



New records of Charipinae (Hymenoptera: Cynipoidea: Figitidae) from Austria

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Abstract: Charipinae collected from different localities in Austria have been revised. In total, 162 specimens have been assigned to 18 species: *Alloxysta arcuata*, *A. brachyptera*, *A. brevis*, *A. castanea*, *A. consobrina*, *A. curta*, *A. fracticornis*, *A. fuscipes*, *A. halterata*, *A. obscurata*, *A. macrophadna*, *A. mullensis*, *A. pilipennis*, *A. pusilla*, *A. ramulifera*, *A. victrix*, *Phaenoglyphis villosa* and *P. xanthochroa*. Of these species 9 are cited for the first time from Austria. Only 15 species were previously known from this country, thus now there are 25 Charipinae species recorded for Austria. Besides a diagnosis and morphological features for those new records, also a key for the Charipinae present in Austria is provided.

Key words. Charipinae, *Alloxysta*, *Phaenoglyphis*, Austria, new records

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Introduction

The Charipinae (Cynipoidea, Figitidae) are very small wasps (0.8–2.0 mm). They are mainly characterized by their smooth and shiny body. Members of the subfamily Charipinae are widely distributed around the world (FERRER-SUAY et al. 2012). They are biologically characterized as hyperparasitoids of aphids via Aphidiinae (Ichneumonoidea, Braconidae) and Aphelininae (Chalcidoidea, Aphelinidae) and hyperparasitoids of psyllids via Encyrtidae (Chalcidoidea) (MENKE & EVENHUIS 1991). *Alloxysta* and *Phaenoglyphis* are the most numerous, chaotic and widely distributed genera within this subfamily.

Charipinae are well presented in the Palaearctic and established in the center of Europe (FERRER-SUAY et al. 2012). 15 species have been previously cited in Austria: *Alloxysta brachyptera* (HARTIG, 1840) by GIRAUD (1860), *A. castanea* (HARTIG, 1841) by KIEFFER (1902), *A. circumscripta* (HARTIG, 1841) by GIRAUD (1860) and HELLÉN (1963), *A. fracticornis* (THOMSON, 1862) by ANDREWS (1978), *A. fuscipes* (THOMSON, 1862) by HELLÉN (1963), *A. macrophadna* (HARTIG, 1841) by GIRAUD (1860) and HELLÉN (1963), *A. melanogaster* (HARTIG, 1840) by GIRAUD (1860), *A. pallidicornis* (CURTIS, 1838) by GIRAUD (1860), *A. pedestris* (CURTIS, 1838) by HELLÉN (1963), *A. pilipennis* (HARTIG, 1840) by GIRAUD (1860) and HELLÉN (1963), *A. ramulifera* (THOMSON, 1862) by GIRAUD (1860) and HELLÉN (1963), *A. tscheki* (GIRAUD, 1860) by GIRAUD and HELLÉN (1963), *A. victrix* (WESTWOOD, 1833) by GIRAUD (1860) and HELLÉN (1963), *Apocharips trapezoides*

(HARTIG, 1841) by ANDREWS (1978) and *Phaenoglyphis heterocera* (HARTIG, 1841) by DALLA-TORRE & KIEFFER (1910).

Charipinae material deposited in the Biology Center Linz (Austria) and in the private collection of Esther Ockermüller (Austria) have been revised. In total, 162 specimens have been assigned to 18 species. Of these species 10 are cited for the first time from Austria: *A. arcuata* (KIEFFER, 1902), *A. brevis* (THOMSON, 1862), *A. consobrina* (ZETTERSTEDT, 1838), *A. curta* FERRER-SUAY, 2017, *A. halterata* (THOMSON, 1862), *A. mullensis* (CAMERON, 1883), *A. obscurata* (HARTIG, 1840), *A. pusilla* (KIEFFER, 1902), *P. villosa* (HARTIG, 1841), and *P. xanthochroa* FÖRSTER, 1869. This work helps to improve the knowledge of Charipinae fauna from Central Europe. Besides a diagnosis and morphological features of these new records, also a key to identify the Charipinae from Austria is presented.

Material and Methods

The specimens were collected using insect nets, pitfalls and yellow pan traps. All specimens, mounted on cardboards, have been studied with a stereomicroscope (Leica MZ6). The field-emission gun environmental scanning electron microscope (FEI Quanta 200 ESEM) was used for high-resolution imaging without gold-coating of the specimens.

Morphological terms used are taken from PARETAS-MARTÍNEZ et al. (2007). Measurements include abbreviations from F1–F12 (first and subsequent flagellomeres). The width of the forewing radial cell is measured from the margin of the wing to the base of Rs vein. Females and males are morphologically identical except where indicated.

Figure 1 shows the shape of *Alloxysta* and *Apocharips* metasoma, as well as *Alloxysta* and *Phaenoglyphis* mesopleura. For better comparison, antennae of all the *Alloxysta* species cited here are grouped in figure 2 (a–m), all radial cells in figure 3 (a–i).

The type material of Charipinae is deposited in the following institutions, with name of curators or responsible of each of them:

- BMNH (British Museum Natural History, London, England; D. Notton)
- MZLU (Lund Museum of Zoology, Lund, Sweden; R. Danielsson)
- NHMA (Natural History Museum, Amiens, France; C. Vilemant)
- OUMNH (Hope Department of Entomology, Oxford, England; J.E. Hogan)
- UB (University of Barcelona, Barcelona, Spain; J. Pujade-Villar)
- ZMHB (Zoologisches Museum Humboldt-Universität, Berlin, Germany; R. Koch)
- ZSM (Zoologische Staatssammlung Museum, München, Germany; S. Schmidt)

Results

Below we give information about the material studied and the new records.

