Research Article

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Nueva especie de *Aristotelia* Hübner, 1825 (Lepidoptera: Gelechiidae: Anomologinae) de Chile

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ZooBank: urn:lsid:zoobank.org:pub:57B0F3F9-1C8F-4F9D-9D48-A160E0DD3DAD
https://doi.org/10.35249/rche.47.3.21.20

Abstract. A new species of Gelechiidae, *Aristotelia accipiter* **sp. nov.**, is described and illustrated from Chile based on morphological characters of the adult. This is the first record of the subfamily Anomologinae from Chile.

Key words: Andes Region; Anomologini; endemic; Neotropical; taxonomy.

Resumen. Se describe e ilustra una nueva especie de Gelechiidae de Chile, *Aristotelia accipiter* **sp. nov.**, basado en caracteres morfológicos del adulto. Este corresponde al primer registro de la subfamilia Anomologinae para Chile.

Palabras clave: Anomologini; endémica; Neotropical; Región Andina; taxonomía.

Introduction

Aristotelia Hübner, 1825, is a highly diverse genus of the family Gelechiidae with about 100 described species worldwide, distributed primarily in the Neotropical, Nearctic, and Palearctic regions (Becker 1984; Lee *et al*. 2009; Huemer and Karsholt 2020). Their immature stages are poorly known. MacKay (1972) reported *Lespedeza hirta* (L.) Hornem. (Fabaceae) as the host plant for "*Aristotelia* sp." in the Nearctic region; and other recorded host plant families include Asteraceae, Verbenaceae, Rhamnaceae, Rosaceae, Fabaceae, Euphorbiaceae, and a few others (Robinson *et al*. 2009). Adults of *Aristotelia* are characterized by beautiful coloration, often with yellow, orange, or reddish-brown forewings bearing striking white or silvery markings; and they are remarkable in the form of their labial palpi (Karsholt and Savenkov 2009). Due to their enormous diversity and small size, Gelechiidae remain poorly studied in the Neotropical region. Further difficulties in their study may be attributed to the significant degree of phenotypical variability and the sympatric occurrence of closely allied species (Cepeda 2017). This paper presents the description of a new species of *Aristotelia* from Chile, which represents the first record of the subfamily Anomologinae for Chile.

Received 5 August 2021 / Accepted 8 September 2021 / Published online 30 September 2021
Responsible Editor: José Mondaca E.

Materials and Methods

Genitalia structures were dissected following the methods of Robinson (1976). Descriptions of adults and terminology for genital structures follow Cepeda (2019). The higher classification follows Karsholt *et al*. (2013).

A Leica EZ4E stereomicroscope was used for examining and photographing adults, and images were processed using the LAS-EZ 3.2.0 Leica Application Suite software. Forewing length, comprising the distance from the base to the apex of the forewing costa, including the fringe, was measured using the same program.

Genitalia structures were examined using a Leica DM500 microscope, and photographs were taken with a 14 mega pixel resolution HD Movie Fujifilm digital camera. The photographs were processed in Adobe Photoshop CS5.1. The specimens examined in this study, including permanent genitalia slides, are deposited in the Luis Peña Entomology Museum Department of Plant Protection, College of Agronomic Sciences, University of Chile, Santiago (MEUC).

