Zootaxa 2281: 53–67 (2009)
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

Sex attractant, distribution and DNA barcodes for the Afrotropical leaf-mining moth *Phyllonorycter melanosparta* (Lepidoptera: Gracillariidae)

JURATE DE PRINS[1,6], RAIMONDAS MOZŪRAITIS[2, 5], CARLOS LOPEZ-VAAMONDE[3] & RODOLPHE ROUGERIE [4]

[1]*Royal Museum for Central Africa, Leuvensesteenweg 13, B-3080 Tervuren, Belgium. E-mail: jurate.de.prins@africamuseum.be*
[2]*School of Chemistry and Engineering, Royal Institute of Technology, Teknikringen 30 SE-10044, Stockholm, Sweden. E-mail: raimis@kth.se*
[3]*Institut National de la Recherche Agronomique, UR0633 Zoologie Forestière, F-45075 Orléans, France. E-mail: Carlos.Lopez-Vaamonde@orleans.inra.fr*
[4]*Biodiversity Institute of Ontario, University of Guelph, 579 Gordon Street, Guelph, Ontario, N1G 2W1, Canada. E-mail: rrougeri@uoguelph.ca*
[5]*Institute of Ecology, Vilnius University, Akademijos 2, LT-08412, Vilnius, Lithuania*
[6]*Corresponding author*

Abstract

The sex attractant for *Phyllonorycter melanosparta* (Meyrick, 1912) has been determined as (10*E*)-dodec-10-en-1-yl acetate and (10*E*)-dodec-10-en-1-ol combined in a ratio 10:1. The distribution of this species in Eastern Africa is updated and its presence in Kenya is recorded for the first time. We discuss the taxonomic status of *P. melanosparta* with reference to three character sets: semiochemicals, morphological and molecular characters (DNA barcodes). This combination of characters is also proposed as a new approach to study the diversity and phylogeny of *Phyllonorycter* in the Afrotropical region.

Key words: Kenya, molecular systematics, morphology, semiochemicals

Introduction

The family Gracillariidae is one of the most species-rich families of leaf-mining Lepidoptera with 1901 species (De Prins & De Prins 2009). Much of its species diversity resides in a number of super-rich genera. Among these is the genus *Phyllonorycter* Hübner, 1822, currently comprised of 401 species (De Prins & De Prins 2009), with a worldwide distribution. The vast majority of species are found in the temperate regions, with about 257 species described from the Palaearctic region and 81 from the Nearctic. In the tropics, *Phyllonorycter* is species-poor, with 36 species described from Indoaustralia, 13 from the Neotropics and 22 from the Afrotropical region (De Prins & De Prins 2009).

The host ecology of these micro-moths is quite well known, at least for the Holarctic region. As all other Gracillariidae, larvae of *Phyllonorycter* moths feed internally on living plant tissues where the instars initiate a supra- or infra-tentiform mine by devouring mainly the parenchyma cells. All preimaginal stages of *Phyllonorycter*, including the pupa, develop within a tentiform mine (Emmet *et al*. 1985; Davis & Robinson 1998). Overall, the genus *Phyllonorycter* has been recorded feeding on 112 plant genera from 31 different families, 15 orders, and six subclasses (Lopez-Vaamonde *et al*. 2003; De Prins & De Prins 2009).

The alpha taxonomy, ecology and host range of tropical *Phyllonorycter* is less well known. For instance, host plants of 11 species of *Phyllonorycter* in Africa are known from the rearing efforts of L. Vári in the middle of last century (Vári 1961), while the host plants and feeding habits are still unknown for the

Accepted by J.Rota: 29 Sept. 2009; published: 4 Nov. 2009