Alloxysta arcuata (KIEFFER, 1902) – new record

Alloxysta minuta (HARTIG, 1840), det. Cameron (misidentification). Type: BMNH (examined).

Material studied: (5 ♀ & 3 ♂) “AUT, Stmk., Wies, Versuchszentrum für Spezialkulturen, N46°43'17" E15°15'51" 390 m, 09.08.–23.08.2013 (22991), leg. D. Lengauer, 6d”: 1 ♀; (22711) 1d: 1 ♀; 23.08.–06.09.2013 (22824), 3d”: 1 ♀; 26.07.–09.08.2013 (22878), 4d”: 1 ♂; (22878), 4d”: 1 ♂; “Traun-Au, Trockenwiese”, 16.9.1947, leg. Hamann”: 1 ♂; “Tirol, Windachtal, 27.7.1947, leg. H. Hamann”: 1 ♀; “Austria, Niederösterreich, Hainfeld, 11.VIII.1988, leg. Dr. Barták”: 1 ♀.

Diagnosis: *Alloxysta arcuata* is mainly characterized by a small closed radial cell that is 2.3 times as long as wide (Fig. 3a); the presence of pronotal carinae; propodeal carinae that form a plate; female antennae with rhinaria beginning in F3, F1 subequal to pedicel and longer than F2, and F2 subequal to F3 (Fig. 2a); and male antennae with rhinaria beginning in F2, F2 slightly curved, F1 longer than pedicel, F1 subequal to F2, and F2 shorter than F3. It is similar to *Alloxysta ramulifera*, but they can be differentiated by the beginning of rhinaria (in *A. arcuata* it begins in F3 (Fig. 2a) but in *A. ramulifera* in F4 (Fig. 2l)), the shape of the pronotal carinae (well-defined and visible in *A. arcuata* but small and sometimes difficult to see under the pubescence in *A. ramulifera*), the size of the radial cell (2.3 times as long as wide in *A. arcuata* (Fig. 3a) but 2.0 in *A. ramulifera* (Fig. 3h)), and the shape of the propodeal carinae (with curved sides in *A. arcuata* but with straight sides in *A. ramulifera*).

***Alloxysta brachyptera* (HARTIG, 1840)**

Xystus brachypterus HARTIG, 1840: 200. Type: ZSM (examined).

Material studied: (1 ♀ & 6 ♂) “18.8.1947, a/Hallstätter See, leg. Hamann”, “Steeg Zlanbach-Delta”: 1 ♀ & 3 ♂; “Ebelsberg, Au, 20.9.1947 (6), leg. Hamann”: 2 ♂; “Schmiedgraben, 13.9.1947, leg. Hamann”: 1 ♂; “Ebelsberg/Traunau, 22.6.1948, leg. Hamann”: 1 ♀

***Alloxysta brevis* (THOMSON, 1862) – new record**

Allotria brevis THOMSON, 1862: 408. Type: MZLU (examined).

Material studied: (5 ♀) “AUT, Stmk., Wies, Versuchszentrum für Spezialkulturen, N46°43'17" E15°15'51" 390 m, 09.08.–23.08.2013 (22921), leg. D. Lengauer, 5c”: 1 ♀; (22781), 3a”: 1 ♀; 26.07.–09.08.2013 (22920), 5c”: 1 ♀; 04.08.–19.08.2014 (22983), 6c”: 1 ♀; “Niederösterreich, Hainfeld env., 11.VIII.1988, leg. Dr. Barták”: 1 ♀.

Diagnosis: *Alloxysta brevis* is mainly characterized by a small closed radial cell that is 2.1 times as long as wide (Fig. 3b); the absence of pronotal carina; the presence of propodeal carinae that form a plate; and female and male antennae with rhinaria beginning in F4, F1 shorter than pedicel, and F1–F3 subequal in length (Fig. 2b). It is similar to *A. darci* (GIRAULT, 1933), but they can be differentiated by the length of antennae (shorter than the body in *A. brevis* but longer in *A. darci*) and the marginal setae in the forewing (shorter in *A. brevis* than *A. darci*).

***Alloxysta castanea* (HARTIG, 1841)**

Xystus castaneus HARTIG, 1841: 352. Type: ZSM (examined).

Material studied: (16 ♀ & 10 ♂) “AUT, Stmk., Wies, Versuchszentrum für Spezialkulturen, N46°43'17" E15°15'51" 390 m, 09.08.–23.08.2013 (23215), leg. D. Lengauer,

