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A new species of *Heilipus* Germar (Coleoptera: Curculionidae: Molytinae) associated with commercial species of Annonaceae in Brazil, and comments on other species of the genus causing damage to avocado trees in Brazil

SERGIO ANTONIO VANIN & DANIELA DE CASSIA BENÁ

Departamento de Zoologia, Instituto de Biociências, Universidade de São Paulo, Rua do Matão, Travessa 14, 101, 05508-900 São Paulo, SP, Brasil. E-mail: savanin@ib.usp.br; danicoleoptera@gmail.com

Abstract

Heilipus gibbus sp. nov. (type locality: Brazil, state of São Paulo, Angatuba) is described from 73 specimens. The holotype and three paratypes from the same locality were reared from larvae collected in the basis region, near the ground, of an atemoya tree (a hybrid of the sugar-apple, "pinha" or fruta-do-conde"—*Annona squamosa* L., and the cherymoya, *A. cherimoya* (Mill.), Annonaceae). *Heilipus gibbus* sp. nov. can cause severe injury to commercial Annonaceae, and has been misidentified in the collections and the literature as *Heilipus catagraphus* Germar, 1834. The new species and *H. catagraphus* have a very similar color pattern, but can be easily distinguished by the rostrum shape in lateral view, being humped in *H. gibbus* sp. nov. but evenly arcuate in *H. catagraphus*. Illustrations of habitus and of male and female genitalia are provided to the new species and for avocado stem boring species of *Heilipus* which occur in Brazil (*H. catagraphus* and *H. rufipes*). Comments are made for *H. elegans* Guérin, 1844, which record to Brazil is probably based on a misidentification.

Key words: Annonaceae, atemoya, avocado, graviola, *Heilipus gibbus* sp.nov., *H. catagraphus*, *H. elegans*, *H. rufipes*, Lauraceae, weevil

