

SHORT NOTE

# Redescription of the South American genus *Caleucoela* and description of the male of *C. striatipennis* (Hymenoptera: Figitidae: Eucoilinae: Ganaspini)

Redescripción del género Sudamericano *Caleucoela* y descripción del macho de *C. striatipennis* (Hymenoptera: Figitidae: Eucoilinae: Ganaspini)

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## ABSTRACT

The South American genus *Caleucoela* Kieffer, 1909 is redescribed and its geographic distribution is updated. Its only species, *Caleucoela striatipennis* Kieffer, 1909 is redescribed, including the first description of the male and a new record from Peru.

**Keywords:** *Caleucoela*, redescription, male description, new record.

## RESUMEN

Se redescrive el género Sudamericano *Caleucoela* Kieffer, 1909 y se actualiza su distribución geográfica. Se redescrive su única especie, *Caleucoela striatipennis* Kieffer, 1909, incluyendo la primera descripción del macho y un nuevo registro para Perú.

**Palabras clave:** *Caleucoela*, redescrición, descripción del macho, nuevo registro.

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## INTRODUCTION

*Caleucoela* Kieffer, 1909 is a monotypic genus belonging to the tribe Ganaspini (Forshage 2009). This tribe included 41 genera (Buffington *et al.* 2020). *Caleucoela striatipennis* Kieffer, 1909 was described on base a single female specimen collected in the state of Pará, Brazil. Weld (1952) includes the genus in the identification key for the Cynipoidea of the world and proposes a diagnosis. Later Díaz (1978) recorded *C. striatipennis* from Argentina. Members of Ganaspini have been reared from a variety of host Diptera including drosophilid, agromyzid, muscid, and tephritid (Buffington 2017). About *Caleucoela* biology, its hosts are unknown and cannot be inferred due to the wide host range of Ganaspini. The purpose of this contribution is to redescribe the genus *Caleucoela* and its type species *C. striatipennis* including the description previously unknown of the male and updated known geographic distribution.

## MATERIAL AND METHODS

Specimens of *Caleucoela* here studied belong to the collections of the División Entomología of the Museo de La Plata (MLP), Instituto de Entomología, Fundación Miguel Lillo (IFML) (Argentina) and California Academy of Sciences (CAS) (USA). Morphological terminology follows Gallardo *et al.* (2017) for taxonomic characters and Harris (1979) for surface sculpturing. Morphological terms used matched the Hymenoptera Anatomy Ontology (Yoder *et al.* 2010). Biogeographical regions follow Morrone (2014). Male photographs were taken with a Leica digital camera model DFC295 adapted to a Leica stereomicroscope (S8APO) and photographs of the female holotype of *C. striatipennis* were sent to us by Robert Zuparko (CAS).

