Van de Weyer for commenting on an earlier draft of this paper.

References

- Dils J. 2008. A new species of *Chalcochiton* (Diptera: Bombyliidae) from Morocco. — *Phegea* **36**(1): 31–33.
- Evenhuis N. L. & Greathead D. J. 1999. *World catalog of bee flies (Diptera: Bombyliidae)*. — Backhuys, Leiden, xlviii + 756 pp.
- Greathead D. J. 2013 Fauna Europaea. Bombyliidae. — In: Pape T. & Beuk D. (Eds.), *Fauna Europaea. Diptera, Brachycera*. Version 2.6.2. — www.fauna-eu.org [accessed 14 January 2017].
- Zaitsev V. F. 2006. New species of the Genus *Chalcochiton* Loew (Diptera, Bombyliidae) from Spain and Morocco. — *Entomological Revue* **86**(6): 728–732.