



Discovery of a new species of *Lonchodryinus* from Madagascar (Hymenoptera, Dryinidae)

Massimo Olmi

Tropical Entomology Research Center, Viterbo, Italy.

✉ olmimassimo@gmail.com

 <http://orcid.org/0000-0001-5953-5075>

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ABSTRACT. A new species of pincer wasp, *Lonchodryinus ater* **sp. nov.** (Hymenoptera, Dryinidae) is described from Madagascar, Toliara province, Beza Mahafaly Reserve. The new species is close to *L. hovanus* Olmi, 2004. However, it is different because POL is about twice as long as OL; the mesoscutum is dull, very strongly punctate and sculptured by short irregular longitudinal keels; the paramere lacks a mosaic structure on the inner side (in *L. hovanus*, head with POL less than twice as long as OL; mesoscutum shiny, very strongly punctate, unsculptured among punctures; paramere with mosaic structure on the inner side). A new key to the males of the Afrotropical *Lonchodryinus* is presented.

Key words: Chrysoidea, Anteoninae, key, Toliara province, *Lonchodryinus hovanus*

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INTRODUCTION

Dryinidae (Hymenoptera, Chrysoidea) are commonly named “pincer wasps”, because most females have chelae used for capturing and restraining their hosts (Hemiptera, Auchenorrhyncha) (Olmi, 1984, 1994). Dryinidae from Madagascar are known mainly by the catalogue of Azevedo et al. (2010) and more recently by the monograph on the Afrotropical species published by Olmi et al. (2019). Hymenoptera fauna of Madagascar is now better known mainly thanks to the research campaign conducted by the California Academy of Sciences (CAS). Most results on Dryinidae were published in the monograph of Olmi et al. (2019). *Lonchodryinus* Kieffer, 1905, is one of the smallest genera of the subfamily Anteoninae. It includes 19 species at the world level (Olmi et al., 2019, 2021). Four of them are known from the Afrotropical region (Olmi et al., 2019). In 2022, further specimens of pincer wasps from Madagascar were sent to the author for identification. In this material, a specimen of *Lonchodryinus* is discovered as a new species, described herein.

MATERIAL AND METHODS

The description follows the morphological terminology of Olmi et al. (2019). The measurements reported are relative, except for the total length (head to metasomal tip, without antennae). Antennal proportions refer to the lengths of the relevant segments as proportions of each other, values rounded to the nearest whole number. The following abbreviations are used: POL, distance between the inner edges of the two lateral ocelli; OL, shortest distance between the edge of a lateral ocellus and the median ocellus; OOL, distance from the outer edge of a lateral ocellus to the compound eye; OPL, distance from the posterior edge of a lateral ocellus to the occipital carina; TL, distance from the posterior edge of the eye to the occipital carina. The term “disc of metapectal-propodeal complex” is

Corresponding author: Olmi, M., ✉ olmimassimo@gmail.com

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here used in the sense of Kawada et al. (2015) and Lanes et al. (2020). It corresponds to the term “dorsal surface of propodeum” sensu Olmi (1984) and Olmi et al. (2019). The term “propodeal declivity” sensu Kawada et al. (2015), used here, corresponds to the term “posterior surface of propodeum”, sensu Olmi (1984). The names of the veins of the fore wing are here used in the sense of Azevedo et al. (2018) and Lanes et al. (2020). The “stigmal vein” (sensu Olmi, 1984) is named here “second radial cross & radial sector (2r-rs&Rs)”.

The multifocal photos were taken using a mirrorless camera Sony Alpha 6100, with Canon bellows and three-way revolver for an optical microscope. The following objectives were used: Lomo 3.7 × 0.11 for magnifications from 20 to 50×; Zeiss semi-plan 6.3 × 0.11 for magnifications from 50 to 100×. Motorized focus managed by a Cognisys stackshot controller. Captured images were merged into a single in-focus image using ZereneStacker™ version 1.04. Plates were composed by Photoshop® CS6. The specimens studied in this paper are deposited in the collection of the California Academy of Sciences, San Francisco, USA (CAS).