10d": 1 ♀; 28.06.–12.07.2013 (23156), 9d": 1 ♀; 04.08.–19.08.2014 (23321), 15d": 1 ♀; "Ebelsberg, Schiltensberg, Autobahn Durchstich Mönchsgraben, 8.5.1947, leg. Hamann": 3 ♂; "Neydhartinger Moor, Oberösterreich, 15.5.1947., leg. Hamann" [comment: handwritten]: 1 ♀; "Thannham (Straßwalchen), Hang-Moorwiese, Ketscher [comment: means "collected with an insect net"], 9.5.1948, leg. H. Hamann": 1 ♂; "St. Georgen, leg. Hamann" [comment: yellow label], "Owk. Thalham, 6.10.1947": 1 ♂; "St. Georgen, leg. Hamann" [comment: yellow label], "Thalham, 1.10.1947", "Obstbaumwiese, Waldbucht", "Grasketscher": 1 ♂ & 1 ♀; "Oberwang, leg. Hamann", "Dauernbach Graben, 2.X.1947, Tfg.": 2 ♂; "18.8.1947 a/ Hallstätter See, leg. Hamann", "Steeg Zlanbach-Delta": 1 ♂ & 1 ♀; "Pulgarn-Rbt., leg. Hamann, 1.1./28.9.1947": 1 ♀; "Luftenberg, 18.9.1947, leg. Hamann", "Wies, Mulde S/24/25" [comment: blue labels]: 1 ♂; "Schmiedgraben, 13.9.1947, leg. Hamann": 1 ♀; "Ötztal, Windachtal, leg. H. Hamann, 30.7.1947", "Wiesenketscher, Windach-Alm, 9-10 Uhr" [comment: handwritten]: 2 ♀; "Schiltensberg, 28.6.1947, Erlbach, leg. Hamann": 1 ♀; "Ötztal" [comment: blue label], "Obergurgl, 21.VII.1947, leg. Hamann", "Ketscher jenseits der Ache", Erlen, 14 Uhr" [comment: handwritten]: 3 ♀; "A-Oberösterreich, Attersse, 30.VII.1988, leg. V. Barták": 1 ♀; "1.9.1946, Acharting, Linz, aus Kescherfang über Erbsenfeld (Blattlaus-...), 2 Stück" [comment: handwritten]: 1 ♀.

***Alloxysta consobrina* (ZETTERSTEDT, 1838) – new record**

Cynips consobrina ZETTERSTEDT, 1838: 410. Type: MZLU (examined).

Material studied: (4 ♀ & 1 ♂) "AUT, Stmk., Wies, Versuchszentrum für Spezialkulturen, N46°43'17" E15°15'51" 390 m, 06.09.–20.09.2013 (23217), leg. D. Lengauer, 10d": 1 ♂; "Tirol, Windachtal, 27.7.1947, leg. H. Hamann": 1 ♀; "Schmiedgraben, 13.9.1947, leg. Hamann" 1 ♀; "Austria, Osttirol, 31.7.1988, Grossglockner, leg. Dr. V. Bartak": 1 ♀; "A-Niederösterreich, NW of Seefeld, YT, N48° 45', E16° 09', 220 m, leg. M. Halada, 8.7.2014": 1 ♀.

Diagnosis: *Alloxysta consobrina* is mainly characterized by a closed radial cell that is 2.7 times as long as wide; the presence of pronotal carinae; the absence of propodeal carinae; and male and female antennae with rhinaria beginning in F4, F2 longer than F3, F3 shorter than F4, and bowed F1–F3 in males (Fig. 2e). It is similar to *A. circumscripta*, but they can be differentiated by flagellomere proportions (F1 is longer than F2 and F2 is subequal to F3 in *A. consobrina* (Fig. 2e), while F1 is subequal to F2 and F2 is shorter than or subequal to F3 in *A. circumscripta* (Fig. 2d)) and the size of the radial cell (2.7 times as long as wide in *A. consobrina* but 2.5 times in *A. circumscripta*).

***Alloxysta curta* FERRER-SUAY, 2017 – new record**

Alloxysta curta FERRER-SUAY et al., 2017: 425. Type: UB

Material studied: (1 ♀ & 3 ♂) "AUT, Stmk., Wies, Versuchszentrum für Spezialkulturen, N46°43'17" E15°15'51" 390 m, 07.07.–21.07.2014 (22729), leg. D. Lengauer, 2a": 1 ♀; "Luftenberg, SO Wiesen", "18.9.47, leg. Hamann" [comment: blue labels]: 1 ♂; "Pulgarn-Rbt., leg. Hamann, 1.1./28.9.1947": 1 ♂; "Oberwang, leg. Hamann", "Dauernbach-Graben, 2.X.1947, Tfg.": 1 ♂.

Diagnosis: *Alloxysta curta* is characterized as a brachypterous species very similar to *A. glebaria* HELLÉN, 1963 with a small closed radial cell. However, these two species can be differentiated by the presence of pronotal carinae: present in *A. curta* but absent in *A. glebaria*.

***Alloxysta fracticornis* (THOMSON, 1862)**

Allotria fracticornis THOMSON, 1862: 408. Type: MZLU (examined).

Material studied: (2 ♀) “AUT, Stmk., Wies, Versuchszentrum für Spezialkulturen, N46°43'17" E15°15'51" 390 m, 26.07.–09.08.2013 (23158), leg. D. Lengauer, 9d”: 1 ♀; 14.06.–28.06.2013 (22679), 1b”: 1 ♀.

***Alloxysta fuscipes* (THOMSON, 1862)**

Allotria fuscipes THOMSON, 1862: 410. Type: MZLU (examined).

Material studied: (1 ♀) “Oberösterreich, Linz Bachl, 25.6.1947, leg. J. Kloiber”: 1 ♀

***Alloxysta halterata* (THOMSON, 1862) – new record**

Allotria halterata THOMSON, 1862: 410. Type: MZLU (examined).

