

## New contribution to the knowledge of the genus *Alloxysta* (Insecta: Hymenoptera: Cynipoidea: Figitidae): revision of some type material

M. Ferrer-Suay<sup>1\*</sup>, J. Selfa<sup>2</sup> & J. Pujade-Villar<sup>1</sup>

### Abstract

The type material of *Alloxysta hendrickxi* (BENOIT, 1956), *Alloxysta marshalliana* (KIEFFER, 1900), *Alloxysta quedenfeldti* (KIEFFER, 1909) and *Alloxysta tscheki* (GIRAUD, 1860) has been studied. These species are considered valid, and are described completely and illustrated here, with some considerations to *A. tscheki*. *Alloxysta maxima* HEDICKE, 1914 is here synonymized with *Alloxysta pallidicornis* (CURTIS, 1838). *Alloxysta filamentosus* ANDREWS, 1978 and *Alloxysta ullrichi* (GIRAUD, 1860) are considered as nomina dubia until type material is found and studied.

**Key words:** Charipinae, *Alloxysta*, types, revision.

### Zusammenfassung

Das Typenmaterial von *Alloxysta hendrickxi* (BENOIT, 1956), *Alloxysta marshalliana* (KIEFFER, 1900), *Alloxysta quedenfeldti* (KIEFFER, 1909) und *Alloxysta tscheki* (GIRAUD, 1860) wurde untersucht. Diese Arten werden als gültig betrachtet und werden hier vollständig beschrieben und abgebildet und mit einigen Überlegungen zu *A. tscheki* ergänzt. *Alloxysta maxima* HEDICKE, 1914 wird in dieser Arbeit mit *Alloxysta pallidicornis* (CURTIS, 1838) synonymisiert. *Alloxysta filamentosus* ANDREWS, 1978 und *Alloxysta ullrichi* (GIRAUD, 1860) werden als nomina dubia geführt bis Typenmaterial gefunden und untersucht werden kann.

### Introduction

The taxonomy of the subfamily Charipinae (Hymenoptera: Cynipoidea: Figitidae) has been very chaotic, so the possibility to identify at species level has been a very difficult task. The first species described in this subfamily was *Allotria victrix* by WESTWOOD (1833). Since then the number of described species within the Charipinae has increased exponentially up to a total of 281, 168 of which are currently considered as valid (FERRER-SUAY et al. 2012a). The Charipinae are morphologically characterized by being very small wasps, with shiny and smooth bodies. Particularly, for the *Alloxysta* genus, until now there have been detected few useful diagnostic characters: i) proportions of flagellomeres; ii) size and shape of radial cell; iii) presence or absence of pronotal carinae; and iv) presence or absence of propodeal carinae, and if present, the shape of the carinae. We have focused on these characters to establish the validity of nominal species and the synonymization of another species.

<sup>1</sup> Mar Ferrer-Suay, Juli Pujade-Villar, Universitat de Barcelona, Facultat de Biologia, Departament de Biologia Animal. Avda. Diagonal 645, 08028-Barcelona, Spain. – jpujade@ub.edu; mar.ferrer.suay@gmail.com

<sup>2</sup> Jesús Selfa, Universitat de València, Facultat de Ciències Biològiques, Departament de Zoologia. Campus de Burjassot-Paterna, Dr. Moliner 50, E-46100 Burjassot (València), Spain. – jesus.selfa@uv.es

\* Corresponding author: mar.ferrer.suay@gmail.com

The study of the Charipinae type material has been essential to establish the real status of each species. This is the first step to clarify the taxonomy of this subfamily and then to be able to identify material from different regions correctly or, establish new records and new species. With this aim the following type material has already been revised: Vladimir I. Belizin collection deposited at the Zoological Institute of the Russian Academy of Sciences, Saint Petersburg, Russia (FERRER-SUAY et al. 2012b), Mihail A. Ionescu collection deposited at the “Grigore Antipa” National Museum of Natural History, Bucharest, Romania (FERRER-SUAY et al. 2012c), Carl G. Thomson and Johan W. Zetterstedt collections deposited at the Lund Museum of Zoology, Sweden (FERRER-SUAY et al. 2013a), Theodor Hartig collection deposited at the Zoologische Staatssammlung München, Germany (FERRER-SUAY et al. in prep), Wolter Hellén collection deposited at the Finnish Museum of Natural History, Helsinki, Finland (FERRER-SUAY et al. in press), John Curtis collection deposited at the National Museum of Victoria, Melbourne, Australia (FERRER-SUAY et al. 2013b), Fred G. Andrews, William H. Ashmead and Charles F. Baker collections deposited at the United States National Museum of Natural History (Smithsonian Institution), Washington DC, USA and at the Canadian National Collection of Insects, Ottawa, Canada (FERRER-SUAY et al. 2013c) and finally the types by Peter Cameron and Nigel D.M. Fergusson deposited at the Natural History Museum, London (FERRER-SUAY et al. 2013d).

To finish with the revision of all the Charipinae type material, here we have studied the last *Alloxysta* FÖRSTER, 1869 species which remained to be revised, deposited in different institutions. *Alloxysta hendrickxi* (BENOIT, 1956), *Alloxysta marshalliana* (KIEFFER, 1900), *Alloxysta quedenfeldti* (KIEFFER, 1909) and *Alloxysta tscheki* (GIRAUD, 1860) are considered valid. *Alloxysta maxima* HEDICKE, 1914 is here synonymized with *Alloxysta pallidicornis* (CURTIS, 1838). *Alloxysta filamentosus* ANDREWS, 1978 and *Alloxysta ullrichi* (GIRAUD, 1860) have not been found so they are here considered as **nomina dubia** until the type material can be found and studied. The valid species have been described and illustrated completely; the new status for the other species is explained.

### Material and Methods

The type specimens were borrowed from the following institutions:

BMNH (British Museum Natural History, London, England)

MCZ (Museum of Comparative Zoology (Harvard University), Cambridge (Massachusetts, USA)

NHMW (Naturhistorisches Museum Wien, Vienna, Austria)

RMCA (Musée Royal de l’Afrique Centrale, Tervuren, Belgium)

ZMHB (Zoologisches Museum Humboldt-Universität, Berlin, Germany)

The specimens were studied using stereomicroscopy and were photographed using a Zeiss Discovery V8 compound microscope with attached INFINITYX-21C digital camera feeding image files to a notebook or desktop computer; the program DeltaPix View-Pro AZ was then used to merge an image series (typically representing 20 focal planes) into a single in-focus image. All photographs have been taken from type material.