## RESULTS

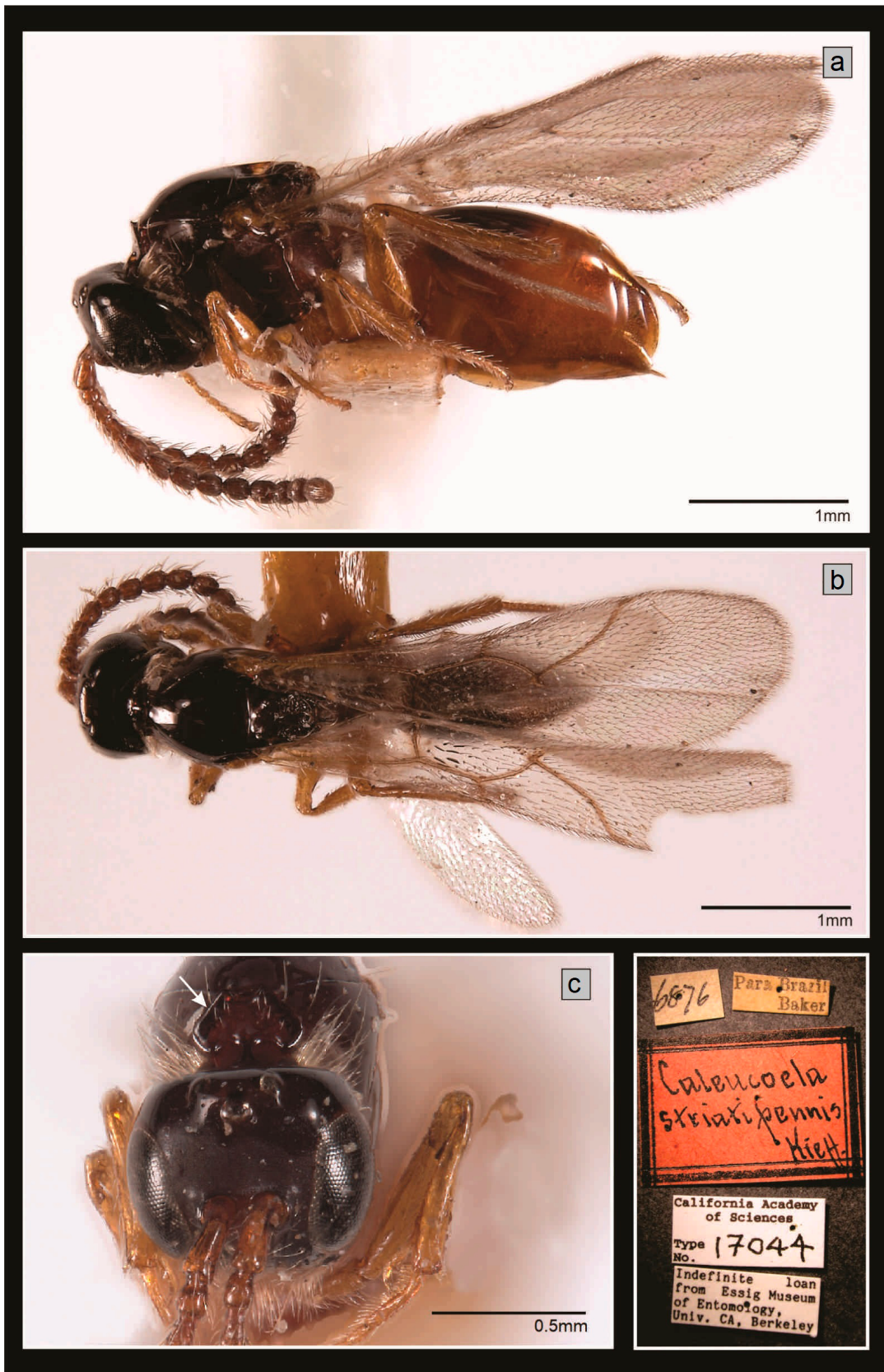
### *Caleucoela* Kieffer, 1909 (Figs. 1-2)

**Type species.** *Caleucoela striatipennis* Kieffer, 1909 by monotypy.

**Diagnosis.** This genus can be separate from other Ganaspini genera by the following combination of characters: toruli projected; rostral keels present; posterior margin of genae distinct, carinate; inner orbital furrow present;

