

Nomenclature and taxonomy of *Ortonia* Signoret, 1876, and *Llaveia* Signoret, 1876 (Hemiptera, Coccoidea, Margarodidae)

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Résumé

Nomenclature et taxonomie des genres Ortonia Signoret, 1876, et Llaveia Signoret, 1876 (Hemiptera, Coccoidea, Margarodidae). L'identité de deux espèces de cochenilles *Margarodidae*, *Ortonia bouvari* et *O. uhleri*, et du genre *Ortonia*, tous décrits par Signoret en 1876, est établie. Des lectotypes sont désignés. Le nom *Ortonia* Signoret, homonyme plus récent, est remplacé par *Ecuadortonia* nouveau nom. *Ortonia bouvari* Signoret est mis en synonymie avec *Llaveia axin* (Llave). Des particularités taxonomiques de *L. axin*, espèce-type du genre, et d'*Ortonia uhleri* Signoret, espèce-type d'*Ecuadortonia*, sont discutées.

Abstract

The identity of two species of margarodid scale insects, *Ortonia bouvari* and *O. uhleri*, and the genus *Ortonia*, all described by Signoret in 1876, is established. Lectotypes are designated. The name *Ortonia* Signoret, junior homonym, is replaced by *Ecuadortonia* new name. *Ortonia bouvari* Signoret is newly synonymized with *Llaveia axin* (Llave). Taxonomic features of *L. axin*, type species of *Llaveia*, and of *Ortonia uhleri* Signoret, type species of *Ecuadortonia*, are discussed.

Citer ce document / Cite this document :

Ben-Dov Yair. Nomenclature and taxonomy of *Ortonia* Signoret, 1876, and *Llaveia* Signoret, 1876 (Hemiptera, Coccoidea, Margarodidae). In: Bulletin de la Société entomologique de France, volume 109 (4), octobre 2004. pp. 383-386;

https://www.persee.fr/doc/bsef_0037-928x_2004_num_109_4_16143

Ressources associées :

Llaveia

Coccoidea

Margarodidae

Fichier pdf généré le 03/10/2019

Nomenclature and taxonomy of *Ortonia* Signoret, 1876, and *Llaveia* Signoret, 1876 (Hemiptera, Coccoidea, Margarodidae)

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Summary. – The identity of two species of margarodid scale insects, *Ortonia bouvari* and *O. uhleri*, and the genus *Ortonia*, all described by Signoret in 1876, is established. Lectotypes are designated. The name *Ortonia* Signoret, junior homonym, is replaced by *Ecuadortonia* new name. *Ortonia bouvari* Signoret is newly synonymized with *Llaveia axin* (Llave). Taxonomic features of *L. axin*, type species of *Llaveia*, and of *Ortonia uhleri* Signoret, type species of *Ecuadortonia*, are discussed.

Résumé. – Nomenclature et taxonomie des genres *Ortonia* Signoret, 1876, et *Llaveia* Signoret, 1876 (Hemiptera, Coccoidea, Margarodidae). L'identité de deux espèces de cochenilles Margarodidae, *Ortonia bouvari* et *O. uhleri*, et du genre *Ortonia*, tous décrits par Signoret en 1876, est établie. Des lectotypes sont désignés. Le nom *Ortonia* Signoret, homonyme plus récent, est remplacé par *Ecuadortonia* nouveau nom. *Ortonia bouvari* Signoret est mis en synonymie avec *Llaveia axin* (Llave). Des particularités taxonomiques de *L. axin*, espèce-type du genre, et d'*Ortonia uhleri* Signoret, espèce-type d'*Ecuadortonia*, sont discutées.

Key words. – Hemiptera, Coccoidea, Margarodidae, scale insects, *Llaveia axin*, *Ortonia*, *Ortonia bouvari*, *Ortonia uhleri*, *Ecuadortonia* n. nom.

SIGNORET (1876 : 367) established the genus *Ortonia* (Hemiptera, Coccoidea, Margarodidae) for two new species, namely *Ortonia bouvari* Signoret, 1876, and *O. uhleri* Signoret, 1876, without designation of type species. COCKERELL (1899 : 259) discovered that *Ortonia* Signoret, 1876, was a homonym of *Ortonia* Wood, 1869 (in order Opiliones, class Arachnida ; see KURY, 2003) and of *Ortonia* Nicholson, 1873 (in phylum Annelidae). In addition, Cockerell synonymized *Ortonia* Signoret with *Llaveia* Signoret (1876 : 370) because he considered *O. bouvari* and *O. uhleri* to be congeneric with *Llaveia axin* (Llave, 1832), the type species of *Llaveia*. Subsequently, COCKERELL (1902b : 232) designated *Ortonia uhleri* as type species of *Ortonia* Signoret. MORRISON & MORRISON (1966) discussed the status of *Ortonia* Signoret, but made no conclusions, probably because no type material was available to them.