RESULTS

Order Hymenoptera Linnaeus, 1758

Suborder Apocrita Gerstaecker, 1867

Superfamily Chrysidoidea Latreille, 1802

Family Dryinidae Haliday, 1833

Subfamily Anteoninae Perkins, 1912

Genus *Lonchodryinus* Kieffer, 1905

Lonchodryinus ater sp. nov. (Figs 1, 3)

<https://zoobank.org/urn:lsid:zoobank.org:act:347F37A4-84B1-4FAC-94D0-8CB480992879>

Diagnosis. Male of *Lonchodryinus* with POL about twice as long as OL (Fig. 1E); mesoscutum dull, very strongly punctate and sculptured by short irregular longitudinal keels (Fig. 1C); fore wing with distal part of 2r-rs&Rs vein much longer than proximal part (12:7) (Fig. 1A); pterostigma (Fig. 1A) less than four times as long as broad (15:4.5); paramere without mosaic structure on inner side (Fig. 3A).

Material examined. **Holotype** ♂: MADAGASCAR: Toliara Prov., Beza Mahafaly Reserve, parcelle I near research station, 23°41.19'S 44°35.46'E, 165 m, 8–15.II.2002, MT in dry deciduous forest, M.E. Irwin, F.D. Parker & R. Harin'Hala leg., MA-02-14A-15, 1♂ (CAS).

Description. **Male holotype** (Figs 1A, B). Macropterous (Figs 1A, B); length 2.6 mm. Head black, except mandible testaceous; antenna brown; mesosoma black; metasoma brown-black; fore and mid leg brown, except tibiae and tarsi yellow testaceous; hind leg brown, except tarsus testaceous. Antenna filiform, with setae shorter than breadth of antennomeres; antennomeres in the following proportions: 6:6:5:8:7:8:6:6:6:9+. Head (Fig. 1E) dull, strongly punctate and sculptured by short irregular longitudinal keels; vertex without two oblique keels from lateral ocelli to the occipital carina; clypeus strongly punctate, with anterior margin rounded, not bidentate; frontal line absent; occipital carina complete; POL = 11; OL = 5.5; OOL = 9; OPL = 8; TL = 7. Mesoscutum (Fig. 1C) dull, very strongly punctate and sculptured by short irregular longitudinal keels. Notauli incomplete, reaching approximately 0.5× length of mesoscutum. Mesoscutellum shiny, punctate, unsculptured among punctures. Metanotum dull, reticulate rugose. Metapectal-propodeal disc dull, reticulate rugose, without transverse posterior keel; propodeal declivity completely reticulate rugose, without longitudinal or transverse keels. Fore wing (Fig. 1A) hyaline, without dark transverse bands; distal part of 2r-rs&Rs vein much longer than proximal part (12:7). Pterostigma (Fig. 1A) less than four times as long as broad (15:4.5). Paramere (Fig. 3A) without distal inner process and mosaic structure on the inner side. Tibial spurs 1/1/2.

Female. Unknown.

Hosts. Unknown.

