

# *Tingis christianriegeri* n. sp. from southeastern Iberian Peninsula (Hemiptera: Heteroptera: Tingidae)\*

SANTIAGO PAGOLA-CARTE & HANNES GÜNTHER

## Abstract

A new species of *Tingis* (Hemiptera: Heteroptera: Tingidae) is described from the Spanish provinces of Valencia, Alicante, Murcia and Almería (southeastern Iberian Peninsula). *Tingis* (*Tropidocheila*) *christianriegeri* n. sp. is very similar to *T. alberensis* PÉRICART, 1979, and also seems to depend on plants of the genus *Sideritis*. However, it is easily distinguished by its dorsal setae, besides differences in distribution and, presumably, plant host species.

**Keywords:** *Tingis* (*Tropidocheila*) *christianriegeri* n. sp., Hemiptera, Heteroptera, Tingidae, Iberian Peninsula, description.

## Kurzfassung

***Tingis christianriegeri* n. sp. aus dem Südosten der Iberischen Halbinsel (Hemiptera: Heteroptera: Tingidae)**

Eine neue Tingiden-Art (Hemiptera: Heteroptera: Tingidae) wird von den spanischen Provinzen Valencia, Alicante, Murcia und Almería beschrieben. *Tingis* (*Tropidocheila*) *christianriegeri* n. sp. ist *T. alberensis* PÉRICART, 1979, sehr ähnlich und scheint wie diese an Wirtspflanzen der Gattung *Sideritis* gebunden zu sein. Sie ist jedoch eindeutig durch die Art der dorsalen Borstenhaare von *T. alberensis* zu unterscheiden, ebenfalls durch die unterschiedliche Verbreitung und vermutlich durch das Vorkommen an unterschiedlichen Wirtspflanzenarten.

## Resumen

***Tingis christianriegeri* n. sp. del sureste de la Península Ibérica (Hemiptera: Heteroptera: Tingidae)**

Se describe una nueva especie de *Tingis* (Hemiptera: Heteroptera: Tingidae) de las provincias españolas de Valencia, Alicante, Murcia y Almería (sureste de la Península Ibérica). *Tingis* (*Tropidocheila*) *christianriegeri* n. sp. es muy parecida a *T. alberensis* PÉRICART, 1979, y también parece depender de plantas del género *Sideritis*. Sin embargo, es fácilmente distinguible por sus setas dorsales, aparte de otras diferencias en cuanto a distribución y, presumiblemente, especie hospedadora.

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## Introduction

*Tingis* FABRICIUS, 1803, with more than one hundred species, is one of the largest genera of Tingidae in the world and is particularly well represented in the Palaearctic Region. One half of all species occur in the Euro-Mediterranean area and are usually separated into three subgenera (PÉRICART, 1983): *Neolasiotropis* WAGNER, 1961, *Tropidocheila* FIEBER, 1844, and *Tingis* s. str.

Up to 27 species of the subgenus *Tropidocheila* are currently known in the Palaearctic Region (PÉRICART & GOLUB, 1996, AUKEMA et al., 2013), with the most recently described one being *T. ribesi* GOLUB & LINNAVUORI, 2011, from Iran. In the Iberian Peninsula, 11 species of this subgenus have been recorded up to now: *T. ajugarum* (FREY-GESSNER, 1872), *T. alberensis* PÉRICART, 1979, *T. geniculata* (FIEBER, 1844), *T. griseola* (PUTON, 1879), *T. juvenca* (HÓRVATH, 1902), *T. liturata* (FIEBER, 1844), *T. maculata* (HERRICH-SCHAEFFER, 1838), *T. ragusana* (FIEBER, 1861), *T. reticulata* HERRICH-SCHAEFFER, 1835, *T. temperei* PÉRICART, 1979, and *T. trichonota* (PUTON, 1874). Of them, however, *T. maculata* and *T. ragusana* are maintained with a question mark ("SP?") in the Palaearctic catalogue (PÉRICART & GOLUB 1996, AUKEMA et al. 2013), after PÉRICART (1983) expounded his doubts.

In our exploration of the arid southeastern Iberian Peninsula we have collected several series of specimens which were initially assigned to *T. alberensis*. A careful examination of their external morphology, together with some information on the host plants, allow us to describe it as a new species.

\* Dr. CHRISTIAN RIEGER, honouring his 70<sup>th</sup> birthday.

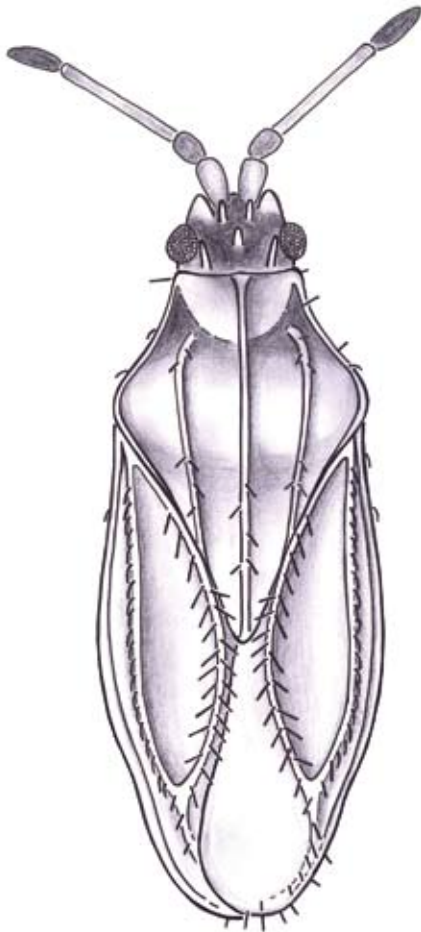


Figure 1. *Tingis (Tropidocheila) christianriegeri* n. sp.: Simplified habitus based on a photograph of the holotype; legs, areolae and vestiture of head and antennae omitted in the interests of showing the types of setae on pronotum and hemelytra, quite different from *T. (Tropidocheila) alberensis* PÉRICART, 1979.