Morphological terms used follow PARETAS-MARTINEZ et al. (2007). Measurements and abbreviations include F1–F12, first and subsequent flagellomeres. The width of the forewing radial cell was measured from the margin of the wing to the edge of vein Rs. The transfacial line ratio was calculated by dividing the length of the transfacial line (measured from the inner margins of compound eyes, across the face through the antennal sockets) by the compound eye height. The malar space ratio was calculated by dividing the length of the lower part of the gena (from the mouthparts to the ventral margin of the compound eye), by the compound eye height. Females and males of the species have the same characters except where indicated in redescriptions.

## Results and Discussion

### *Alloxysta filimentosus* ANDREWS, 1978 nom.dub.

*Alloxysta filimentosus* ANDREWS, 1978: 61.

**Type locality:** Moscow Mts., Idaho (USA) (ANDREWS 1978: 61).

**Comments:** According to ANDREWS (1978) the type material of *A. filimentosus* was deposited in the MCZ. Regrettably, after consulting with P. Perkins, curator of this institution, this material has not been found. There are no important diagnostic features in the original description, for this reason, we considered it here as **nomen dubium** until it is found and studied.

### *Alloxysta hendrickxi* (BENOIT, 1956) (Fig. 1)

*Charips hendrickxi* BENOIT, 1956: 437.

*Alloxysta hendrickxi* (BENOIT): ANDREWS 1978: 84.

**Type locality:** Democratic Republic of the Congo (BENOIT 1956: 437).

**Type material** deposited in RMCA. **Holotype** ♀: “holotypus” (red label), “Cyn 1-37” (handwritten), “parasite de pucerons sur Cynometra sp.”, “♀”, “Coll. Mus. Congo Kivu: Mulungu, A-673, 1938, Hendrickx”, “Charips hendrickxi sp. N. Holotype ♀ 1955 det. P.L.G. Benoit”, “Alloxysta hendrickxi (Benoit) ♀ det. H.H. Evenhuis 1989”.

**Diagnosis:** *Alloxysta hendrickxi* is similar to *A. mullensis* (CAMERON, 1883) but they can be differentiated by the ratio between F1/pedicel. F1 is longer than pedicel in *A. hendrickxi* (Fig. 1c) while subequal in *A. mullensis*; the shape of propodeal carinae: being thin and straight on the top, forming a plate at the bottom with peaks on sides in *A. hendrickxi* (Fig. 1d) while forming a complete plate with curved sides in *A. mullensis*.

**Male unknown.**

**Redescription of female:**

Length: 0.9 mm.

Coloration: Head, mesosoma and metasoma yellowish brown. Scape, pedicel, F1 and F2 dark yellow, F3-F11 yellowish brown. Legs yellow, veins yellowish brown.

Head: Transversally ovate, slightly wider than high in front view. Setae below, between and above toruli. Few scattered setae on the vertex and numerous setae on the front.

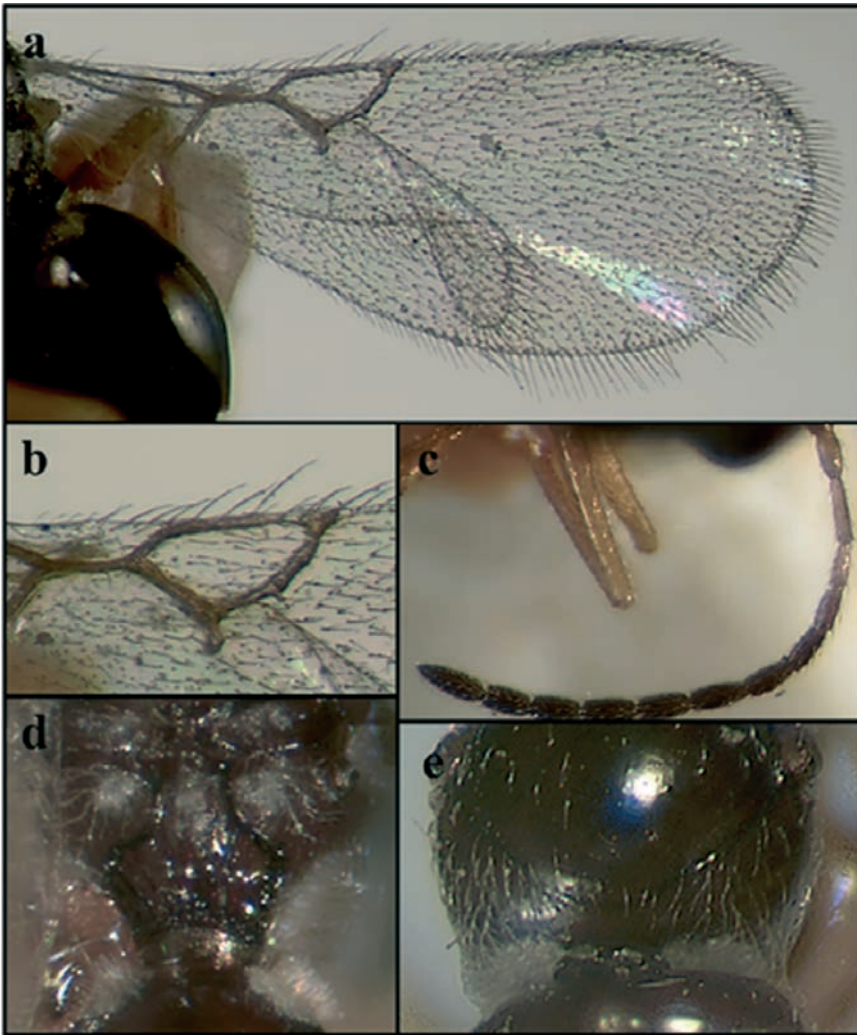


Figure 1: *Alloxysta hendrickxi*: a) forewing; b) radial cell; c) antenna; d) propodeum; e) pronotum.

Transfacial distance and length of malar space cannot be measured due to the position of the specimen.