Material studied: (1 ♀ & 17 ♂) “Strasswalchen, Oberösterreich, Irrsberg, 9. u. 10. V.1948, Ketscher, leg. H. Hamann”: 1 ♂; “Ebelsberg/Traunau, 22.6.1948, leg. Hamann”: 1 ♂; “Linz, Luftenberg, R(23, Wiesenmulde-Waldrand, 12.9.1948, leg. Hamann”: 5 ♂; “Oberösterreich, Marchtrenk, 26.8.1936, leg. J. Kloiber”: 1 ♂; “25.8.1947, Ebelsberg, leg. Hamann”, “Traunau, Ketsch(2)”: 1 ♂; “18.8.1947, a/ Hallstätter See, leg. Hamann”, “Steeg Zlanbach-Delta”: 4 ♂; “Plesching, leg. H. Hamann, 6.8.1947”, “Ketscherfang, Wiesenböschung auf Donauarm” [comment: handwritten&: 1 ♂; “Ötztal” [comment: blue label], “Obergurgl, 25.7.1947, leg. Hamann”, “Pirchitt jenseits der Ache,”18:30 Uhr, unter Erlen”: 4 ♂.

Diagnosis: *Alloxysta halterata* is easily differentiated from the other brachypterous *Alloxysta* species (*A. brachyptera*, *A. pedestris* and *A. apteroidea*); having pronotal carinae while the others have not. Females with normal size wing are similar to *A. victrix* because both species have closed radial cell and propodeal carinae absent, but they can be differentiated by the size of radial cell: 2.4 times as long as wide in some *A. halterata* female but 3.0 times in *A. victrix*; and relation between F1 and F2 in females: F1 subequal to F2 in *A. halterata* while F1 longer than F2 in *A. victrix*.

***Alloxysta obscurata* (HARTIG, 1840) – new record**

Xystus obscuratus HARTIG, 1840: 200. Type: ZSM (examined).

Material studied: (1 ♀ & 1 ♂) “Ötztal” [comment: blue label], “Obergurgl, leg. H. Hamann, 21.VII.1947”, Ketscher jenseits der Ache, auf Erlen/3-/SK” [comment: handwritten]: 1 ♂; “Plesching, leg. H. Hamann, 6.8.1947”, Kescherfang Wiesenböschung auf Donauarm” [comment: handwritten]: 1 ♀.

Diagnosis: *Alloxysta obscurata* is mainly characterized having partially open radial cell being 2.7 times as long as wide, pronotal carinae present, propodeal carinae absent,

female antennae with the beginning of rhinaria in F3, F1 longer than pedicel and F2, F2 subequal to F3, F3 shorter than F4, male antennae with the beginning of rhinaria in F4, F2 slightly curved, F1 longer than pedicel and F2, F2 longer than F3 and F3 longer than F4. It is similar to *A. macrophadna* but they can be differentiated by the shape and proportion between flagellomeres: F1 longer than F2, F2 shorter than F3 and F3 shorter than F4 in *A. obscurata* while F1 subequal to F2, F2 longer than F3 and F3 subequal to F4 in *A. macrophadna* (Fig. 2g); without any flagellomere curved in *A. obscurata* male but F2 and F3 strongly curved in *A. macrophadna* male; size of radial cell: 2.7 times as long as wide in *A. obscurata* but 3.0 times in *A. macrophadna* (Fig. 3d).

***Alloxysta macrophadna* (HARTIG, 1841)**

Xystus macrophadnus HARTIG, 1841: 352. Type: ZSM (examined).

Material studied: (2 ♀ & 3 ♂) “Holzschlag, Oberösterreich, 6.8.1950, leg. Steininger” [comment: handwritten]: 1 ♀; “St. Georgen, leg. Hamann” [comment: yellow label], “Owk. Thalham, 6.10.1947”: 1 ♂; “Ebelsberg Au, 20.9.1947(6), leg. Hamann”: 1 ♀; “Ötztal” [comment: blue label], “Obergurgl, leg. H. Hamann, 21.VII.1947”, [comment: handwritten]: 2 ♂.

***Alloxysta mullensis* (CAMERON, 1883) – new record**

Allotria mullensis CAMERON, 1883: 366. Type: BMNH (examined).

Material studied: (1 ♀) “AUT, Stmk., Wies, Versuchszentrum für Spezialkulturen N46°43'17" E15°15'51" 390 m, 01.09.–15.09.2014 (23338), leg. D. Lengauer, 16c”: 1 ♀.

Diagnosis: *Alloxysta mullensis* is mainly characterized by a closed radial cell that is 2.2 times as long as wide (Fig. 3e); the absence of pronotal carinae; the presence of propodeal carinae that form a plate; and male and female antennae with rhinaria beginning in F4, F1 longer than F2, F2 subequal to F3, and F3 shorter than F4 (Fig. 2i). It is similar to *A. fracticornis*, but they can be differentiated by the F1–pedicel proportion (F1 is subequal to pedicel in *A. mullensis* (Fig. 2i) but longer than pedicel in *A. fracticornis*), flagellomere proportions (F1 is longer than F2 and F2 is subequal to F3 in *A. mullensis* females (Fig. 2i), while F1–F3 are subequal in length in *A. fracticornis* females), and flagellomere shape (no flagellomeres are curved in *A. mullensis* males, but F3 is curved in *A. fracticornis* males).

***Alloxysta pilipennis* (HARTIG, 1840)**

Xystus pilipennis HARTIG, 1840: 199. Type: ZSM (examined).

Material studied: (1 ♀ & 1 ♂) “St. Georgen, leg. Hamann” [comment: yellow label], “Owk, Thalham, 6.10.1947”: 1 ♂; “St. Georgen, leg. Hamann” [comment: yellow label], “Thalham 1.10.1947”, “Obstbaumwiese, Waldbucht”, “Grasketscher”: 1 ♀.