This study was initiated in order to clarify the identity of the taxa mentioned above and stabilize them in nomenclature of the Margarodidae and in Catalogue of the Margarodidae of the World (BEN-DOV, in press).

Type material of the relevant species was obtained through the kindness of Dr Herbert Zettel, curator of Hemiptera, Naturhistorisches Museum, Wien, Austria. The type material of most species, which have been described by V. A. Signoret, is deposited in that Museum (BEN-DOV & MATILE-FERRERO, 1995).

Names of the depositories mentioned in this paper are abbreviated as follows : ICVI, Department of Entomology, The Volcani Center, Bet Dagan, Israel ; MNHN, Muséum national d'Histoire naturelle, Paris, France ; NHMW, Naturhistorisches Museum Wien, Austria ; USNM, U.S. National Museum of Natural History, Washington, USA.

Llaveia Signoret, 1876

Llaveia Signoret, 1876 : 370. Type species : *Coccus axin* Llave, 1832, by monotypy.

Besides the type species, six species have been assigned to the genus *Llaveia*, namely : *L. axin dorsalis* Dugès, 1888, *L. bouvari* (Signoret, 1876), *L. championi* (Cockerell, 1902a), *L. mexicanorum* (Cockerell, 1898), *L. oaxacoensis* Morrison, 1927, and *L. uhleri* (Signoret, 1876)

(FOLDI, 2001 ; BEN-DOV, in press). The species *L. championi* is known only from the adult male, whereas the other five were described from the adult female. The identity of *L. bouvari* and *L. uhleri* will be established in this publication.

***Llaveia axin* (Llave, 1832)**

Coccus axin Llave, 1832 : 148.

Ortonia bouvari Signoret, 1876 : 367, n. syn.

Monophlebus dugesi Vayssière, 1914 : 335.

The margarodid *Llaveia axin*, named "aje" "ni-in" or "nij" in Central America, is distributed in Guatemala, several states of Mexico and Panama. This scale insect has been utilized during centuries by the indigenous peoples of Central America who used fat extracts from the body of the females in medicine, waterproofing agents and as a base for lacquer work (JENKINS, 1970).

The material of *this species* from NHMW included 4 females in a tube labelled "*Ortonia bouvari*, det. Signoret, Guatemala, Cent. America". Two females, here considered as syntypes, were macerated in KOH, stained in Acid Fuchsin, and mounted, each on a separate slide : one is designated LECTOTYPE (**here designated**), the other becoming PARALECTOTYPE. Two females were retained at the same state as received. The lectotype and paralectotype on slide were in poor condition : legs broken off, except for the coxae ; antennae contained only basal segments and several segments of pedicel. However, these taxonomic features were observed.

Measurements (of slide-mounted specimens) : lectotype 14 mm long, 8 mm wide ; paralectotype 10 mm long, 7 mm wide.

Cicatrices (fig. 1A), circular or slightly oval, 200-270 µm in diameter ; constructed of an outer sclerotized rim and an inner rim (about half the diameter of outer rim) ; the area between two rims reticulated by minute polygonal areas ; a circular opening (diameter about 30 µm), slightly projecting above surface, placed in center of cicatrice ; lectotype with 21, paralectotype with 31 cicatrices placed ventrally, on submedian areas from first abdominal sternite to postvulvar segment.

Antennae. Lectotype, with one antenna containing basal and five segments ; the other with basal and four segments. Paralectotype, with one antenna containing basal and five segments ; the other with basal and six segments. Basal segment 390-400 µm wide, 200-210 µm long ; second segment 200-210 µm wide, 180-200 µm long.

Legs. Available only the coxae, each about 900 µm long.

Locular pores. Distributed on venter and dorsum ; 18-20 µm in diameter ; each with 16-18 marginal loculi ; centre of pore tri- quadri- or quinquelocular.

Setae. Setose setae, 28-32 µm long, on dorsum and venter ; their number smaller than that of locular pores.

The taxonomic features of *Ortonia bouvari* agree with those of *Llaveia axin* (as observed in other specimen), and therefore the former is here synonymized with the latter.

The variation in number of cicatrices in adult female of *Llaveia axin* from several localities is presented below.

Locality	No. of specimens	Total number of cicatrices
Guatemala : – Lecto- and paralectotype <i>O. bouvari</i>	2	21-31
– 1905 - MNHN	6	21-32
Mexico : – Veracruz - USNM	1	38
– Michoacán, Tziritzicuaro - MNHN	1	34
– Michoacán, Huetamo - ICVI	2	19-20
Panama : – on cotton - USNM	1	33

Material examined. GUATEMALA : lectotype and paralectotype of *Ortonia bouvari* Signoret, NHMW ; *idem*, collected 1905, R. Guérin, MNHN and ICVI. MEXICO : Guanajuato, syntypes of *Monophlebus dugesi* Vayssière, collected 1890, A. Dugès, MNHN ; Michoacán, Huetamo, on *Acacia* sp., 13.ix.1993, M.L. Williams, ICVI ; Michoacán, Tziritzicuaro, on *Acacia cochliacantha*, 19.x.1966, R. McGregor & K.D. Jenkins, MNHN ; Veracruz, Puerto, xi.1928, J. P. Bastor, USNM. PANAMA : on cotton, viii.1956, B.L. Gordon, USNM.