Results

Anomologinae: Anomologini

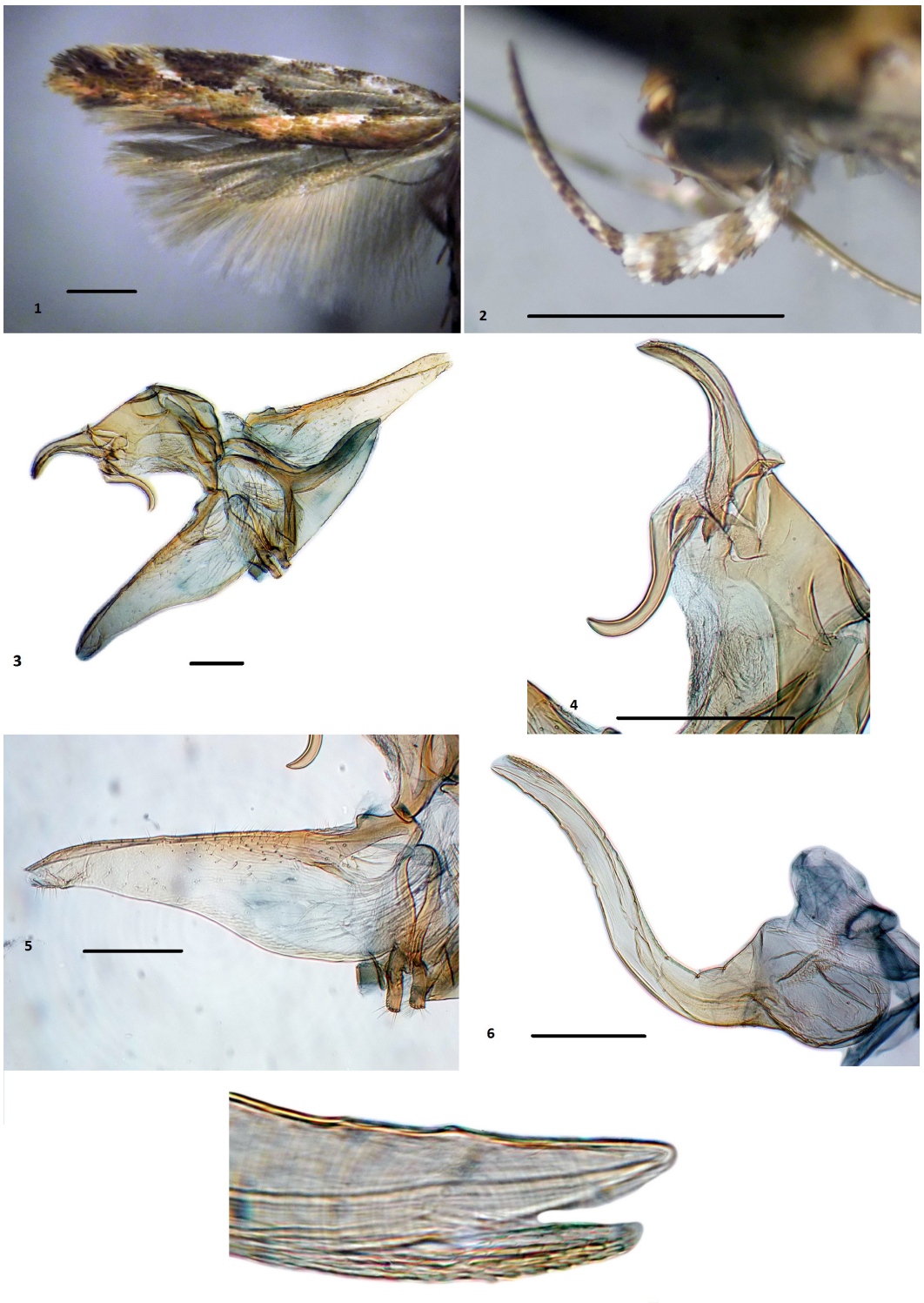
Aristotelia accipiter **sp. nov.**
(Figs. 1-11)

Diagnosis. Based on the male and female genitalia. The new species can be distinguished from other species in the genus by the subtriangular shape of the valva (Figs. 3, 5), and the spiny signum with large marginal thorns in the female genitalia (Fig. 11).

Description. Male. Head: Frons and vertex covered by whitish scales, occiput covered with elongate brown scales. Labial palpus slender, whitish, second segment with ventral brush of scales and three white bands; third segment strongly curved with scattered brown scales. Antennae with scape brown, flagellomeres with pale basal band. Thorax: Notum and tegulae covered with pale brown scales. Forewing length 6-7 mm (n = 8), brownish gray, with three narrow, white, parallel fascia angled obliquely outward from costa, and a fourth white fascia in subapical region angled inward; reddish brown along hind margin of wing. Hindwing dark uniform gray-brown; fringe dark yellow. Abdomen: Genitalia (Figs. 3-7) with uncus triangular, longer than wide, with prominent truncate apex. Gnathos elongate, curved, weakly hook-shaped in apical 0.2. Valva subtriangular, ca. 2.5 times longer than wide, attenuate throughout with acute apex, costa with a small subbasal lobe. Tegumen long and narrow. Vinculum slender. Saccus triangular, longer than wide, elongate. Phallus slender, sinuous, bulbous at base (Fig. 6); vesica with plate bearing small spines (Fig. 7).