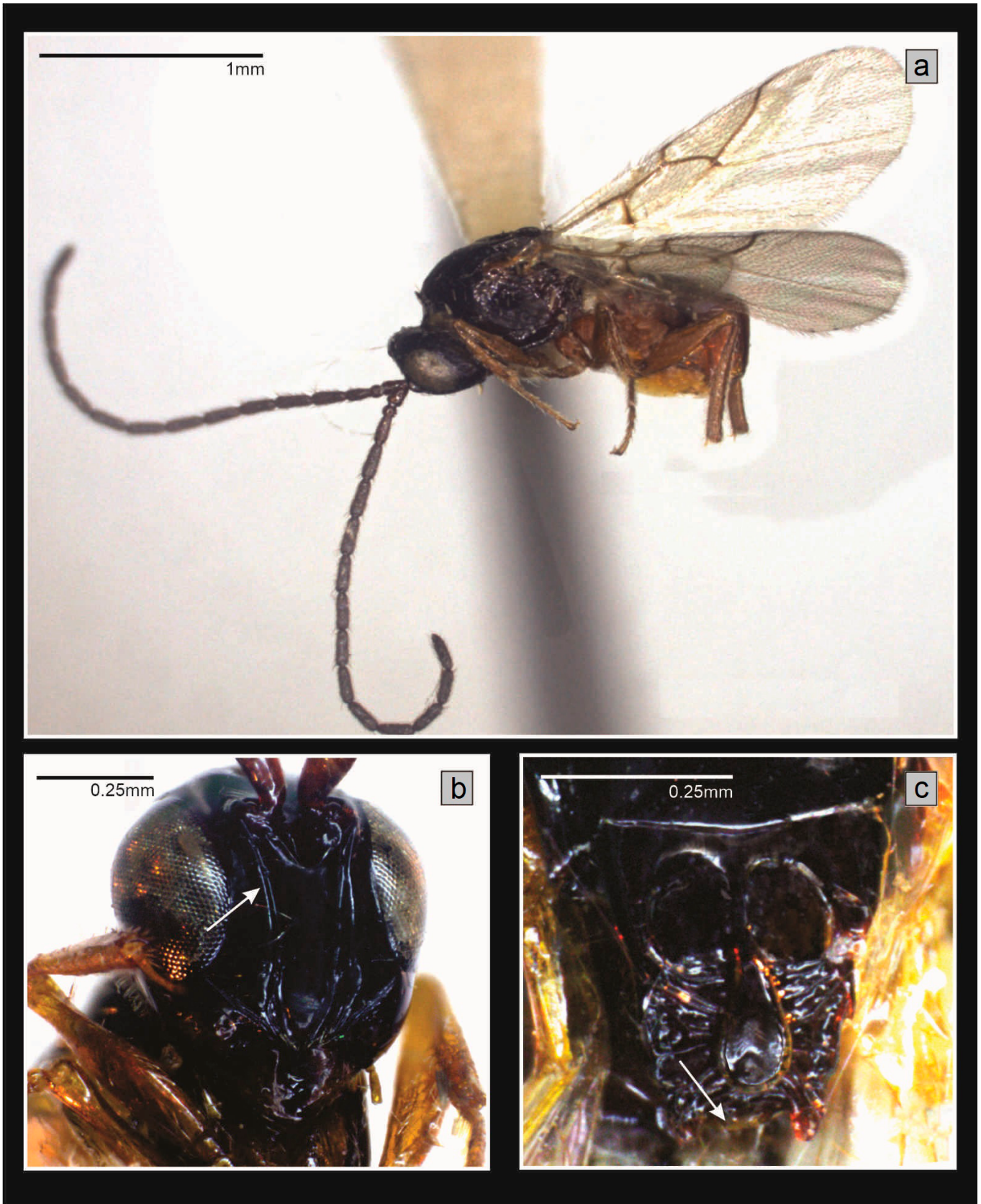
malar sulci present; female antennae clavate, with nine flagellomeres; male antennae with thirteen flagellomeres, filiform; dorsal margin of pronotal plate in anterior view deeply emarginated; mesoscutum longer than wide, without median mesoscutal carina; posterior part of scutellum in dorsal view emarginated; dorsal surface of scutellum areolate; scutellar plate suboval, dorsal surface smooth, with setiferous punctures and glandular pit, placed close posterior margin of plate; forewings hyaline, glabrous at base, marginal cell open, three times longer than wide; base of syntergum with dorsally complete hairy ring, like wooly. *Caleucoela* is closely related to *Acantheucoela* Ashmead, 1900 by having the dorsal margin of the pronotal plate deeply emarginated and by the posterior part of scutellum in dorsal view emarginated, with two projections protruding posteriorly. The two genera can be differentiated by the following characters. The number of antennal flagellomeres on the antennal club, which in *Acantheucoela* is composed of seven flagellomeres, whereas in *Caleucoela* it has nine; the male antennae in *Acantheucoela* has the F1 longer than following flagellomeres, whereas in *Caleucoela* the F1 is shorter than following flagellomeres; the marginal cell is closed in *Acantheucoela*, but it is completely open in *Caleucoela*; and the base of the syntergum with a hairy ring is incomplete dorsally in *Acantheucoela*, whereas it is complete in *Caleucoela* (Reche 2021).