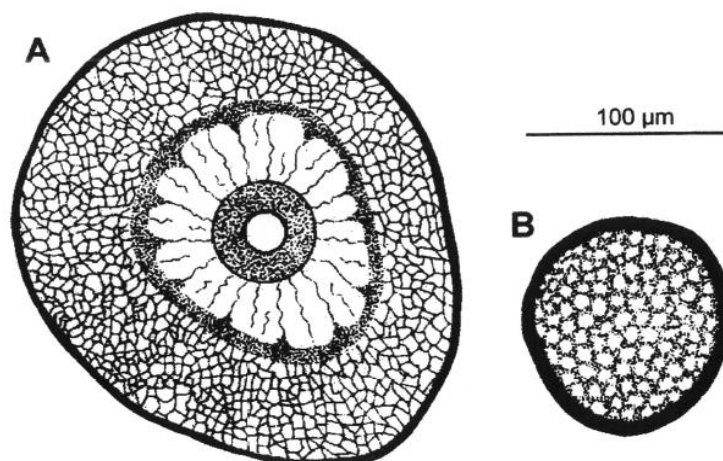


Fig. 1. – Ventral cicatrices of adult female. – A, *Llaveia axin* (Llave). – B, *Ecuadortonia uhleri* (Signoret).

Notes. PEREZ *et al.* (2004) have shown that body size is not a reliable character to distinguish between species in the genus *Llaveia*. In this paper data is given on variation in number of cicatrices in adult female of *Llaveia axin* from several localities in Central America. It may be suggested that this variation is correlated with the body size of the female.

***Ecuadortonia* n. nomen**

Ortonia Signoret, 1876 : 367. Homonym of *Ortonia* Wood, 1869, and *Ortonia* Nicholson, 1873.
Type species: *Ortonia uhleri* Signoret, by subsequent designation of COCKERELL (1902b : 232).

The lectotype of the type species, despite its poor condition, provides characters showing that *Ortonia uhleri* is not congeneric with the type species of *Llaveia*. Therefore, the replacement name *Ecuadortonia* is here introduced. The taxonomy of this genus is discussed below in the section dealing with its type species.

***Ecuadortonia uhleri* (Signoret, 1876) n. comb.**

Ortonia uhleri, 1876 : 367.

The material of this species from NHMW contained two fully-grown females each mounted on a pin and labelled "*Ortonia uhleri* det. Signoret, Ecuador, Napa forest". One female was macerated in KOH, stained in Acid Fuchsin and venter separated from dorsum. Venter and dorsum mounted each on a separate slide, in Canada Balsam. These two slides are designated and labelled LECTOTYPE (**here designated**). The other female was retained at the same state as received.

Measurements. Fully-grown female (not slide-mounted), about 10 mm long, 6 mm wide.

Ventral cicatrices (fig. 1B) built of a circular (diameter 80-110 µm) sclerotized rim that encircles a reticulated pattern made of circular loculi 3-6 µm in diameter. Cicatrices placed ventrally in clusters on both sides of submedian areas of abdominal segments as follows: 61-45 cicatrices on post vulvar segment, and 14-16, 27-41, 11-12 cicatrices on pre-vulvar segments, respectively.

Antennae. Only the basal segment of each antenna available on lectotype ; about 570 µm in diameter.

Legs. Only the coxae available on lectotype ; about 570 µm long.

Locular pores. Distributed on venter and dorsum ; 16-18 µm in diameter ; each with 16-18 marginal loculi ; centre of pore tri- quadri- or quinquelocular.

Setae. Placed along segmental lines ; 200-220 µm long.

Material examined. ECUADOR : lectotype, Napa Forest, NHMW.

Notes. The ventral cicatrices in the type species of *Ecuadortonia* (= *Ortonia* Signoret, junior homonym) differ in their structure from those of *Llaveia axin*, the type species of *Llaveia*. This difference is here regarded a taxonomic character that justifies the placement of *Ortonia uhleri* in a distinct genus, for which the replacement name *Ecuadortonia* is here introduced.

ACKNOWLEDGEMENTS. – I am grateful to Danièle Matile-Ferrero, Muséum national d'Histoire naturelle, Paris, Douglass R. Miller, US Department of Agriculture, Beltsville, Maryland, and Michael L. Williams, Auburn University, Auburn, Alabama, USA, for the loan of material.

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