Antenna: 13 antennomeres, filiform. All antennomeres covered with sparse setae. F1–F2 thinner and smoother than remaining flagellomeres, F3–F11 with rhinaria and club shaped. Pedicel 2.1 times as long as wide; F1 4.6 times as long as wide; F2 2.5 times as long as wide; F3 2.3 times as long as wide; F4 2.3 times as long as wide. F1 1.5 times as long as pedicel; F1 1.6 times as long as F2; F2 subequal to F3; F4 1.1 times as long as F3; F4–F11 subequal in length, width and shape (Fig. 1c).

Mesosoma: Pronotum covered by numerous setae, visible without carinae (Fig. 1e). Mesoscutum smooth and shiny, round in dorsal view with few scattered setae.

Mesoscutellum also smooth and shiny with few scattered setae, more numerous on apex of mesoscutellum. Height of mesopleural triangle along anterior margin 1.4 times the height of mesopleuron. Propodeum covered by numerous setae, with two carinae thin and straight on anterior part, joining at the bottom; with sharp edges (Fig. 1d).

Forewing: Longer than body, 1.4 times as long as mesosoma and metasoma together. Covered with dense setae; marginal setae present (Fig. 1a). Closed radial cell, 2.2 times as long as wide. R1 short and curved; Rs long and also curved (Fig. 1b).

Metasoma: Anterior part with an incomplete ring of setae, glabrous at centre, wider laterally. Metasoma smooth and shiny, T3 and T4 clearly separated.

**Distribution:** Democratic Republic of Congo (BENOIT 1956: 437).

**Comments:** *Alloxysta hendrickxi* was described by BENOIT based only on one female, collected by M.F.L. Hendrickx from the Lake Kivu in the former Congo Belge. After studying material deposited in different institutions, this species has been also found in Kenya and Zimbabwe (FERRER-SUAY et al. 2013b).

### *Alloxysta marshalliana* (KIEFFER, 1900) (Fig. 2)

*Nephycta marshalliana* KIEFFER, 1900: 114.

*Alloxysta marshalliana* (KIEFFER): HELLÉN 1931: 5.

**Type locality:** England (KIEFFER 1900: 114).

**Type material** deposited in BMNH. **Lectotype** ♂: “Lectotype” (round label with red margins), “*Nephycta marshalliana* Kieffer=*Alloxysta brachyptera* ♂ (nec Hartig)” (handwritten), “Cameron 96 76, Clober wa”, “Lectotype ♂ *Nephycta marshalliana* K. det. J. Quinlan, 1977”, “B.M. Type Hym 7.1713”, “*Alloxysta marshalliana* (Kieffer, 1900) det. M. Ferrer-Suay 2013”.

**Diagnosis:** *Alloxysta marshalliana* is mainly characterized by being a brachypterous species with the radial cell present. According to this features it is very similar to *Alloxysta glebaria* HELLÉN, 1963 but can be easily differentiated by the shape of the radial cell, completely opened in *A. marshalliana* (Fig. 2a) while closed in *A. glebaria*.

**Female unknown.**

**Redescription of male:**

Length: 1.1 mm.

Coloration: Head, mesosoma and metasoma brown. Scape yellowish brown, rest of flagellomeres dark yellow. Legs yellow, veins yellowish brown.

Head: Transversally ovate, slightly wider than high in front view. Setae around toruli. Few scattered setae on the vertex and numerous setae on the front. Transfacial distance and length of malar space cannot be measured due to the position of the specimen.

Antenna: 14 antennomeres, filiform. All antennomeres covered with sparse setae. F1 thinner and smoother than remaining flagellomeres, F2–F12 with rhinaria and club shaped. Pedicel 1.3 times as long as wide; F1 2.6 times as long as wide; F2 2.5 times as long as wide; F3 2.3 times as long as wide; F4 2.7 times as long as wide. F1 1.4 times as long as pedicel; F2 1.2 times as long as F1; F2–F4 subequal in length; F4–F12 subequal in length, width and shape (Fig. 2b).