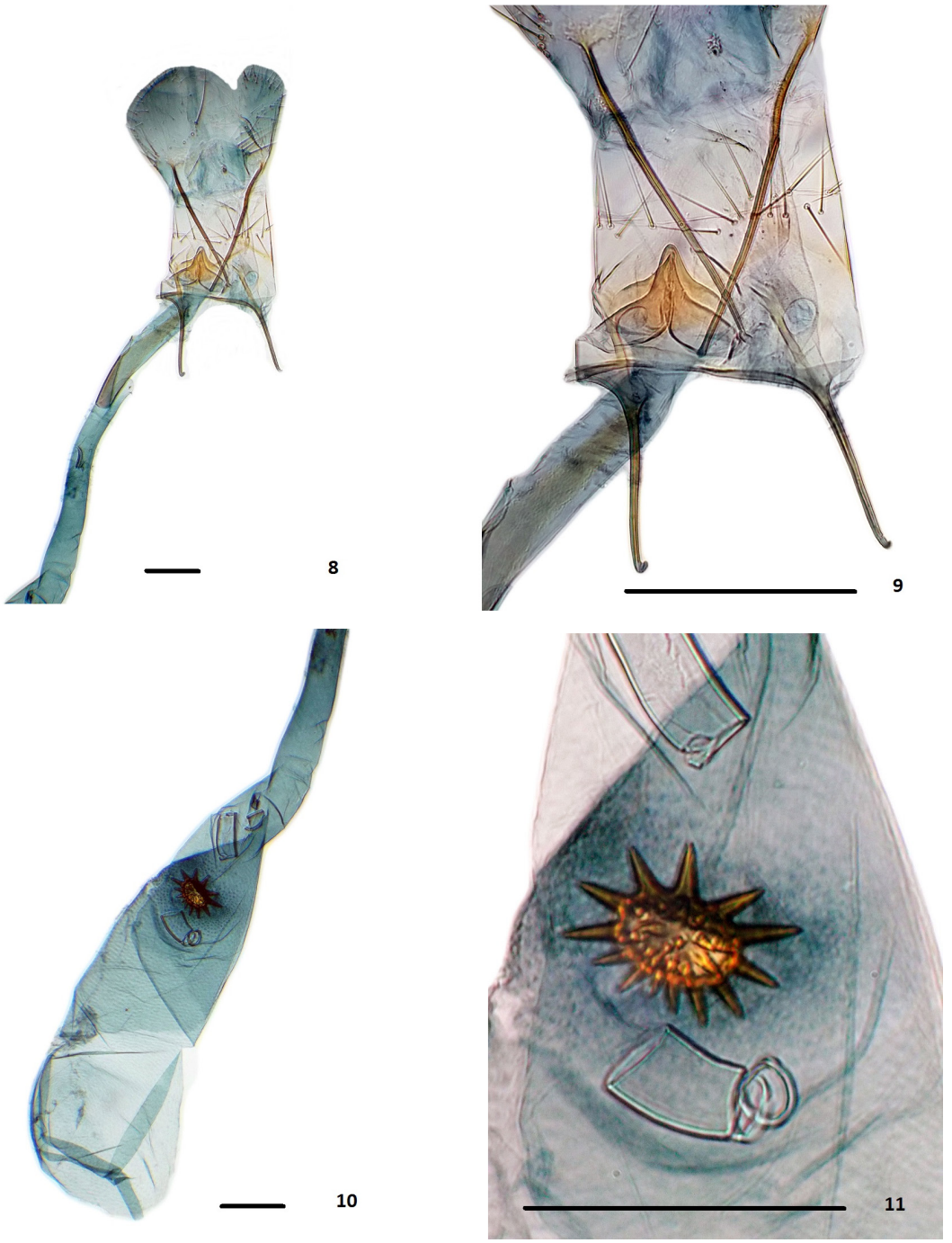
Female. Head and thorax: Essentially as described for male. Abdomen: Genitalia (Figs. 8-11) with papilla analis simple, with a few setae. Apophysis posteriores 0.5 times length of apophysis anteriores. Segment 8th (sterigma) weakly sclerotized (Fig. 9). Antrum short, moderately sclerotized. Ductus bursae elongate, narrow, lacking spiniform processes throughout. Corpus bursae ovoid, membranous, partially covered with small spicules. Signum large, star-shaped, strongly sclerotized, spiny, with several (n = 13) large marginal thorns.