**Redescription.** Body stout, smooth, and shiny. Head (Figs. 1c, 2b) subcircular in anterior view, broader than mesosoma, nearly glabrous. Central area of face smooth. Toruli projected. Rostral keels present (Fig. 2b). Inner orbital furrow present. Malar sulci present. Posterior margin of genae distinct, carinate. Compound eyes glabrous. Ocellar hair patches absent. Occiput smooth. Vertex smooth. Female antennae (Fig. 1a) with thirteen segments, club consisting of nine flagellomeres; male antennae (Fig. 2a) with fifteen segments, filiform. Shape of dorsal margin of pronotal plate deeply emarginate (Fig. 1c). Pronotal ridge present. Mesoscutum (Fig. 1c) longer than wide, without median mesoscutal carinae. Shape of posterior part of scutellum in dorsal view emarginate, with two projections protruding posteriorly (Fig. 2c), above propodeum. Lateral bars of scutellum (Fig. 2c) short, and smooth. Scutellar foveae longer than wide (Fig. 2c). Scutellar plate (Fig. 2c) suboval, posterior margin rounded, dorsal surface with glandular pit placed close posterior margin of plate, covers a quarter of scutellum in dorsal view. Anteroventral cavity of metapleuron suboval, setose. Forewings longer



**Figure 1.** *Caleucoela striatipennis*. Female. Holotype. a. Habitus in lateral view. b. Habitus in dorsal view. c. Head in anterior view, arrow indicated dorsal margin of pronotal plate.





**Figure 2.** *Caleucoela striatipennis*. Male. a. Habitus in lateral view. b. Head in frontal view, arrow indicated rostral keels. c. Scutellum in dorsal view, arrow indicated posterior margin of scutellum emarginated.

than body, hyaline, membrane pubescent on surface and margin, reduced at bases, marginal cell open, longer than broad. Metasoma very shortly petiolate; base of syntergum with hairy ring present, remainder of metasoma glabrous; micropunctures absent.

**Distribution.** Neotropical region and South American Transition Zone. Argentina (Díaz 1978), Brazil (Kieffer 1909), and Peru (new record).

**Biology.** Unknown.

*Caleucoela striatipennis* Kieffer, 1909 (Figs. 1-2)

**Redescription. Female.** (Fig. 1). Body length 2.80-3 mm. Head and mesosoma reddish brown, almost black. Metasoma with anterior half dark brown and posterior half reddish brown. Antennae, mandibles, and forewings dark brown. Legs reddish brown.

**Head add.** (Fig. 1c). In anterior view subcircular. Toruli projected. Rostral keels long and strongly impressed. Malar sulci deep. Antennae with thirteen segments, pilose, subcylindrical, flagellomeres one and two subequal in length; F3 to F11 moniliform, wider than long towards the apex, club consisting of nine flagellomeres, with rhinaria. **Pronotum.** (Fig. 1c). Pronotal plate smooth. Medial bridge of pronotal plate narrow, with lateral foveae open and deep. Dorsal margin deeply emarginate. Pronotal ridge absent. Sides of pronotum smooth, with pubescent area on upper half of margin. **Mesoescutum.** Parapsidal ridges represented by hair lines. Parascutal impressions incomplete. Notaulus absent. **Mesopectus.** Upper part and lower part of mesopleuron smooth. Mesopleural carina poorly developed. Precoxal carinae well development. Subalar pit small. Mesopleural triangle absent. Subcoxal depression absent.

**Mesoscutellum.** Scutellar foveae smooth. Lateral bars of scutellum short and smooth. Dorsal surface of scutellum areolate, posterior margin emarginate, with two projections protruding posteriorly, above propodeum. Scutellar plate suboval, posterior margin rounded, dorsal surface with glandular pit placed close posterior margin of plate, with punctures on each side, with a seta on either side. **Metapleural-propodeal complex.** (Fig. 1a). Posterior margin of metapleura depressed in its middle portion, with carina, anteroventral cavity suboval, setose. Propodeum short, setose. Lateral propodeal cari-

nae straight, semiparallel. **Wings.** (Fig. 1b). Forewings hyaline, pubescent in surface and margin, marginal cell open, three times longer than broad. **Legs.** Fore and mid coxa subequal in size, with patch of hairs, hind coxa once the size of either fore- or midcoxae, with a row of hairs. **Metasoma.** Base of syntergum with hairy ring complete dorsally like woolly, remainder of metasoma glabrous without punctures.

**Description. Male.** (Fig. 2). Similar to female. Body length 2.90-3.00 mm. Metasoma reddish brown. Antennae (Fig. 2a) filiform, fifteen segments, F1 curved, shorter than following flagellomeres; F2 to F13 gradually elongated towards the apex, with rhinaria. Metasoma nearly squared posteriorly in lateral view. Dorsal surface of scutellar plate (Fig. 2c) with glandular pit placed close posterior margin of plate, without punctures on each side.