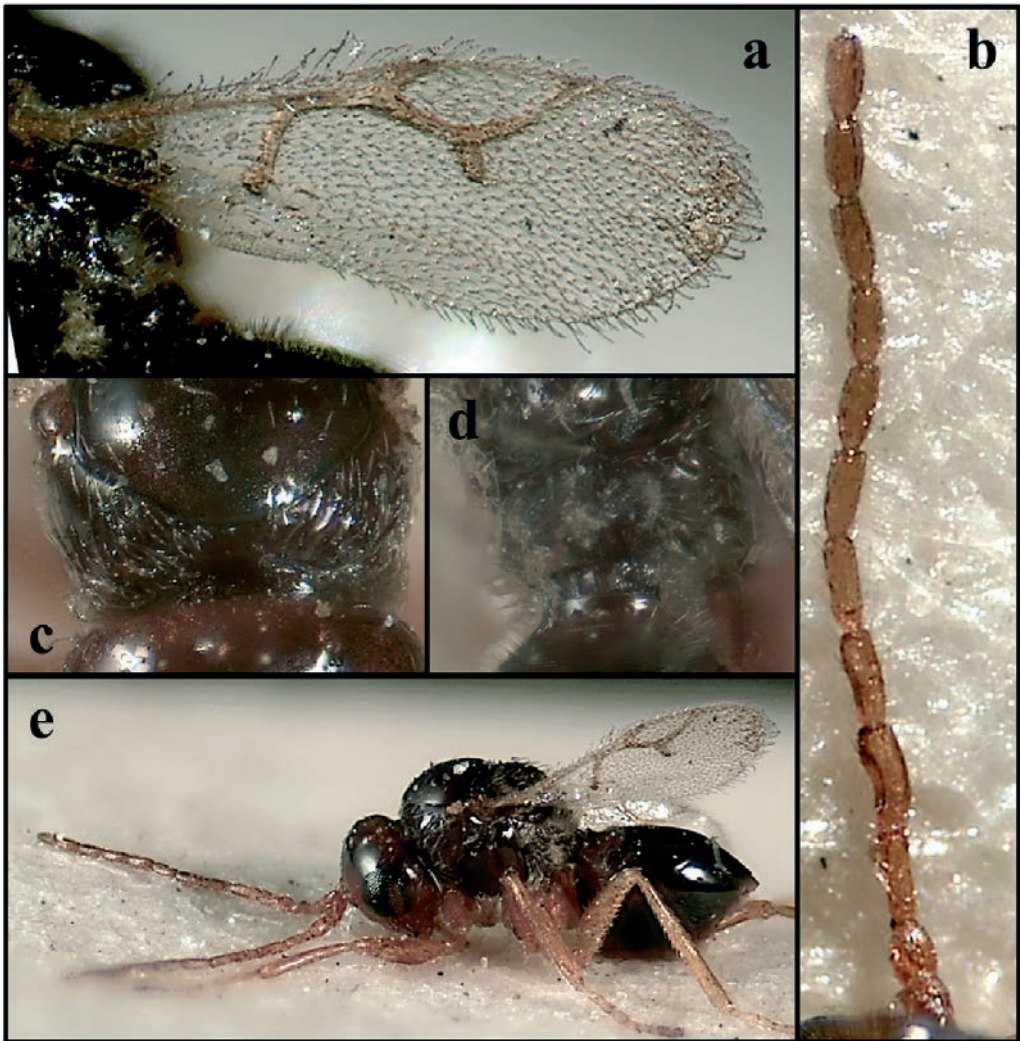


Figure 2: *Alloxysta marshalliana*: a) forewing; b) antenna; c) pronotum; d) propodeum; e) body.

Mesosoma: Pronotum covered by numerous setae, no carinae visible (Fig. 2c). Mesoscutum smooth and shiny, round in dorsal view with few scattered setae. Mesoscutellum also smooth and shiny with few scattered setae, more numerous on apex of mesoscutellum. Height of mesopleural triangle along anterior margin 1.2 times the height of mesopleuron. Propodeum covered by setae, no carinae present (Fig. 1d).

Forewing: Shorter than body, 1.4 times as long as mesosoma and metasoma together. Covered with dense setae; marginal setae present (Fig. 2a). Opened radial cell, 1.9 times as long as wide. R1 and Rs slightly curved (Fig. 2a).

Metasoma: Anterior part with an incomplete ring of setae, glabrous at centre, wider laterally. Metasoma smooth and shiny, T3 and T4 clearly separated.

**Distribution:** England (KIEFFER 1900: 114); Romania (IONESCU 1969: 236).

**Comments:** KIEFFER (1900) did not pay attention to the *A. marshalliana* description. It had been included in the *Nephycta* genus due to the length of the forewing. However, no information about the number of specimens on which the description was based nor the holotype designation was given. KIEFFER (1902: 22) gave a complete description of this species and mentioned that only the male is known. Later, this specimen was designated as lectotype by QUINLAN (1978: 126).

### *Alloxysta maxima* HEDICKE, 1914 syn.n.

*Alloxysta maxima* HEDICKE, 1914: 356.

**Type locality:** Norway (HEDICKE 1914: 353).

**Type material** deposited in ZMHB. **Lectotype** ♀ **here designated:** “Norvegia. E, coll. Strand, Ranum Overholden 24.8.03”, “Mus. Berol”, “*Alloxysta maxima* ♀ Hedicke” (handwritten), “Type” (red label), “Zool. Mus. Berlin”, “LECTOTYPE *Alloxysta maxima* Hedicke, 1914 ♀ Desig. M. Ferrer-Suay 2013” (red label), “*Alloxysta pallidicornis* (Curtis, 1838) det. M. Ferrer-Suay”.

**Comments:** *Alloxysta maxima* is represented by the lectotype female. According to the original description there were four female specimens on which the description was based, but now only one of them is deposited in the institution. This female is designated as lectotype here because its labels match with the original description. The main features of this species are: radial cell completely open, pronotal and propodeal carinae present, the propodeal carinae are straight and reaching the base of the propodeum independently, with rhinaria and club shaped beginning in F2. According with its features it is the same as *A. pallidicornis* (CURTIS, 1838), for this reason we establish this new synonymy here. The type material of *A. pallidicornis* has already been revised (FERRER-SUAY et al. 2013c).

### *Alloxysta quedenfeldti* (KIEFFER, 1909) (Fig. 3)

*Charips quedenfeldti* KIEFFER, 1909: 482.

*Alloxysta quedenfeldti* (KIEFFER): ANDREWS 1978: 89.

**Type locality:** Algeria (KIEFFER 1909: 482).

**Type material** deposited in ZMHB. **Holotype** ♂: “Blidah-Médéah, Algerien, Juli-August 84 Quedenfeldt” (blue label), “*Charips quedenfeldti* K.” (handwritten), “holotype H.H. Evenhuis 1984” (red label), “*Alloxysta quedenfeldti* (Kieffer) ♂ det. H.H. Evenhuis 1904”, “Zool. Mus. Berlin”.

**Diagnosis:** *Alloxysta quedenfeldti* is similar to *Alloxysta aperta* (HARTIG, 1841) but they can be differentiated by the beginning of the rhinaria: in F3 in *A. quedenfeldti* (Fig. 3c) and in F4 in *A. aperta*; and by the relation between pedicel and F1: F1 is subequal to pedicel in *A. quedenfeldti* (Fig. 3c) while F1 is longer than pedicel (1.2 times) in *A. aperta*.

**Female unknown.**

**Redescription of male:**

Length: 1.1 mm.

Coloration: Head yellow, mesosoma and metasoma brown. Scape, pedicel, F1–F3 dark yellow, F4–F12 yellowish brown. Legs yellow, veins yellowish brown.