Host. Unknown.



Figures 1-7. *Aristotelia accipiter* **sp. nov.** 1. Forewing. 2. Palpus. Scale: 1.0 mm. 3. Male genitalia with phallus removed. 4. Uncus and gnathos. 5. Valva. 6. Phallus. Scale: 0.25 mm. / *Aristotelia accipiter* **sp. nov.** 1. Ala anterior. 2. Palpus. Escala: 1,0 mm. 3. Genitalia macho sin phallus 4. Uncus y gnathos. 5. Valva. 6. Phallus. Escala: 0,25 mm.

Distribution. The new species is known only from the Province of Maipo (Santiago Metropolitan Region). According to Morrone (2015), this distribution corresponds to the biogeographic sub-region of central Chile, extending from the Province of Coquimbo to the Province of Santiago.



Figures 8-11. *Aristotelia accipiter* **sp. nov.** 7. Vesica showing spines. 8. Female genitalia. 9. Sterigma and apophyses. 10. Corpus bursae 11. Signum. Scale: 0.25 mm. / *Aristotelia accipiter* **sp. nov.** 7. Vesica con espinas. 8. Genitalia hembra. 9. Sterigma y apophyses. 10. Corpus bursae 11. Signum. Escala: 0,25 mm.

Etymology. The Latin *accipiter* refers to the hawk genus distinguished by short, wide wings; a similar shape to the valva in this species.

Material examined. Holotype ♂, CHILE, Región Metropolitana de Santiago, Provincia de Maipo, El Escorial, 21 enero 2017, leg. D.E. Cepeda (MEUC). Paratypes: 4♂, 3♀, CHILE, Región Metropolitana de Santiago, Provincia de Maipo, El Escorial, 23 diciembre 2017, leg. D.E. Cepeda. Permanent slides n° 731 ♂, 739 ♀, 840 ♀, 844 ♂ (MEUC).

Discussion

This paper contributes to our knowledge of the taxonomy and biodiversity of the tribe Anomologini in the Neotropical region. Most of the previously known Neotropical Anomologini were described long ago by Meyrick (1914, 1917, 1923, 1926) who included images of neither adults nor the genitalia in his descriptions. This shortcoming was partially remedied by Clarke (1969), who catalogued and illustrated the adults and genitalia for some of the species described by Meyrick deposited in the British Museum of Natural History (now The Natural History Museum, London). Recently, Landry and Roque Albelo (2010) redescribed and illustrated two species from the Galapagos Islands. A recent classification of Gelechiidae based on molecular analyses of several genera (including *Aristotelia*) separated the gelechiids into seven distinct subfamilies (Karsholt *et al*. 2013), suggesting subfamily status for Anomologinae, to include the single tribe Anomologini.

The new species described herein is considered endemic to the Andean region and represents the first record of this genus and tribe from Chile (Cepeda 2017).

The genus *Aristotelia* has received little revisionary attention. Considering the difficulty in defining a genus of such wide geographic distribution, a comprehensive systematic revision based on morphological, molecular, and biological data is much needed (Huemer and Karsholt 2020). Although there is little phylogenetic context for support, the new species is convincingly assigned to *Aristotelia* based on facies and external morphology, following the traditional concept of Meyrick (1925). However, it should be noted Meyrick's definition of the genus was much broader than today's. The most recent contributions on *Aristotelia* are Karsholt and Savenkov (2009), Landry and Roque Albelo (2010), and Jacobs and De Prins (2011), treating European and Neotropical species. In *A. accipiter* the most evident diagnostic features are the shape of the valva in the male and the strongly ornamented signum in the female. For Chilean gelechiids, the higher classification of Gelechiidae follows that proposed by Karsholt *et al*. (2013).

Acknowledgments

I cordially thank Peter Huemer (Naturwissenschaftliche Sammlungen, Tiroler Landesmuseen, Innsbruck, Austria), Ole Karsholt (Zoological Museum, The Natural History Museum of Denmark, Copenhagen, Denmark) and Mark A. Metz (National Museum of Natural History, Washington, DC. USA) for reviewing the manuscript and offering much appreciated criticism. Also, I am grateful to John W. Brown (National Museum of Natural History, Washington DC., USA) for a linguistic check of the manuscript.

