



<http://dx.doi.org/10.11646/zootaxa.3760.2.8>

<http://zoobank.org/urn:lsid:zoobank.org:pub:326FD024-5244-472E-A3B0-122014E1532E>

A striking new genus and species of tiger-moth (Lepidoptera: Erebidae, Arctiinae, Arctiini) from the Caribbean, with molecular and morphological analysis of its systematic placement

BENOIT VINCENT^{1,2}, MEHRDAD HAJIBABAEI³ & RODOLPHE ROUGERIE⁴

¹1 rue Roger Rameau, 93110 Rosny sous Bois, France. E-mail: amastus@gmail.com

²Correspondant, Muséum National d'Histoire Naturelle, Département Systématique et Evolution, USM 602, case postale n° 50 (Entomologie), F-75231 Paris Cedex 05

³Biodiversity Institute of Ontario, University of Guelph, 579 Gordon Street, N1G 2W1, Guelph, Ontario, Canada.

⁴INRA Orléans, UR633, Unité de Recherche en Zoologie Forestière, 2163 Avenue de la Pomme de Pin, CS40001 Ardon, 45075 Orléans Cedex 2, France. E-mail: rrougeri@gmail.com

Abstract

Westindia Vincent, a new genus, is proposed for *W. haxairei* Vincent, a new species of Neotropical tiger-moth described from Dominican Republic. Habitus, male and female genitalia are described and figured. The systematic position of the new genus within Arctiinae is discussed in light of a comparative morphology and a molecular phylogeny derived from the DNA barcode fragment of the mitochondrial COI gene and of the D2 region of the 28S rDNA gene.

Key words: Arctiinae, Arctiini, Dominican Republic, new genus, new species, *Westindia*, COI, DNA barcoding, 28S rDNA, phylogeny

Résumé

Westindia Vincent, nouveau genre est proposé pour *W. haxairei* Vincent, une nouvelle espèce de la sous-famille des Arctiinae, décrite de République Dominicaine. L'habitus, les genitalia mâle et femelle sont décrits et figurés. La position systématique de ce nouveau genre au sein de la sous-famille est discutée sur la base d'une étude morphologique et des résultats d'une analyse phylogénétique du fragment du gène mitochondrial COI utilisé comme code-barres ADN et de la région D2 du gène nucléaire 28S.

Mots-clés: Arctiinae, Arctiini, République Dominicaine, nouveau genre, nouvelle espèce, *Westindia*, COI, code-barres ADN, 28S, phylogénie

Introduction

The Dominican Republic is located on the island of Hispaniola, part of the Greater Antilles archipelago in the Caribbean region. The insularity of this country is associated with a mountain system with peaks reaching slightly over 3000 meters, which contributes to the high level of endemism on the island (Huber *et al.* 2010; Perez-Gelabert 2008; Santiago-Valentin & Olmstead 2004). Within the past decade, as a result of intensive collecting, a variety of new species (Rougerie & Herbin 2006; Vincent 2005a, b; 2006, 2009, 2011; Vincent *et al.* 2009; Haxaire & Schmit 2001) and new genera of moths (Thiaucourt 2006; Rawlins & Miller 2008) have been discovered. Among moths collected in August 2007 was a striking and unique member of the Arctiinae (tiger moths). Here we describe this as a new genus and species, and present morphological and molecular analysis of its systematic placement.

Phaegopterina: (1) the presence on the tympanum of a ventrally closed pocket IV; and (2) the hindwing vein Sc+R1 much attenuated toward the hindwing margin (which we consider fitting the condition described by Jacobson & Weller (2002) as “vein Sc+R1 [...] present but does not reach the hindwing margin”). The third character (presence of prothoracic glands) was not observed and their absence may represent a secondary loss as in the phaegopterine genus *Leucanopsis* Rego Barros, 1956 (Jacobson & Weller, 2002). The presence of a largely rounded diverticule-shaped bulla seminalis is comparable to that described by Bendib (1998) as a diagnostic feature of the *Halysidota* group or Phaegopterina. In addition, the quadrifid venation in hindwings (vein M2 present and branching from the lower angle of the discal cell) and the pseudo-papillae of female genitalia fused throughout their length support the placement of *Westindia* in a lineage defined by Bendib (1998: 167) that includes the genera *Hemihyalea*, *Halysidota*, *Praeamastus*, *Elysius* and *Amastus*. The configuration of dorsal saccular glands, proposed by Bendib (1998) to further infer the relationships within this lineage, is of type “1” in *Westindia haxairei* (“a pair of elongate glands with fairly wide opening”), a condition found in many Phaegopterina (Bendib & Minet, 1998) and uninformative at this stage with respect to phylogenetic inferences within the tribe. The possible relationship between *Westindia haxairei* and the genus *Carathis*, as apparent in Fig. 9 (with no statistical support), was ruled out after morphological comparison with two species occurring in Cuba (*C. gortynoides* Grote, 1866 and *C. alayorum* Becker, 2011). In the current state of knowledge, a more precise placement of *Westindia* must await further taxon and character sampling.

Acknowledgements

The first author is grateful to Jean Haxaire and Odile Paquit who collected the specimens of this new genus and offered the material for study, and to Joël Minet (Muséum national d’Histoire Naturelle, Paris) for his help in the observation and interpretation of some characters. DNA barcode data were generated at the Canadian Centre for DNA barcoding hosted by the Biodiversity Institute of Ontario, University of Guelph (Canada), through funding by NSERC, Genome Canada and the Ontario Genomics Institute. Sequences of Costa Rican taxa used for the phylogenetic analyses were generated as part of a joint research project between Mehrdad Hajibabaei, Daniel H. Janzen and Winnie Hallwachs on the lepidopteran diversity in Area de Conservacion Guanacaste (ACG) in Costa Rica.

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