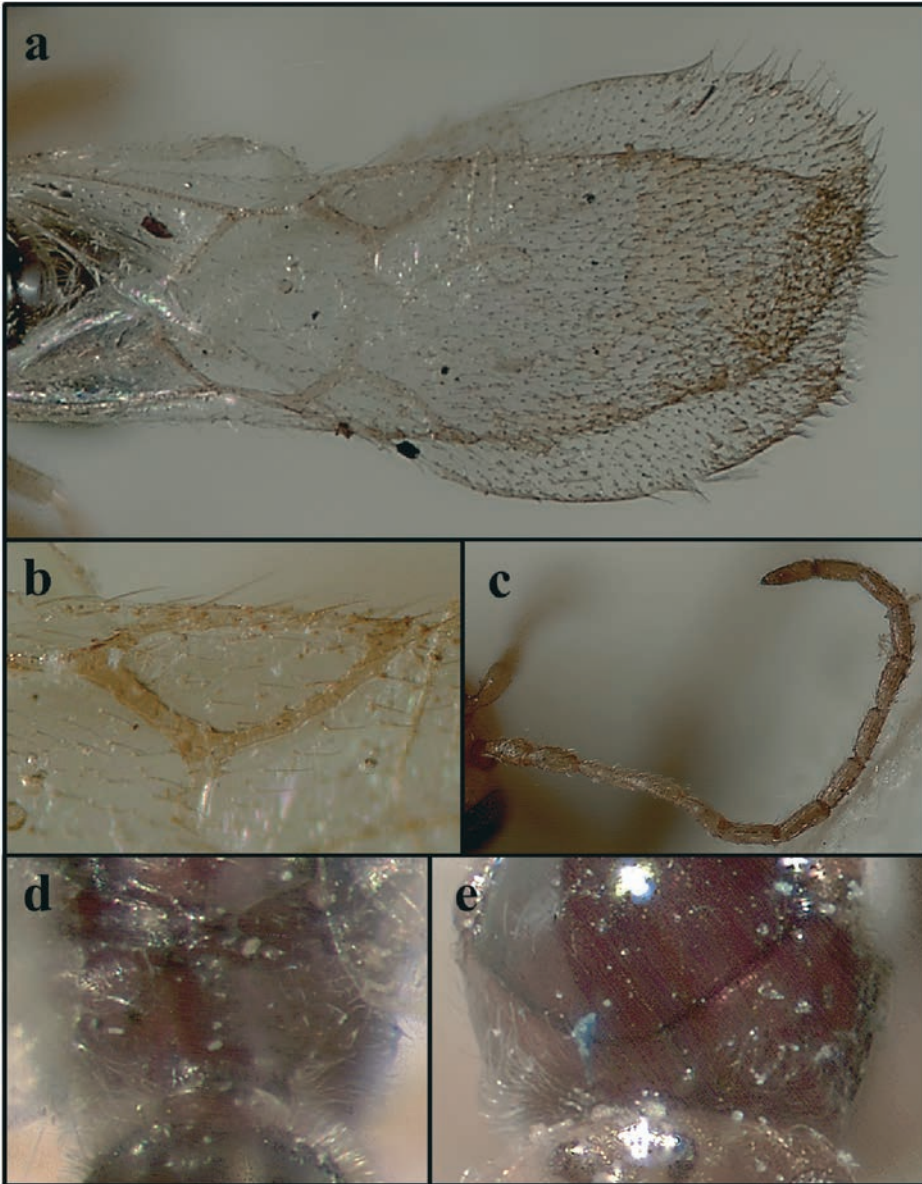


Figure 3: *Alloxysta quedenfeldti*: a) forewing; b) radial cell; c) antenna; d) propodeum; e) pronotum.

Head: Transversally ovate, slightly wider than high in front view. Setae below, between and above toruli. Few scattered setae on the vertex and numerous setae on the front. Transfacial distance and length of malar space cannot be measured due to the position of the specimen.

Antenna: 14 antennomeres, filiform. All antennomeres covered with sparse setae. F1–F2 thinner and smoother than remaining flagellomeres, F3–F12 with rhinaria and club



shaped. Pedicel 2.1 times as long as wide; F1 3.2 times as long as wide; F2 2.9 times as long as wide; F3 2.8 times as long as wide; F4 2.8 times as long as wide. F1 subequal to pedicel; F1-F3 subequal in length; F3 slightly curved; F4–F12 subequal in length, width and shape (Fig. 3c).

Mesosoma: Pronotum covered by numerous setae, no carinae visible (Fig. 3e). Mesoscutum smooth and shiny, round in dorsal view with few scattered setae. Mesoscutellum also smooth and shiny with few scattered setae, more numerous on apex of mesoscutellum. Height of mesopleural triangle along anterior margin 2.3 times the height of mesopleuron. Propodeum covered by numerous setae, no carinae present and no setae present where the carinae are usually present (Fig. 3d).

Forewing: Longer than body, 1.3 times as long as mesosoma and metasoma together. Covered with dense setae; marginal setae present (Fig. 3a). Closed radial cell, 2.5 times as long as wide. R1 and Rs don't reach the costal margin (Fig. 3a).

Metasoma: Anterior part with an incomplete ring of setae, glabrous at centre, wider laterally. Metasoma smooth and shiny, T3 and T4 clearly separated.

**Distribution:** Algeria (KIEFFER 1909: 482).

**Comments:** KIEFFER (1909) described *A. quedenfeldti* based on one male specimen. According to its original description it was deposited in the ZMHB. Later, Evenhuis established and labelled this specimen as the holotype but failed to publish it. We checked the specimen and agree with Evenhuis.

### *Alloxysta tscheki* (GIRAUD, 1860) (Fig. 4)

*Allotria tscheki* GIRAUD, 1860: 128.

*Allotria (Allotria) tscheki* GIRAUD: DALLA TORRE & KIEFFER 1902: 41.

*Charips (Charips) tscheki* (GIRAUD): DALLA TORRE & KIEFFER 1910: 285.

*Charips tscheki* (GIRAUD): DUNN 1949: 106.

*Alloxysta tscheki* (GIRAUD): HELLÉN 1963: 18.

**Type locality:** Austria (GIRAUD 1860).

**Type material** deposited in NHMW. **Lectotype** ♂: "All. Tscheki det. Giraud Type" (handwritten), "Ex. Aphidibus; Ribes rubr." (handwritten), "Allotria Tscheki Giraud" (handwritten), "Allotria Tscheki Giraud 2♂♂, det. H.H. Evenhuis, 1976" (handwritten, orange label), "das rechte Männchen wäre als Lektotypus zu wählen, H.H. Evenhuis" (handwritten, orange label), "NHMW" (yellow label), "LECTOTYPE *Allotria tscheki* Giraud, 1860 ♂ Desig. H.H. Evenhuis, 1976" (red label), "*Alloxysta tscheki* (Giraud, 1860) ♂ det. M. Ferrer-Suay 2013".