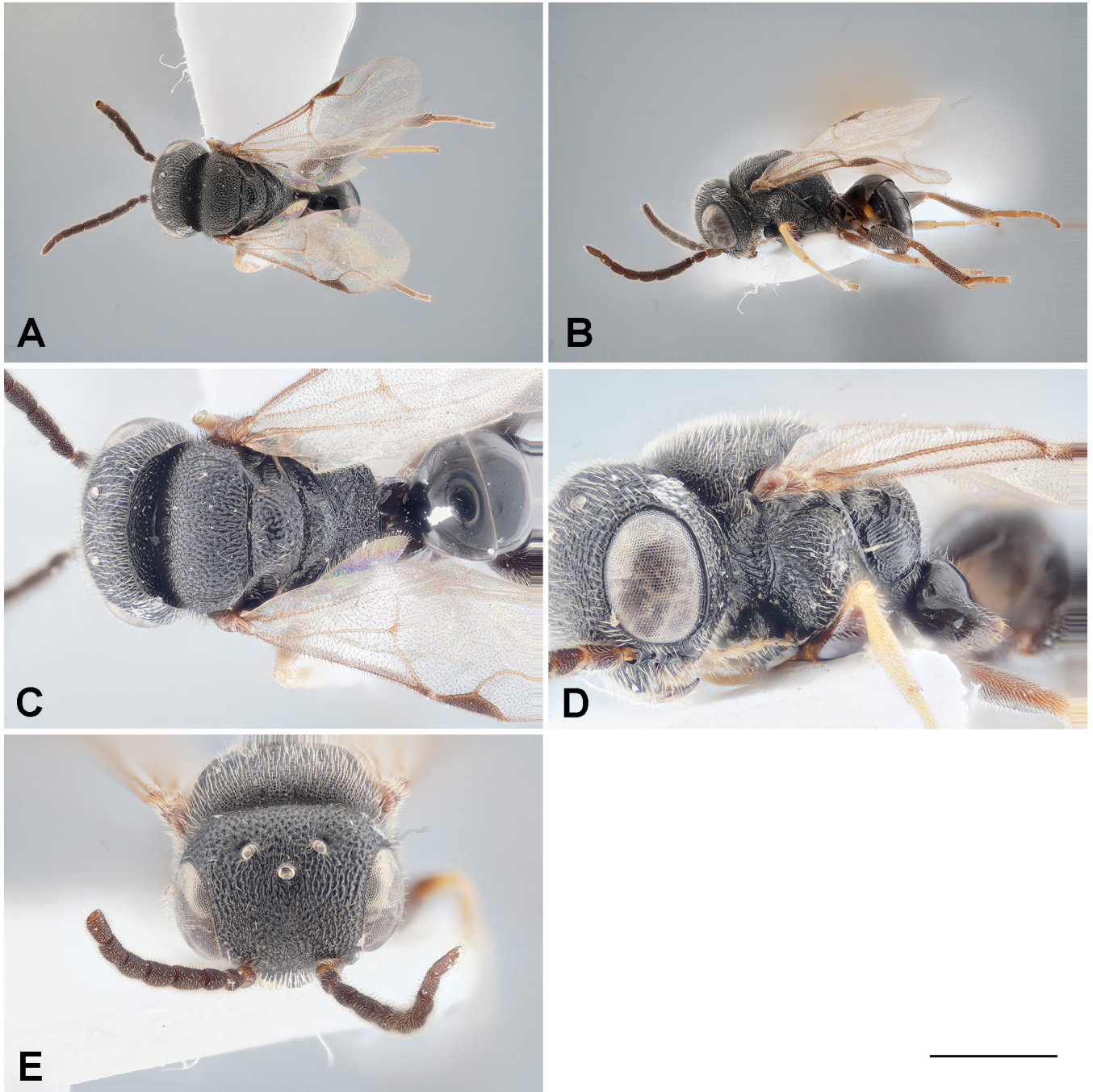


Figure 1. *Lonchodryinus ater* sp. nov., male holotype. **A.** Dorsal view; **B.** Lateral view; **C.** Mesosoma in dorsal view; **D.** Mesosoma in lateral view; **E.** Head in dorsal view. Scale bar: A: 0.94 mm; B: 1.06 mm; C: 0.51 mm; D: 0.48 mm; E: 0.46 mm.

Remarks. Following the description of *L. ater*, a key to the males of the Afrotropical *Lonchodryinus* species can be proposed, as follows:

- 1 Head with POL about twice as long as OL (Fig. 1E); mesoscutum dull, very strongly punctate and sculptured by short irregular longitudinal keels (Fig. 1C); paramere without mosaic structure on inner side (Fig. 3A). *Lonchodryinus ater* sp. nov.
- Head with POL less than twice as long as OL (Fig. 2E); mesoscutum shiny, very strongly punctate, unsculptured among punctures (Fig. 2E); paramere with mosaic structure on inner side (Fig. 3B). *Lonchodryinus hovanus* Olmi, 2004