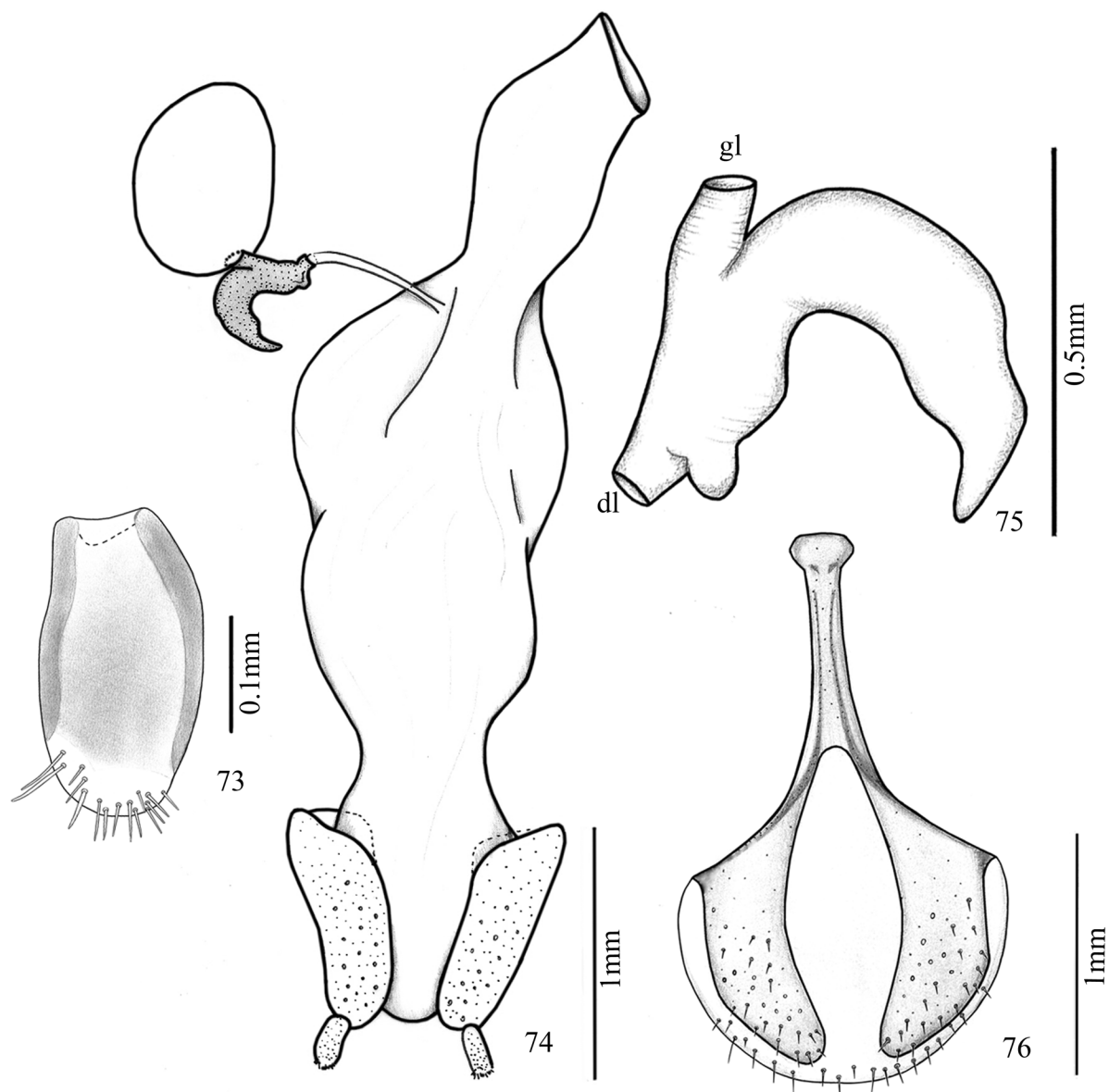
Introduction

We received from Dr. Miguel Francisco de Sousa Filho (*Instituto Biológico, Centro Experimental Central, Secretaria de Agricultura e Abastecimento, Campinas, SP*) four adult weevils for identification. The adults were reared from the atemoya ("atemóia"), a hybrid of the sugar-apple ("pinha", fruta-do-conde"—*Annona squamosa* L.) and the cherymoya (*A. cherimoya* Mill.) (Annonaceae), both native trees in tropical America (Braga Sobrinho 2010). This weevil, previously identified as *Heilipus catagraphus* Germar, 1824, has been reported in the agronomic literature as causing serious economic damage, even death, to atemoya and graviola—*Annona muricata* L.(v.g. Braga Sobrinho 2010; Braga Sobrinho *et al.* 1998, 2011; Moura *et al.* 2002, 2006; Tokunaga 2000). *Heilipus catagraphus* is known to causes damage to avocado trees. Indeed, the weevils reared from atemoya are very close to *H. catagraphus* and have a similar color pattern but have a very different humped rostrum, among other differences.

A search of the weevil collections in the *Museu de Zoologia, Universidade de São Paulo, São Paulo*, disclosed many additional conspecific specimens, enabling a complete morphological comparison. It should be noted that most of these specimens belong to the former Halik and Von Diringshofen collections, acquired by the *Museu de Zoologia* in the second half of the 20th century, and were identified as *Heilipus catagraphus*. Unfortunately, there is no information about host plants on the labels that accompany these specimens. We concluded that these specimens represent a new species described herein.

Comments are provided for the avocado stem boring species of *Heilipus*, *H. catagraphus*, *H. elegans* Guérin, 1844 and *H. rufipes* Perty, 1832, three species that have been reported as causing economic damage to avocado trees in Brazil. The male and female genitalia of *H. catagraphus* and *H. rufipes* are described for the first time.

Since the genus *Heilipus* was erected by Germar (1824), the history of the genus has been plagued with



FIGURES 73–76. *Heilipus rufipes*, female from São Benedito, CE. (73) coxite, (74) reproductive tract, ventral view, (75) spermatheca, (76) sternite VIII. (dl = duct lobe; gl = gland lobe).

References

- Bondar, G. (1915) *Bichos damnhinhos da fructicultura e arboricultura*. Biblioteca Agrícola Popular Brasileira. vol. 22, Editora Chácara e Quintais, São Paulo, 52 pp.
- Braga Sobrinho, R., Oliveira, M.A.S., Warumby, J. & Moura, J.I.L. (1998) Pragas da gravioleira. Available from: [http://www.ceinfo.cnpat.embrapa.br/artigo.php op=6&i=19&si=82&ar=2281](http://www.ceinfo.cnpat.embrapa.br/artigo.php%20op=6&i=19&si=82&ar=2281) (accessed July 23 2014)
- Braga Sobrinho, R. (2010) Potencial de Exploração de Anonáceas no Nordeste do Brasil. Embrapa Agroindústria Tropical. Available from: http://www.ceinfo.cnpat.embrapa.br/arquivos/artigo_3425.pdf (accessed July 23 2014)
- Braga Sobrinho, R., Mesquita, A.L.M., Hawerth, F.J., Silva, K.S. & Kavati, R. (2011) *Identificação e monitoramento de pragas na produção integrada da gravioleira*. Embrapa Agroindústria Tropical, Fortaleza, 26pp.
- Evenhuis, N.L. (2014) Abbreviations of insect and spider collections of the world. Available from: <http://hbs.bishopmuseum.org/codens/codens-inst.html> (accessed 31 July 2014)
- Ihering, H. von (1910) As brocas e a arboricultura. *Boletim de Agricultura São Paulo*, 10 (6), 622–534.
- Junqueira, N.T.V., Oliveira, M.A.S., Vargas Ramos, V.H., Pinto, A.C.Q. & Icuma, I.M. (2000) *Controle de doenças da gravioleira no Cerrado, Planaltina, DF*. Embrapa Cerrados, Comunicado Técnico 31, 5 pp.
- Kuschel, G. (1955) Nuevas sinonimias y anotaciones sobre Curculionionioidea (1). *Revista Chilena de Entomología*, 4,