**7 Paralectotypes**, 4♂♂, 3♀♀: 1♂: same label data as lectotype; 2♂♂: "Tscheki, Pirstiny, 1867" (handwritten), "All. Tscheki det. Giraud Type" (handwritten), "Allotria Tscheki Giraud, 2♂♂, det. H.H. Evenhuis, 1976" (handwritten), "NHMW" (yellow label), "PARALECTOTYPE *Allotria tscheki* Giraud, 1860 ♂" (red label), "*Alloxysta tscheki* (Giraud, 1860) ♂ det. M. Ferrer-Suay 2013"; 2♀♀: "All. Tscheki det. Giraud Type" (handwritten), "Ex. Aphis Ribes Tschek col." (handwritten), "Allotria Tscheki Giraud 2♀♀ det. H.H. Evenhuis 1976" (handwritten, orange label), "NHMW" (yellow label), "PARALECTOTYPE *Allotria tscheki* Giraud, 1860 ♂" (red label), "*Alloxysta tscheki* (Giraud, 1860) ♀ det. M. Ferrer-Suay 2013"; 1♂ 1♀: "Type" (handwritten), "All. Tscheki det. Giraud Type" (handwritten), "Allotria Tscheki Giraud" (handwritten), "2♀♀, det. H.H. Evenhuis, 1976" (handwritten, orange label), "NHMW" (yellow label), "PARALECTOTYPE *Allotria tscheki* Giraud, 1860 ♂♀" (red label), "*Alloxysta tscheki* (Giraud, 1860) ♂♀ det. M. Ferrer-Suay 2013".

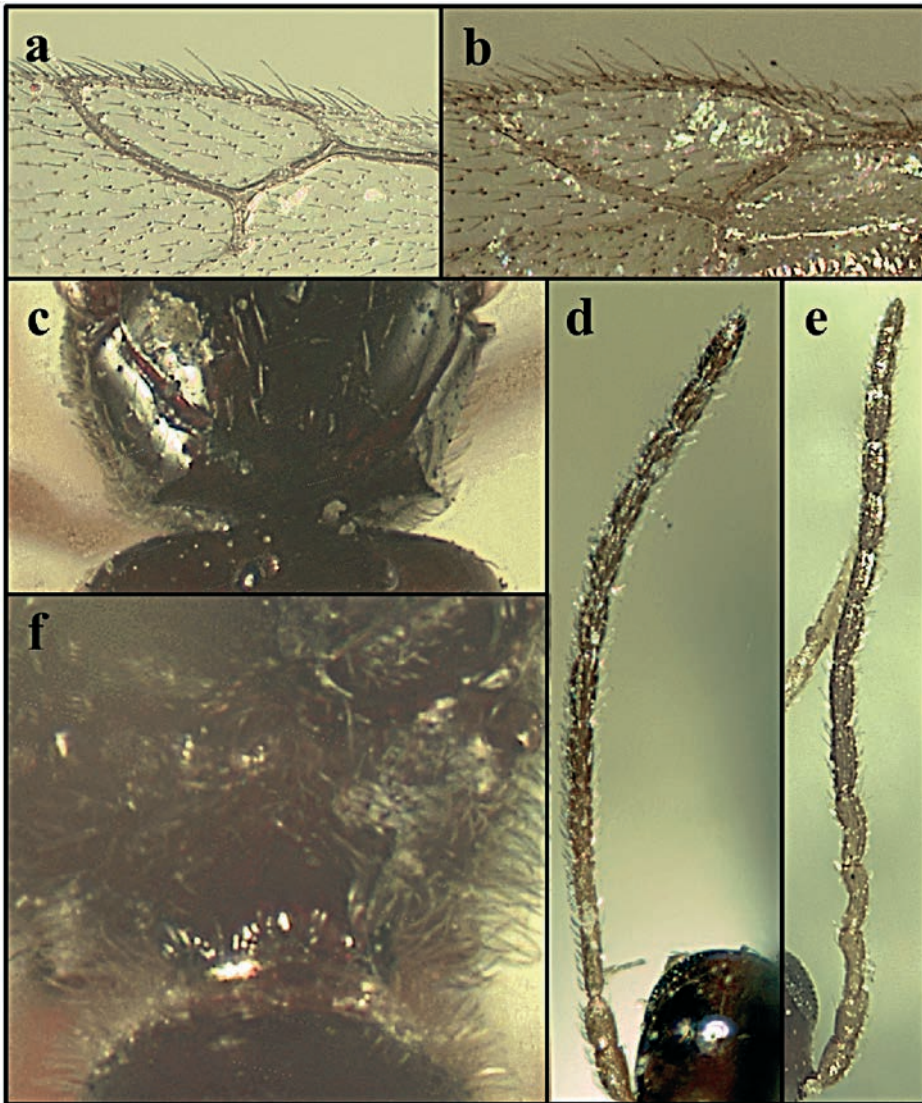


Figure 4: *Alloxysta tscheki*: a) radial cell female; b) radial cell male; c) pronotum; d) antenna female; e) antenna male; f) propodeum.

**Diagnosis:** *Alloxysta tscheki* is morphologically very similar to *Alloxysta fuscicornis* (HARTIG, 1841), making it practically impossible to differentiate them under the microscope. This fact needs deep considerations which are given below in the comments section.

**Redescription:**

Length: Female: 1.1 mm. Male: 0.9–1.1 mm.

Coloration: Head yellowish brown, mesosoma and metasoma brown. Scape, pedicel, F1 and F2 dark yellow; F3–F12 yellowish brown. Legs yellow, veins yellowish brown.

Head: Transversally ovate, slightly wider than high in front view. With setae below and between toruli, without setae above toruli. Few setae on the vertex and a lot of setae on the front. Transfacial distance 1.1 times the height of compound eye. Malar space 0.4 times the height of compound eye.

Antenna: Female: 13 antennomeres, filiform. All antennomeres covered with sparse setae. F1–F2 thinner and smoother than remaining flagellomeres, F3–F11 with rhinaria and club shaped. Pedicel 1.8 times as long as wide; F1 4.6 times as long as wide; F2 3.8 times as long as wide; F3 3.0 times as long as wide; F4 3.0 times as long as wide. F1 1.7 times as long as pedicel; F1 1.2 times as long as F2; F2–F11 subequal in length, width and shape (Fig. 4d). Male: 14 antennomeres, filiform. All antennomeres covered with sparse setae. F1–F12 with rhinaria and club shaped. F1–F3 curved. Pedicel 1.8 times as long as wide; F1 3.5 times as long as wide; F2 3.5 times as long as wide; F3 2.9 times as long as wide; F4 2.9 times as long as wide. F1 1.4 times as long as pedicel; F1–F12 subequal in length, width and shape (Fig. 4e).