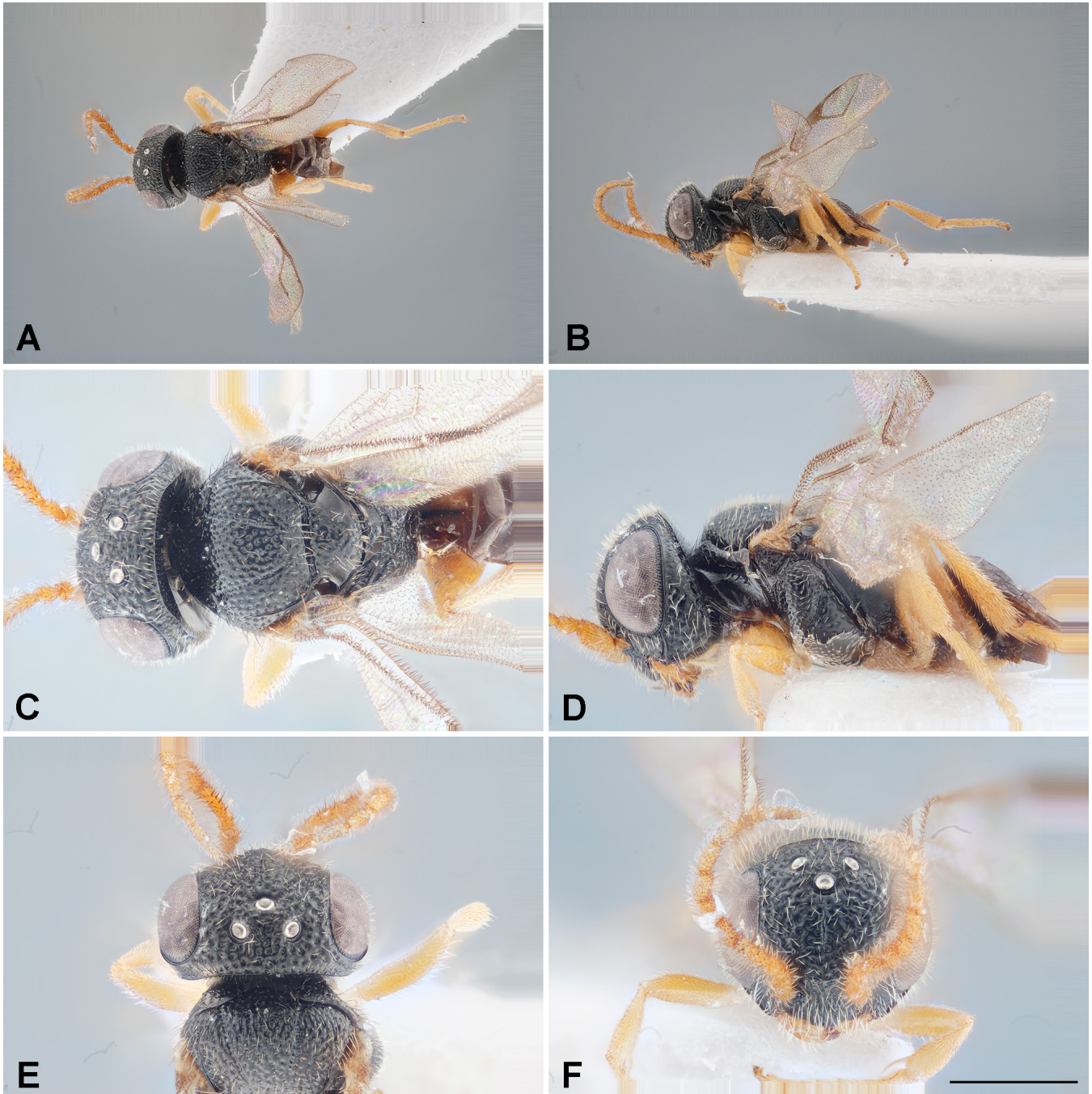


Figure 2. *Lonchodryinus hovanus* Olmi, 2004, male holotype. **A.** Dorsal view; **B.** Lateral view; **C.** Mesosoma in dorsal view; **D.** Mesosoma in lateral view; **E.** Head in dorsal view; **F.** Head in frontal view. Scale bar: A: 1.65 mm; B: 1.52 mm; C, D: 0.66 mm; E: 0.82 mm; F: 0.52 mm.