***Alloxysta pusilla* (KIEFFER, 1902) – new record**

Allotria (Allotria) pusilla KIEFFER, 1902: 13. Type: NHMA (DESSART, 1969: 192).

Material studied: (8 ♀ & 5 ♂) “AUT, Stmk., Wies, Versuchszentrum für Spezialkulturen, N46°43'17" E15°15'51" 390 m, 14.06.–28.06.2013 (22805), leg. D. Lengauer, 3c”: 1 ♀;

09.08.–23.06.2013 (22921), 5c": 1 ♀; (22977), 6c": 1 ♀; 04.08.–19.08.2014 (22759)": 1 ♀; (22731), 2a": 1 ♀; 01.09.–15.09.2014 (22761), 2c": 1 ♂; 01.09.–15.09.2014 (22761), 2c": 1 ♀ & 3 ♂; 04.08.–19.08.2014 (22773), 2d": 1 ♂; (23053), 7d": 1 ♀; "Austria, Niederösterreich, Hainfeld, 11.VIII.1988, leg. Dr. Barták": 1 ♀.

Diagnosis: *Alloxysta pusilla* is mainly characterized by a closed radial cell that is 2.7 times as long as wide in females (Fig. 3g) and 2.4 times in males; the presence of pronotal and propodeal carinae that form a plate; female antennae with rhinaria beginning in F3, F1 longer than pedicel and F2, F2 shorter than F3, and F3 shorter than F4 (Fig. 2k); and male antennae with rhinaria beginning in F1, pedicel–F3 subequal in length, F4 longer than F3, and F1–F3 slightly curved. It is similar to *A. pilipennis*, but they can be differentiated by flagellomere proportions in females (F2 is shorter than F3 in *A. pusilla* females (Fig. 2k) but subequal to F3 in *A. pilipennis* females (Fig. 2j)), flagellomere proportions and shape in males (F1–F3 are subequal in length and slightly curved in *A. pusilla* males, but F1–F3 are not subequal and not curved in *A. pilipennis* males), and the size of the radial cell (2.7 times as long as wide in *A. pusilla* females (Fig. 3g) but 2.4 times in *A. pilipennis* females (Fig. 3f)).

***Alloxysta ramulifera* (THOMSON, 1862)**

Allotria ramulifera THOMSON, 1862: 407. Type: MZLU (examined).

Material studied: (35 ♀ & 1 ♂) "AUT, Stmk., Wies, Versuchszentrum für Spezialkulturen, N46°43'17" E15°15'51" 390 m, 14.06.–28.06.2013 (22749), leg. D. Lengauer, 2c": 1 ♀; 09.06.–23.06.2013 (23388), 12a": 1 ♀; 09.08.–23.08.2013 (22865), 4c": 1 ♀; (23201), 10c": 1 ♀; (22837), 4a": 1 ♀; 26.07.–09.08.2013 (22710), 1d": 1 ♀; 09.08.–23.08.2013 (23047), 7d": 1 ♀; 01.06.–14.06.2013 (22986), 6d": 1 ♀; (23042), 7d": 1 ♀; 06.09.–20.09.2013 (23133), 9b": 1 ♀; 23.08.–06.09.2013 (22754), 2c": 1 ♀; 28.06.–12.07.2013 (23142), 9c": 1 ♀; (22876), 4d": 1 ♀; 23.08.–06.09.2013 (23104), 8d": 1 ♀; 28.06.–12.07.2013 (22932), 35d": 1 ♀; (23030), 7c": 1 ♀; (23030), 7c": 1 ♀; (22764), 2d": 1 ♀; 26.07.–09.08.2013 (22878), 4d": 1 ♀; (22920), 5c": 1 ♀; 19.08.–01.09.2014 (23012), 7a": 1 ♀; 07.07.–21.07.2014 (22729), 2a": 1 ♀; 04.08.–19.08.2014 (22773), 2d": 1 ♀; "St. Georgen, leg. Hamann" [comment: yellow label], "Thalham Owk, 1. Oktober 1947": 1 ♀; "St. Georgen, leg. Hamann" [comment: yellow label], "Owk, Thalham, 6.10.1947": 4 ♀; "St. Georgen, leg. Hamann" [comment: yellow label], "Thalham, 1.10.1947", "Obstbaumwiese, Waldbucht", "Grasketscher": 2 ♀; "Oberwang, leg. Hamann", "Kulmgraben, 5.X.1947, leg. Hamann": 1 ♀; "Plesching, leg. H. Hamann, 6.8.1947", "Ketscherfang auf Wiesenböschung auf Donauarm [comment: handwritten]: 1 ♀; "8.8.1947, Marchtrenk, leg. Hamann", "Unterhart, Wald rechts der Bahn" [comment: handwritten]: 1 ♀; "Schmiedgraben, 13.9.1947, leg. Hamann": 1 ♀.

***Alloxysta victrix* (WESTWOOD, 1833)**

Allotria victrix WESTWOOD, 1833: 495. Type: OUMNH (ANDREWS, 1978: 92).