Mesosoma: Pronotum covered by sparse setae except in the central area, with two thick carinae clearly visible (Fig. 4c). Mesoscutum smooth and shiny, round in dorsal view with few scattered setae present. Mesoscutellum smooth and shiny, covered by setae, being more numerous on apex. Propodeum entirely covered by setae, without carinae (Fig. 4f).

Forewing: Longer than body, 1.3 times as long as mesosoma and metasoma together. Covered with dense setae; marginal setae present. Radial cell closed, 2.7 times as long as wide in both, male and female. R1 short and slightly curved; Rs long and curved. (Figs. 4a, 4b).

Metasoma: Proximal part with an incomplete ring of setae which is glabrous in the center and wider laterally. Rest of metasoma smooth and shiny with terga clearly visible.

**Distribution:** Austria (GIRAUD 1860: 128; HELLÉN 1963: 19); Belgium (LAMEERE 1907); England (CAMERON 1889: 54); Finland (HELLÉN 1963: 19); France (DE GAULLE 1908: 26; DALLA TORRE & KIEFFER 1910: 285); Germany (TASCHENBERG 1866: 129; VAN VEEN et al. 2003: 450); Hungary (DALLA TORRE & KIEFFER 1910: 285); Romania (FERARU et al. 2005: 67); Scotland (CAMERON 1886: 85); Western Europe (ANDREWS 1978: 91).

**Comments:** The type series of *Alloxysta tscheki* is compound by eight specimens (4♂♂ & 3♀♀). One ♂ was designated by Evenhuis as lectotype in 1976 and the rest of the specimens were considered as paralectotypes. The morphological features of *A. tscheki* are very similar, if not identical, to *A. fuscicornis* (HARTIG, 1841). According to VAN VEEN et al. (2003) these two species have to be considered as different based on their biology, because the typical hosts of the two species are different; *A. fuscicornis* tends to attack *Brevicorine brassicae* (L., 1758) through *Diaretiella rapae* (M'INTOSH, 1855) while *A. tscheki* develops in *Cryptomizus* sp. through *Aphidius ribes* HALIDAY, 1834. Additionally, taken into account the sequences of the ITS2 gene, these two species possess different haplotypes. However, these arguments can be discussed. *Alloxysta fuscicornis* is a cosmopolitan species and has already been found in diverse types of hosts, although not yet in *Aphidius ribes*. The molecular results cannot be used to support or not the difference of these two species due to the weakness of this study. VAN VEEN et al. (2003) took only specimens collected in a restricted area into account and studied only

five specimens of *A. tscheki*. For these reasons the intraspecific variability has not been studied in an enough broad scale. A complete study should be done in order to clarify the status of these two species. By now we keep these two species as different until deeper studies can be done.

***Alloxysta ullrichi* (GIRAUD, 1860) nom. dub.**

*Allotria ullrichi* GIRAUD, 1860: 130.

*Dilyta ullrichi* (GIRAUD): KIEFFER 1900: 114.

*Alloxysta (Alloxysta) ullrichi* (GIRAUD): DALLA TORRE & KIEFFER 1902: 39.

*Alloxysta (Alloxysta) ullrichi ullrichi* (GIRAUD): DALLA TORRE & KIEFFER 1910: 259.

*Alloxysta ullrichi ullrichi* (GIRAUD): ANDREWS 1978: 91.

**Type locality:** Austria (GIRAUD 1860).

**Comments:** Giraud states that the type material of *A. ullrichi* was deposited at the NHMW. Regrettably, according to M. Vizek, collection manager of the Hymenoptera collection, the material has not been found. There are no important diagnostic features in the original description, for this reason, we consider it here as **nomen dubium** until it can be found and studied.

**Acknowledgements**

We are very grateful to David Notton, Senior Curator of the Natural History Museum, London (UK), to Manuela Vizek, collection manager of the Naturhistorisches Museum Wien, Vienna (Austria), E. de Coninck, Curator of the Musée Royal de l'Afrique Centrale, Tervuren (Belgium) and F. Koch, Curator of the Zoologisches Museum der Humboldt-Universität (Germany) for the loan of the material studied here. This research was supported by the project CGL2011-22889 of the Ministerio de Ciencia e Innovación (Spain) and the grant AP2009-4833 of the Ministerio de Educación (Spain).

**References**

- ANDREWS F.G., 1978: Taxonomy and host specificity of Nearctic Alloxystinae with a catalogue of the World species (Hymenoptera: Cynipidae). – Occasional Papers in Entomology 25: 1–128.
- BENOIT P.L.G., 1956: Deux Cynipidae-Charipinae inédits du Congo Belge. – Revue de zoologie et de botanique africaines 53: 437–440.
- CAMERON P., 1883: Descriptions of sixteen new species of parasitic Cynipidae, chiefly from Scotland. – Transactions of the Entomological Society of London 16(4): 365–374.
- CAMERON P., 1886: The fauna of Scotland, with special reference to Clydesdale and the western district. – Proceedings of the Natural History Society of Glasgow 3: 53–95.
- CAMERON P., 1889: On the British species of Allotriinae, with descriptions of other new species of parasitic Cynipidae. – Memoirs and Proceedings of the Manchester Literary and Philosophical Society 2: 53–69.
- CURTIS J., 1838: British entomology; being illustrations and descriptions of the genera of insects found in Great Britain and Ireland: containing colored figures of naturae of the rarest and beautiful species and in many instances of the plants upon which they are found. – Privately published, London 15: 674–721.
- DALLA TORRE K.W. & KIEFFER J.J., 1902: Cynipidae. In: P. WYTSMAN: Genera Insectorum, Vol. I. – Brussels, pp. 1–84.