DISCUSSION

In the Afrotropical region, the genus *Lonchodryinus* Kieffer, 1905, includes the following four species: *L. hovanus* Olmi, 2004, known only by males collected in Madagascar, Antsiranana and Toliara provinces; *L. madagascolus* Olmi, Copeland & van Noort, 2019, known only by one female collected in Madagascar, Fianarantsoa province; *L. pauliani* (Benoit, 1954), known only by one female collected in Madagascar, Antsiranana province; *L. seyrigi* (Benoit, 1954), known only by one female collected in Madagascar, Toliara province (Olmi et al., 2019).

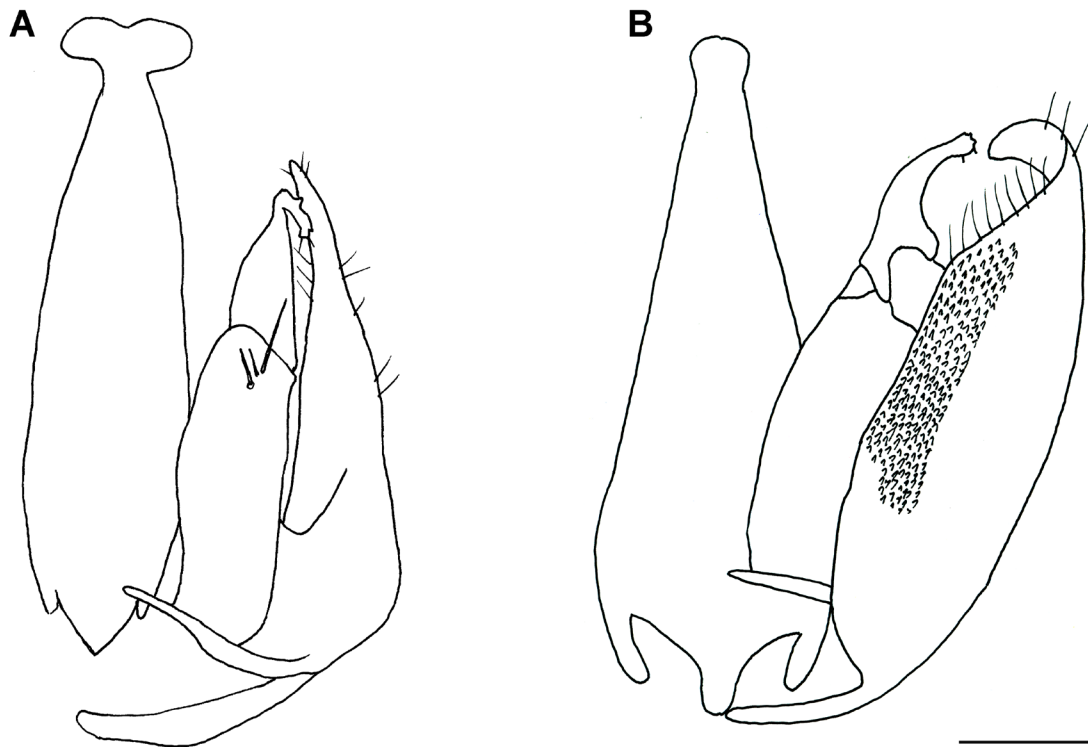


Figure 3. Male genitalia (left half removed) of male holotype. **A.** *Lonchodryinus ater* sp. nov.; **B.** *Lonchodryinus hovanus* Olmi, 2004. Scale bar: A, B: 0.10 mm.