Material studied: (9 ♀ & 7 ♂) "AUT, Stmk., Wies, Versuchszentrum für Spezialkulturen, N46°43'17" E15°15'51" 390 m, 09.08.–23.08.2013 (22977), leg. D. Lengauer, 6c": 1 ♀; (23215), 10d": 1 ♀; 06.09.–20.09.2013 (22699), 1c": 1 ♀; 28.06.–12.07.2013 (23044),

7d": 1 ♀; 04.08.–19.08.2014 (22927), 5c": 1 ♂; (22773), 2d": 1 ♂; "Ebelsberg, Schiltenberg, Autobahn Durchstich Mönchsgraben, 8.5.1947, leg. Hamann": 1 ♀; "Hallstatt, Oberösterreich, 19.8.1947, leg. Hamann" [comment: handwritten]: 1 ♂; "22.8.1947, Ebelsberg, leg. Hamann", "Traunau Platz(6)": 1 ♀; "Oberösterreich, Linz Umgebung, 24.10.1936, leg. J. Kloiber": 1 ♀; "Oberösterreich, Linz Pfenningberg, 15.10.1948, leg. J. Kloiber": 1 ♂; "St. Georgen, Hamann" [comment: yellow label], "Thalham, 1.10.1947", "Obstbaumwiese, Waldbucht", "Grasketscher": 1 ♂; "8.8.1947, Marchtrenk, leg. Hamann", "Unter Hart, Wald rechts der Bahn" [comment: handwritten]: 1 ♂; "Niederösterreich, Hainfeld, 11.VIII.1988, leg. Dr. Barták": 1 ♂; "A-Oberösterreich, Bad Schallerbach, 11.8.1994, leg. M. Fischer": 1 ♀; "A., Oberösterreich, Linz-Dornach, Biologiezentrum, 48° 20'N, 14° 18'E, 10.7.2013, leg. Martin Schwarz": 1 ♀.

***Phaenoglyphis villosa* (HARTIG, 1841)**

Xystus villosus HARTIG, 1841: 353. Type: ZSM (examined).

Material studied: (6 ♀ & 2 ♂) "AUT, Stmk., Wies, Versuchszentrum für Spezialkulturen, N46°43'17" E15°15'51" 390 m, 01.06.–14.06.2013 (23056), leg. D. Lengauer, 8a": 1 ♀; "Ebelsberg, Schiltenberg, Autobahn Durchstich Mönchsgraben, 8.5.1947, leg. Hamann": 1 ♀; "Oberwang, leg. Hamann", "St. Georgen, Thalham Ow", "1. Okt. 1947, leg. Hamann": 1 ♀; "Schmiedgraben, 13.9.1947, leg. Hamann": 2 ♂; "Sölden", "31.7.1947, Wigr. abd." [comment: blue labels]: 1 ♀; "Austria, Niederösterreich, Hainfeld, 11.VIII.1988, leg. Dr. Barták": 2 ♀.

Diagnosis: *Phaenoglyphis villosa* is characterized by a partially open radial cell that is 2.1–2.7 times as long as wide; the presence of pronotal and propodeal carina; the absence of notauli; scutellum with two deep oval foveae more or less separated by a carina or completely fused; female antennae with rhinaria beginning in F3, F1 as long as pedicel or slightly longer, F1 subequal to F2, F2 shorter than F3, and F3 shorter than F4; and male antennae with rhinaria beginning in F3, F1 subequal to F2, and F2 shorter than F3. At the moment, *P. villosa* is easily differentiated from the other *Phaenoglyphis* species because it is the only *Phaenoglyphis* species with a partially open radial cell.

***Phaenoglyphis xanthochroa* (FÖRSTER, 1869) – new record**

Phaenoglyphis xanthochroa FÖRSTER, 1869: 339. Type: ZMHB.

Material studied: (2 ♀) "Oberösterreich, Österreich, Ottersheim, 25.7.1947, leg. J. Kloiber": 1 ♀; "Ebelsberg/Traunau, 22.6.1948, leg. Hamann": 1 ♀.

Diagnosis: *Phaenoglyphis xanthochroa* is easily differentiated from the other *Phaenoglyphis* species because of its dark yellow body and its deeply excavated notaulices.

Discussion

A key to identify all the Charipinae specimens present in Austria is provided below.

Key of the Charipinae present in Austria

1. 1. Basal tergite much shorter than second along mid-dorsal line (Fig. 1d).
Genus *Apocharips*

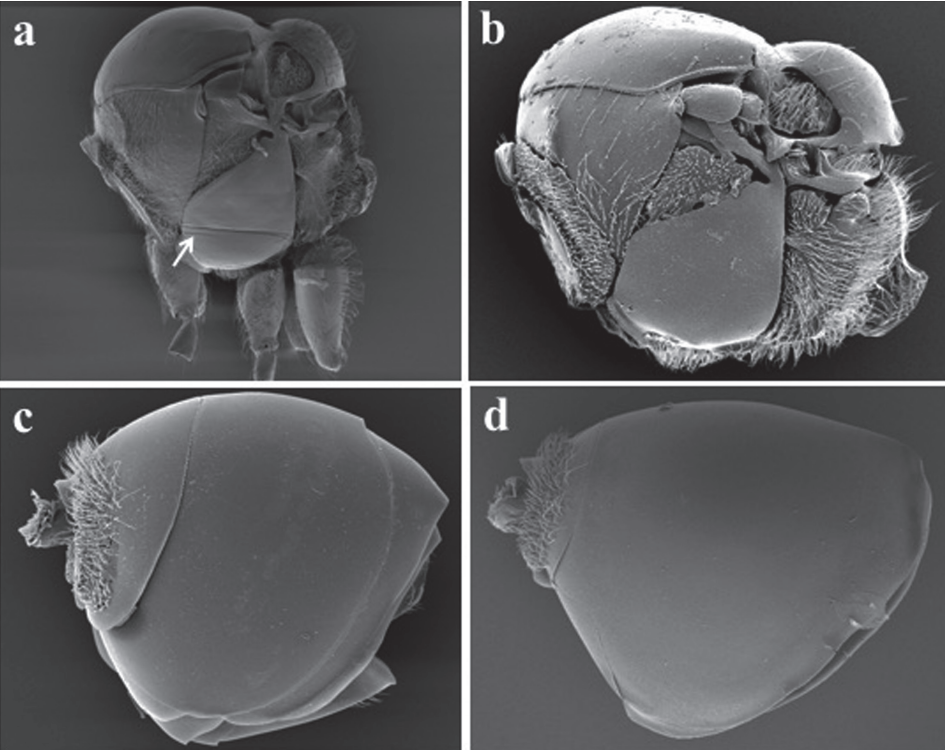


Fig. 1. a) *Phaenoglyphis* sp.; b) *Alloxysta* sp.; c) *Alloxysta* sp.; d) *Apocharips* sp.