**Distribution.** Neotropical region and South American Transition Zone. Argentina (Díaz 1978), Brazil (Kieffer 1909) and Peru (new record). This distribution corresponds to Yungas biogeographical province (Brazilian subregion, Neotropical region) in Argentina; Pará biogeographical province in Brazil (Brazilian subregion, Neotropical region), and Puna biogeographical province in Peru (South American Transition Zone).

**Host.** Unknown.

**Type material. BRAZIL. Pará.** Holotype female (CAS Type 17044), Baker coll.

**Additional material. ARGENTINA. Tucumán.** 1 female, Horco Molle, 26°46'55.265" South, 65°21'50.093" West, 20-26 Mar 1966, Lionel coll.; 1 female, Horco Molle, 26°46'55.265" South, 65°21'50.093" West, 30 May 1971, Porter, Fidalgo and Wuscovi colls. (IFML). 2 females, San Javier, 26°47'17.342" South, 65°21'33.606" West, 16 Nov 1981, s/ veg. Herb. Mulvany, Díaz, Fidalgo and Armesto colls. (MLP). **PERU. Monzón Valley. Tingo María.** 1 male, 9°17'46.176" South, 75°59'46.176" West, 29 Nov 1954. E. I. Schlinger and E. S. Rose colls. (CAS).

## AUTHOR'S CONTRIBUTION

VAR surveyed the collection of MLP and IFML, identified the specimens; VAR and FEG conducted the lab work and wrote the manuscript.

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## CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

## LITERATURE CITED

- Buffington ML. 2017. The description of *Humboldteria*, a new genus Neotropical Eucoilinae (Hymenoptera: Figitidae). *Proc. Entomol. Soc. Wash.* 119 (Sp Issue):718-736. doi: <https://doi.org/10.4289/0013-8797.119.SpecialIssue.718>
- Buffington ML, Forshage M, Liljebld J, Tang Ch-T, van Noort S. 2020. World Cynipoidea (Hymenoptera): A Key to Higher-Level Groups. *Insect Systematics and Diversity*, 4(4):1-69. doi: <https://doi.org/10.1093/isd/ixaa003>
- Díaz NB. 1978. Estudio ecológico y sistemático de cinipoideos neotropicales V (Hymenoptera). Nuevas citas para la República Argentina, Brasil y Bolivia. *Rev. Soc. Entomol. Argent.*, 37(1-4):35-38.
- Forshage M. 2009. *Systematics of Eucoilini. Exploring the diversity of a poorly known group of cynipoid parasitic wasps*. Doctoral dissertation, Uppsala University, Uppsala, Sweden. 56 pp.
- Gallardo FE, Reche VA, Bertolaccini I, Zarate B, Curis C. 2017. A new genus and species of Eucoilinae (Hymenoptera, Cynipoidea, Figitidae) parasitoid of *Euxesta eluta* Loew (Diptera, Otitidae) attacked *Bt* sweet corn in Argentina. *J. Hymen. Res.*, 54:57-70. doi: <https://doi.org/10.3897/jhr.54.10096>
- Harris R. 1979. A glossary of surface sculpturing. State of California, Department of Food and Agriculture. *Occ. Pap. in Entomol.*, 28:1--31.
- Kieffer JJ. 1909. Description de nouveaux cynipides zoophages. *Bull. Soc. Hist. Nat. de Metz.*, 3(2):57-96.
- Morrone JJ. 2014. Cladistic biogeography of the Neotropical region: Identifying the main events in the diversification of the terrestrial biota. *Cladistics*, 30(2):202--214. doi: <https://doi.org/10.1111/cla.12039>
- Reche VA. 2021. *Biodiversidad de Ganaspini (Hymenoptera: Figitidae: Eucoilinae) en la Argentina*. [Tesis Doctoral]. [Buenos Aires], Argetina: Universidad Nacional de La Plata. Inédito. 317 pp. doi: <https://doi.org/10.35537/10915/120860>
- Weld L. 1952. Cynipoidea (Hym.) 1905-1950. Privately printed. Ann Arbor, Michigan. 351 pp.
- Yoder MJ, Mikó I, Seltmann KC, Bertone MA, Deans AR. 2010. A Gross Anatomy Ontology for Hymenoptera. *PLoS ONE*, 5(12). doi: <https://doi.org/10.1371/journal.pone.0015991>