It is possible that *L. ater* and *L. hovanus* (for which only males are known) are the opposite sexes of *L. seyrigi*, *L. pauliani*, or *L. madagascolus*, because only female specimens are known of these three species. On the other hand, in *Lonchodryinus* males and females are very different and cannot be associated without rearing or DNA analysis. In the continental Africa, no species of *Lonchodryinus* are known, despite the abundant research campaigns conducted everywhere mainly in Kenya and South Africa. The genus *Lonchodryinus* is apparently absent also in North Africa, though in the Palaearctic region, a ubiquitous species is known from Spain to Japan and Siberia (*L. ruficornis* (Dalman, 1818)) (Olmi & Xu, 2015). On the other hand, the genus is present in the Neotropical region with two species, *L. neotropicus* Olmi, 1991, known from Costa Rica, and *L. tricolor* Kieffer, 1905, known from Argentina, Bolivia, Brazil and Paraguay (Olmi & Virla, 2014). In the Nearctic region, the genus *Lonchodryinus* includes the following three species: *L. bakeri* (Kieffer, 1906), ubiquitous from Alaska to Mexico (Olmi, 1984); *L. flavus* Olmi, 1984, quite common in Canada and the USA (Olmi, 1984); *L. politus* Olmi & Guglielmino, 2010, known only from New Mexico and Texas (USA) (Olmi & Guglielmino, 2010). In the Oriental region, the genus *Lonchodryinus* is present with four species, as follows: *L. bimaculatus* Xu & He, 1994, known only from China and Taiwan (Xu et al., 2013); *L. nepalensis* Olmi, 1984, from Nepal (Xu et al., 2013; Olmi & Xu, 2015); *L. ruficornis* (Dalman, 1818) (already quoted above); *L. sinensis* Olmi, 1984, known from China, Myanmar, Nepal and Taiwan (Xu et al., 2013). In the Australasian region, only two species of *Lonchodryinus* are known, as follows: *L. guineensis* Olmi, 1984, from Papua New Guinea, and *L. notogeicus* Olmi, 1984, from New Caledonia (Olmi, 1984).

Finally, the genus *Lonchodryinus* is not very large (18 extant species described in the world), but it is present in all the zoogeographical regions, with an important gap in the continental Africa. The reasons for this gap are unknown. *Lonchodryinus* species are parasitoids of Cicadellidae (Hemiptera, Auchenorrhyncha) feeding usually on trees, with exceptions at high elevations on the mountains, where the hosts can feed on grass (this happens for example on the Italian Alps and Apennines).

AUTHOR'S CONTRIBUTION

The author confirms his contribution in the whole processing steps in the research, preparation and revising of the manuscript. He read and approved the final version of the manuscript.

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AVAILABILITY OF DATA AND MATERIAL

The specimens listed in this study are deposited in the collection of the California Academy of Sciences, San Francisco, USA (CAS) and are available from the curator, upon request.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Not applicable.

CONSENT FOR PUBLICATION

Not applicable.

CONFLICT OF INTERESTS

The author declares that there is no conflict of interest regarding the publication of this paper.

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کشف یک گونه جدید در جنس *Lonchodryinus* (Hymenoptera, Dryinidae) از ماداگاسکار

ماسیمو اولمی

مرکز تحقیقات حشره‌شناسی گرمسیری، ویترو، ایتالیا

* پست الکترونیک نویسنده مسئول مکاتبه: olmimassimo@gmail.com

تاریخ دریافت: ۲۱ مهر ۱۴۰۲ | تاریخ پذیرش: ۲۱ مهر ۱۴۰۲ | تاریخ انتشار: ۲۲ مهر ۱۴۰۲

چکیده: یک گونه جدید از زنبورهای انبرک‌دار به نام *Lonchodryinus ater* sp. nov. (Hymenoptera, Dryinidae) از منطقه حفاظت شده بیزا ماهافلی واقع در استان تولیارا، ماداگاسکار توصیف شد. این گونه جدید، بسیار شبیه گونه *L. hovanus* Olmi, 2004 است. اما به لحاظ داشتن خصوصیات ذیل با این گونه تفاوت دارد. فاصله بین چشم‌های ساده عقب (POL) حدوداً به اندازه دو برابر فاصله آنها با چشم ساده جلویی است. سپرچه کدر، به شدت منقوش و منقوش، واجد خطوط برجسته طولی نامنظم و کوتاه است. پارامر فاقد ساختار موزاییکی در بخش داخلی است. در گونه *L. hovanus* فاصله بین چشم‌های ساده عقب کمتر از دو برابر فاصله آنها از چشم ساده جلویی، سپرچه براق، به شدت منقوش و در بین نقاط فرورفته فاقد طرح‌های منقوش و پارامرها واجد ساختار موزاییکی در بخش داخلی هستند. یک کلید جدید برای شناسایی نمونه‌های نر گونه‌های جنس *Lonchodryinus* در منطقه آفروتروپیکال ارائه شد.

واژگان کلیدی: زنبورهای جواهر، کلید شناسایی، تولیارا، *Anteoninae*، *Lonchodryinus hovanus*