Radial cell short, 1.2 times as long as wide, with R1 and Rs parallel

A. trapezoidea

- Metasoma with two large visible terga, subequal in length along middorsal line, but basal tergite 1/4–1/3 smaller than second in lateral view (Fig. 1c).

2.

- 2. Lower part of mesopleuron with horizontal sulcus (Fig. 1a).

Genus *Phaenoglyphis*

3.

- Mesopleuron lacks horizontal sulcus (Fig. 1b).

Genus *Alloxysta*

5.

- 3. Radial cell partially open along anterior margin; notauli absent.

P. villosa

- Radial cell closed; notauli present. 4.

- 4. Head, mesosoma and metasoma yellowish brown; notauli deeply excavated

P. xanthochroa

- Head, mesosoma and metasoma dark brown; notauli inconspicuous.

P. heterocera

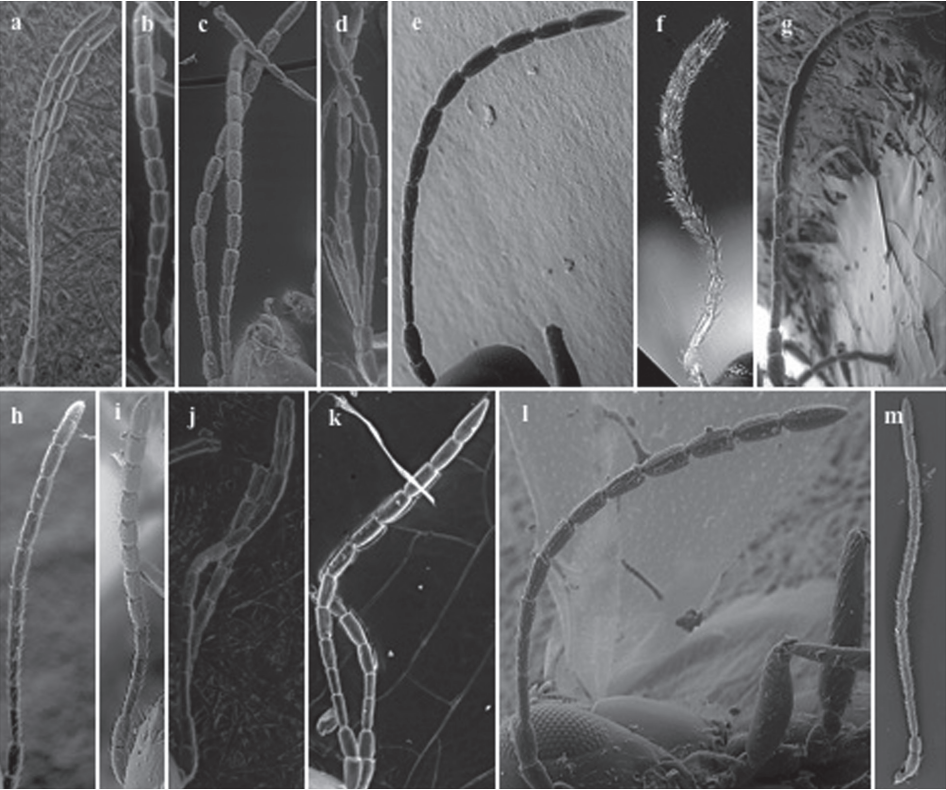


Fig.2. Types of antennae: a) *Alloxysta arcuata*; b) *A. brevis*; c) *A. castanea*; d) *A. circumscripta*; e) *A. conso-brina*; f) *A. fuscipes*; g) *A. macrophadna*; h) *A. melanogaster*; i) *A. mullensis*; j) *A. pilipennis*; k) *A. pusilla*; l) *A. ramulifera*; m) *A. victrix*.

5.

Brachypterous species.

6.

Fully winged species, usually longer than mesosoma and metasoma.

8.
6.

Forewing reaching the end of the metasoma; visible radial cell closed.

A. curta

– Forewing reaching the beginning of the metasoma; without radial cell visible.

7.
7.

Pronotal carinae present.

A. halterata

– Pronotal carinae absent.

A. brachyptera
8.

Radial cell open or partially open.

9.

– Radial cell closed.

14.