- Lima, A.M. da C. (1928) Segundo catálogo systemático dos insetos que vivem nas plantas do Brasil e ensaio de bibliographis entomológica brasileira. *Arquivos da Escola Superior de Agricultura, Medicina e Veterinária do Rio de Janeiro*, 8 (1), 69–301.
- Lima, A.M. da C. (1956) *Insetos do Brasil*. 10. Escola Nacional de Agronomia, Série Didática nº 12, Rio de Janeiro, 373 pp.
- Lourenção, A.L., Rossetto, C.G. & Soares, N.B. (1984) Ocorrência de adultos de *Heilipus catagraphus* Germar 1824 (Coleoptera, Curculionidae) danificando frutos de abacateiro. *Bragantia*, 43 (1), 249–253.
- Lourenção, A.L., Soares, N.B. & Rosado-Neto, G.H. (2003) Ocorrência e danos de *Heilipus rufipes* Perty (Coleoptera: Curculionidae) em abacateiro (*Persea americana* Mill.) no estado do Ceará. *Neotropical Entomology*, 32, 363–364.
<http://dx.doi.org/10.1590/S1519-566X2003000200028>
- Moura, J.I.L., Sgrillo, R.B. & Cividanes, F.J. (2006) Clorpirifós em óleo de dendê no controle de *Heilipus catagraphus* Germar (Coleoptera: Curculionidae) em gravioleira. *Agrotropica*, 18, 53–56.
- Moura, J.I.L., Lima, E.R. & Sgrillo, R.B. (2002) *Manejo Integrado das Pragas da Gravioleira*. In: Poltronieri, L.S. & Trindade, D.R. (Eds.), *Manejo Integrado das Principais Pragas e Doenças de Cultivos da Amazônia*. Belém, Embrapa Amazônia Oriental, 284 pp.
- Nunes, A.B., Ronchi-Teles, B. & Spironello, W. (2009) Comportamento de estridulação em *Heilipus odoratus* Vanin & Gaiger (Coleoptera, Curculionidae, Molytinae). *Revista Brasileira de Entomologia*, 53 (3), 334–336.
<http://dx.doi.org/10.1590/S0085-56262009000300004>
- O'Brien, C.W. & Wibmer, G.C. (1982) Annotated checklist of the weevils (Curculionidae *sensu lato*) of North America, Central America, and the West Indies (Coleoptera: Curculionoidea). *Memoirs of the American Entomological Institute*, 34, ii–x+1–1755.
- Pacoe, F.P. (1889) Additional notes on the genus *Hilipus*. *Transactions of the Entomological Society of London*, 4, 577–592.
- Schönherr, C.J. (1835) *Genera et species curculionidum, cum synonymia hujus familiae. Species novae aut hactenus minus cognitae, descriptionibus a Dom. Leonardo Gyllenhal, C.H. Boheman, et entomologis aliis illustratae. Vol. 3, (1)*. Roret, Paris, 505 pp.
- Perty, M. (1832) *Insecta Brasiliensia*. In: *Delectus animalium articulatorum, quae in itinere per Brasiliam annis MDCCCXVII—MDCCCXX jussu et auspiciis Maximiliani Josephi I. Vol. 2. Fasc.* pp. 61–124.
- Silva, A.G.A., Cincinnato, R.G., Galvão, D.M., Gonçalves, A.J.L., Gomes, J., Silva, M.N. & Simoni, L. de (1968) *Quarto catálogo dos insetos que vivem nas plantas no Brasil. Vol. 1. seus parasitas e predadores*. Ministério da Agricultura, Rio de Janeiro, Brasil. Parte II, 622 pp.
- Tokunaga, T. (2000) *A cultura da atemóia*. Coordenadoria de Assistência Técnica Integral, Campinas, 80 pp.
- Vanin, S.A. & Gaiger, F. (2005) A new spermophagous species of *Heilipus* Germar from the Amazonian Region (Coleoptera, Curculionidae, Molytinae). *Revista Brasileira de Entomologia*, 49 (2), 240–244.
<http://dx.doi.org/10.1590/S0085-56262005000200007>
- Wibmer, G.C. & O'Brien, C.W. (1986) Annotated checklist of the weevils (Curculionidae *sensu lato*) of South America (Coleoptera: Curculionoidea). *Memoirs of the American Entomological Institute*, 39, i–xvi + 1–563.