- DALLA TORRE K.W. & KIEFFER J.J., 1910: Das Tierreich XXIV: Cynipidae. – R. Friedlander & Sons, Berlin. 24: 1–891.
- DE GAULLE J., 1908: Catalogue Systématique & Biologique des Hyménoptères de France. – Librairie Paul Klincksieck, Paris, 171 pp.
- DUNN J.A., 1949: The parasites and predators of potatoe aphids. – Bulletin of Entomological Research 40: 97–122.
- FERRARU E., MUSTATA G. & BARNEA O., 2005: The diversity of the parasitoids in some colonies of Aphids (Homoptera: Aphididae) installed on grassy plants. – Lucrarile “Entomofagii si rolul lor in pastrarea achilibrului natural” Universitatea “A.I. Cuza” Iasi.
- FERRER-SUAY M., PARETAS-MARTÍNEZ J., SELFA J. & PUJADE-VILLAR J., 2012a: Taxonomic and synonymic world catalogue of the Charipinae and notes about this subfamily (Hymenoptera: Cynipoidea: Figitidae). – Zootaxa 3376: 1–92.
- FERRER-SUAY M., SELFA J. & PUJADE-VILLAR J., 2012b: Revision of V.I. Belizin’s type material of *Alloxysta* (Hymenoptera: Figitidae: Charipinae) deposited in the Zoological Institute of the Russian Academy of Sciences. – Zoosystematica Rossica 21(2): 279–290.
- FERRER-SUAY M., SELFA J. & PUJADE-VILLAR J., 2012c: Revision of the type material of Ionescu collection related to Charipinae subfamily (Hymenoptera: Figitidae) deposited in the “Grigore Antipa” National Museum of Natural History (Bucharest). – Travaux du Museum d’Histoire Naturelle “Grigore Antipa” 55(2): 277–284.
- FERRER-SUAY M., SELFA J. & PUJADE-VILLAR J., 2013a: Revision of Thomson and Zetterstedt collections of *Alloxysta* genus deposited in Lund Museum of Zoology (Sweden). – Entomologisk Tidskrift 134: 77–102.
- FERRER-SUAY M., SELFA J. & PUJADE-VILLAR J., 2013b: A review of *Alloxysta* species (Hymenoptera: Cynipoidea: Figitidae: Charipinae) from Africa. – African Entomology 21(2): 255–266.
- FERRER-SUAY M., SELFA J. & PUJADE-VILLAR J., 2013c: Revision of Curtis collection of *Alloxysta* (Hymenoptera: Figitidae: Charipinae) deposited in National Museum of Victoria (Australia). – Memoirs of Museum Victoria 70: 11–16.
- FERRER-SUAY M., SELFA J. & PUJADE-VILLAR J., 2013d: The *Alloxysta* type material (Hym., Figitidae: Charipinae) in the National Museum of Natural History, Washington, DC and the Canadian National Collection of Insects, Ottawa. – The Canadian Entomologist 145(6): 603–625.
- FERRER-SUAY M., SELFA J., NOTTON D. & PUJADE-VILLAR J., 2013e: Revision of the types of species of *Alloxysta* Förster, 1869 described by Cameron and Fergusson (Hymenoptera: Figitidae: Charipinae) deposited in the Natural History Museum (London) including a key to *Alloxysta* species of the Great Britain fauna. – European Journal of Taxonomy 53: 1–27.
- GIRAUD J., 1860: Enumeration des Figitides de l’Autriche. – Verhandlungen der kaiserlich-königlichen zoologisch-botanischen Gesellschaft in Wien 10: 123–176.
- HARTIG T., 1841: Erster Nachtrag zur Naturgeschichte der Gallwespen. – Zeitschrift für Entomologie 3: 322–358.
- HEDICKE H., 1914: Neue Beiträge zur Arthropodenfauna Norwegens nebst gelegentlichen Bemerkungen über deutsche Arten; XXI: Cynipidae. – Nyt Magazine Naturvidenskaberne 52: 353–356.
- HELLÉN W., 1931: Zur Kenntnis der Cynipiden-Fauna Islands. – Göteborgs Kungliga Vetenskaps-och Vitterhets Samhälles handlingar B 2(5): 1–8.
- HELLÉN W., 1963: Die Alloxystininen Finnlands (Hymenoptera: Cynipidae). – Fauna Fennica 15: 1–23.

- IONESCU M.A., 1969: Fauna Republicii Socialiste România. Insecta. Hymenoptera. Cynipoidea. – Academia Republicii Socialiste România, IX(6). 285 pp.
- KIEFFER J.J., 1900: Ueber Allotrinen. – Wiener Entomologische Zeitung 19: 112–115.
- KIEFFER J.J., 1902: Les Cynipides (part 2). In: E. ANDRE: Species des Hyménoptères d'Europe et d'Algérie 7(2): 748pp + 21 pl. [Charipinae in: 5–78 + 592–602(=1904a)].
- KIEFFER J.J., 1909: Beschreibung neuer in Blattläusen schmarotzender Cynipiden. – Naturwissenschaftliche Zeitschrift für Forst- und Landwirtschaft Stuttgart 7: 479–482.
- LAMEERE A., 1907: Manuel de la faune de Belgique; 3. Insectes superieurs, Hymenopteres, Dipteres, Lepidopteres. – H. Lamertin, Bruxelles, 870 pp.
- TASCHENBERG E.L., 1866: Die Hymenoptera Deutschlands. – E. Kummer, Leipzig., 277 pp. 21 pl.
- PARETAS-MARTÍNEZ J., ARNEDO M.A., MELIKA G., SELFA J., SECO-FERNÁNDEZ M.V., FÜLOP D. & PUJADE-VILLAR J., 2007a: Phylogeny of the parasitic wasp subfamily Charipinae (Hymenoptera, Cynipoidea, Figitidae). – Zoologica Scripta 36: 153–172.
- QUINLAN J., 1978: On the identity of some British Alloxystinae described by P. Cameron and by J. J. Kieffer (Hymenoptera, Cynipidae). – Entomologische Berichten 38: 71–74.
- VAN VEEN F.J., BELSHAW R. & GODFRAY H.C.J., 2003: The value of the ITS2 region for the identification of species boundaries between Alloxysta hyperparasitoids (Hymenoptera: Charipidae) of aphids. – European Journal of Entomology 100: 449–453.
- WESTWOOD J.O., 1833: Notice of the habits of a Cynipidous insect parasitic upon the *Aphis rosae* with descriptions of several other parasitic Hymenoptera. – Magazine of Natural History 6: 491–497.

# ZOBODAT - [www.zobodat.at](http://www.zobodat.at)

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Annalen des Naturhistorischen Museums in Wien](#)

Jahr/Year: 2015

Band/Volume: [117B](#)

Autor(en)/Author(s): Ferrer-Suay Mar, Selfa Jesus, Pujade-Villar Juli

Artikel/Article: [New contribution to the knowledge of the genus \*Alloxysta\* \(Insecta: Hymenoptera: Cynipoidea: Figitidae\): revision of some type material 23-36](#)