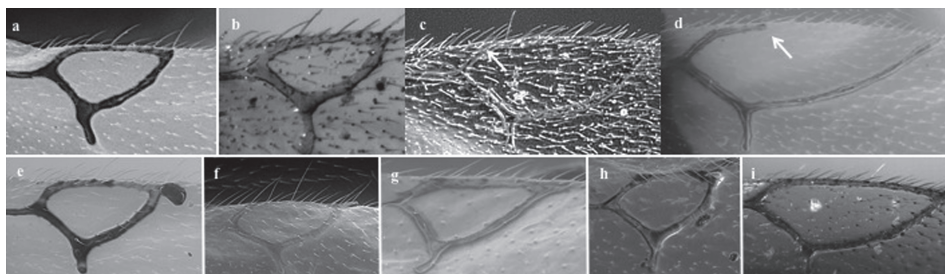


Fig. 3. Types of radial cell: a) *Alloxysta arcuata*; b) *A. brevis*; c) *A. fuscipes*; d) *A. macrophadna*; e) *A. mullensis*; f) *A. pilipennis*; g) *A. pusilla*; h) *A. ramulifera*; i) *A. victrix*.

- | | | |
|-----|---|-------------------------|
| 9. | Radial cell completely open. | <i>A. pallidicornis</i> |
| – | Radial cell partially open. | 10. |
| 10. | Propodeal carinae absent. | 11. |
| – | Propodeal carinae present. | 13. |
| 11. | Rhinaria and club shaped begin in F3; Female: F1 slightly shorter than F2 (Fig. 2f). | <i>A. fuscipes</i> |
| – | Rhinaria and club shaped begin in F4; Female: F1 longer or subequal to F2. | 12. |
| 12. | Female: F1 subequal to F2 (Fig. 2g), radial cell very big, 3.0 times as long as wide in both male and female (Fig. 3d) | <i>A. macrophadna</i> |
| – | Female: F1 longer than F2, radial cell shorter than 3.0 times as long as wide. | <i>A. obscurata</i> |
| 13. | Rhinaria and club shaped begin in F4; pedicel-F3 not subequal (Fig. 2c). | <i>A. castanea</i> |
| – | Rhinaria and club shaped begin in F3; pedicel-F3 subequal in length (Fig. 2h). | <i>A. melanogaster</i> |
| 14. | Propodeal carinae absent. | 15. |
| – | Propodeal carinae present. | 17. |
| 15. | Head yellow; F1 longer than F2, F2-F4 subequal (Fig. 2m); radial cell 3.0 times as long as wide (Fig. 3i); propodeum without setae where they are usually present in other species. | <i>A. victrix</i> |
| – | Head brown; without the combination of features explained above. | 16. |

16. Female: rhinaria and club shaped begin in F3; F1 longer than pedicel, F1 subequal to F2, F2 shorter or subequal to F3 (Fig. 2d). Male: F1-F3 not curved. *A. circumscripta*
- Female: rhinaria and club shaped begin in F3 or F4; F1 longer than pedicel and F2, F2 subequal to F3 (Fig. 2e). Male: F1-F3 curved. *A. consobrina*
A. tscheki *)
17. Pronotal carinae present. 18.
- Pronotal carinae absent. 21.
18. F1 longer than pedicel. 19.
- F1 subequal to pedicel 20.
19. Female: F2 shorter than F3 (Fig. 2k). Male: rhinaria begin in F1, pedicel-F3 subequal and slightly curved; propodeal plate with slightly curved sides; radial cell 2.7 times as long as wide in female (Fig. 3g) and 2.4 times in male. *A. pusilla*
- Female: F2 subequal to F3 (Fig. 2j). Male: rhinaria begin in F2, pedicel-F3 not subequal, without any curved flagellomere; propodeal plate with curved sides; radial cell 2.4 times as long as wide (Fig. 3f). *A. pilipennis*
20. Rhinaria and club shaped begin in F4 (Fig. 2l); with two small carinae on the pronotum, sometimes difficult to see; propodeum with straight sides; radial cell 2.0 times as long as wide (Fig. 3h). *A. ramulifera*
- Rhinaria and club shaped begin in F3 (Fig. 2a); longer carinae on the pronotum; propodeum with curved sides; radial cell 2.3 times as long as wide (Fig. 3a). *A. arcuata*
21. F1 longer than pedicel. *A. fracticornis*
- F1 shorter or subequal to pedicel. 22.
22. Male and female: F1 subequal to pedicel; F1 longer than F2, F2 subequal to F3 (Fig. 2i). *A. mullensis*
- F1 shorter than pedicel, F1-F3 subequal in length, sometimes F1 slightly longer (Fig. 2b). *A. brevis*

*) 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. Biologically, because the typical hosts of the two species are different; *A. fuscicornis* tends to attack *Brevicorine brassicae* (LINNAEUS, 1758) through *Diaretiella rapae* (M'INTOSH, 1855) while *A. tscheki* appears in *Cryptomizus* sp. through *Aphidius ribes*. Additionally, taken into account the sequences of the ITS2 gen, these two species have different haplotypes. However, these arguments can be discussed. *Alloxysta fuscicornis* is a cosmopolitan species and has already been found in a diverse types of host, although not yet in *Aphidius ribes* HALIDAY, 1834. The molecular results cannot be

used to support the difference of these two species due to the weakness of this study. VAN VEEN et al. (2003) only took into account specimens collected in a reduced area and only studied five specimens of *A. tscheki*, for these reasons intraspecific variability has not been studied enough. A revision should be done in order to clarify the status of these two species. Preliminary we keep these two species as different until more detailed studies are carried out.

The study of Natural History Museum collections is essential to improve the data of animal groups. It improves the knowledge of distribution and sometimes their hosts, which is important.

With this information we can establish that Charipinae has a continuous distribution, mainly in the European continent. The gaps between records are due to a lack of information, either by the lack of identification of specimens or by the lack of collections. It is necessary to continue with the collections of new material, as well as correct identification of specimens, in order to improve the knowledge of this important subfamily.

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