Literature Cited

Becker, V.O. (1984) Gelechiidae. p. 44–53. *In*: J. B. Heppner (ed.). Atlas of Neotropical Lepidoptera Checklist: Part 1. Micropterigoidea-Immoidea. W. Junk Publishers; The Hague. 112 pp.

Cepeda, D.E. (2017) Contribution to the knowledge of Chilean Gelechiidae (Lepidoptera: Gelechioidea) *Insecta Mundi*, *0584*: 1-8.

Cepeda, D.E. (2019) Descriptions of a two new species of the genus *Scrobipalpomima* Povolný, 1985 and two new records (Lepidoptera: Gelechiidae: Gnorimoschemini) from Chile. *Revista Chilena de Entomología*, *45*(1): 21-30.

Clarke, J.F.G. (1969) Catalogue of the type specimens of Microlepidoptera in the British Museum (Natural History) described by Edward Meyrick. Vol. 6. London Trustees of the British Museum (Natural History); London, England. 537 pp.

Hübner, J. (1825) 1816-1826. Verzeichniss bekannter Schmettlinge [sic]. Augsburg. 431 + 72 pp. (index).

Huemer, P. and Karsholt, O. (2020) Commented checklist of European Gelechiidae (Lepidoptera). *ZooKeys*, *921*: 65-140.

Jacobs, M. and De Prins, W. (2011) *Aristotelia subdecurtella*, a species new to Belgium (Lepidoptera: Gelechiidae). *Phegea*, *39*(1): 3-7.

Karsholt, O., Mutanen, M., Lee, S. and Kaila, L. (2013) A molecular analysis of the Gelechiidae (Lepidoptera, Gelechioidea) with an interpretative grouping of its taxa. *Systematic Entomology*, *38*: 334-348.

Karsholt, O. and Savenkov, N. (2009) Beautiful gelechiid moths *Aristotelia baltica* A. Sulcs & I. Sulcs, 1983, Stat. n. and related species (Gelechiidae). *Nota Lepidopterologica*, *32*(2): 89-97.

Landry, B. and Roque-Albelo, L. (2010) The Gelechiidae (Lepidoptera) of the Galapagos Island, Ecuador, a taxonomic revision. *Revue Suisse of Zoology*, *117*(4): 697-770.

Lee, S., Hodges, R.W. and Brown, R.L. (2009) Checklist of Gelechiidae (Lepidoptera) in America North of Mexico. *Zootaxa*, *2231*: 1-39.

MacKay, M.R. (1972) Larval sketches of some Microlepidoptera chiefly North American. *Memoirs of the Entomological Society of Canada*, *88*: 1-83.

Meyrick, E. (1914) Descriptions of South American Micro-lepidoptera VIII. *Transactions of the Entomological Society of London*. 229-284.

Meyrick, E. (1917) Descriptions of South American Micro-lepidoptera. *Transactions of the Entomological Society of London*. 1-52.

Meyrick, E. (1923) Exotic Microlepidoptera. *3*(1-2): 1-64. Marlborough.

Meyrick, E. (1925) Lepidoptera Heterocera. fam. Gelechiadae [sic]. Fasc. 183 *In*: Wytsman. P. (Ed.) Gênera Insectorum. Louis Desmet-Verteneuil. Bruxelles: 1-290 pp. 5 pls.

Meyrick, E. (1926) Exotic Microlepidoptera. *3*(9): 257-288. Marlborough.

Morrone, J.J. (2015) Biogeographical regionalisation of the Andean region. *Zootaxa*, *3936*(2): 207-236.

Robinson, G.S. (1976) The preparation of slides of genitalia with the special reference to the microlepidoptera *Entomologist's Gazette*, *27*: 127-132.

Robinson, G.S., Ackery, P.R., Kitching, I.J., Beccaloni, G.W. and Hernández, L.M. (2009) HOSTS. A Database of the World's Lepidopteran Hostplants. Natural History Museum, London, UK. (Available from: http://www.nhm.ac.uk/hosts Last accessed 11 May 2021)