All measurements are based on 70 out of the 109 type specimens (29 males + 41 females) and are given in millimetres (mm). For most morphometric characters, after the average value, the whole range is given in parentheses. Measurements are indicated separately for males and for females only for those characters showing sexual dimorphism.

## Description

### *Tingis christianriegeri* n. sp.

Size and overall shape: Total length: males = 2.60 (2.32-2.80); females = 2.71 (2.37-3.00). Macropterous and submacropterous morphs, with all intermediates. Body from elongate to ovate, 2.3 to 2.7 times as long as wide, with variation related more to sex than to wing development: usually females slightly more ovate than males, with ratio total length/total width: males = 2.51 (2.39-2.67); females = 2.35 (2.21-2.69).

Vestiture: Thin, pale setae of three types (fig. 1) on margins and longitudinal carinae or veins of pronotum and hemelytra, as follows:

Straight, erect ("perpendicular") setae: Lateral margins of pronotum without them or with a few ones, mainly on the anterior half, usually very short except near anterior angles, where they may reach a length equal to the diameter of second antennal segment. Pronotal carinae with a few, sparse, generally short ones. Lateral margins of hemelytra without them or with only a few, sparse, small ones, particularly on posterior third.

Straight, inclined setae: Internal margin of discoidal area (Cu vein) of hemelytra with two rows of them, opposing and forming an angle of 90-180°, with setae alternately inclined to the left and to the right; usually abundant and as long as the diameter of the second antennal segment or even the first antennal segment, always being the longest setae of the insect. In the specimens with longest and most abundant setae of this type, the double arrangement of setigerous rows may extend, although more sparsely, to the pronotal carinae (see fig. 1).

Curved setae: External margin of discoidal area (R+M vein) of hemelytra with a single row of them; usually short and backward-curved or decumbent. Only in a few specimens interspersed with several straight, perpendicular setae, but quite short and mainly on the posterior third of that vein, near the confluence with Cu vein.

In addition, femora and tibiae also with abundant setae, which are erect, inclined or curved; those of tibiae straight, arranged in several rows and shorter than the tibial diameter.

Head with short, adpressed, pale hairs, more dense close to inner margin of eyes. Head spines with straight, suberect (more or less inclined), pale hairs, not always visible. All antennal segments covered with thin, adpressed or slightly

erected setaceous hairs. Apical half of fourth segment with a few, longer, setaceous hairs.

Without adpressed pubescence on pronotum and hemelytra. Most specimens with a dense waxy secretion more or less extended and producing pale patterns, particularly on the head and the subcostal area of hemelytra, reaching to partially conceal the areolae dorsally.

Coloration: Head blackish brown with antennal tubercles paler (except basally) and spines brownish yellow. Antennae: first and second segments dark brown, sometimes the second darker than the first; third segment the palest, being yellowish to reddish brown and often bearing an apical, very narrow, paler ring; fourth segment the darkest, being brownish black. Jugae pale, except for the antero-basal region. Rostrum brownish.

Pronotum and hemelytra brownish yellow to brown, more or less variegated with dark spots, giving to some specimens a mottled or even somewhat checkered appearance, particularly so on the external margin and costal area (between areolae) of hemelytra and sometimes on Cu and R+M veins and on pronotal carinae; posterior part of pronotal carinae almost always pale dorsally. Collar regions of pronotum dark to both sides of pronotal collum. Body ventrally brown. Sternal carinae pale to dark brownish.

Legs: Coxae brown, femora brown, their basal 2/3 slightly darker. Tibiae yellowish to reddish brown, usually of the same colour as the third antennal segment; darker apically and in a wide ring on approximately the second 1/4, which may be faintly to distinctly marked. Tarsi with apical 2/3 (approx. second tarsomere) and claws darker than basally.

#### Structure and measurements:

Head: length = 0.25 (aprox.); width (diatone) = 0.47 (0.42-0.51). Ocular index: males = 3.01 (2.35-3.54); females = 3.08 (2.59-3.71). Five head spines, blunt and rather straight. Paired and unpaired (medial) frontal spines subequal in length and usually shorter than occipital ones. Occipital spines approximately as long as the second antennal segment but showing a certain degree of individual variability. Paired frontal spines parallel to slightly divergent and closer to each other than to the eyes. Occipital spines always divergent, slightly arcuate downward, arising from near the posterointernal angle of eyes, and closer to the eyes than to each other.

Antennae: Length of segments: I – II – III – IV = 0.16 (0.14-0.17) – 0.12 (0.10-0.14) – 0.48 (0.41-0.55) – 0.23 (0.20-0.25). First segment wider

than second; second segment wider than third; fourth segment as wide as second and fusiform. Third segment approximately as long as diatone, slightly longer in males [1.08 (0.93-1.22) x] than in females [0.99 (0.87-1.11) x]. Fourth segment 0.47 (0.42-0.58) x as long as third one.

Jugae slightly longer than clypeus and with two to three rows of areolae. Rostrum reaching or slightly surpassing the posterior margin of mesosternum.

Dorsal areolae of pronotum and hemelytra relatively shallow.

Pronotum length: males = 1.33 (1.22-1.47); females = 1.41 (1.25-1.62), always approx. half the body length [0.52 (0.48-0.56) x] independently of the degree of wing development. Pronotum width: males = 0.89 (0.80-0.97); females = 0.94 (0.80-1.00). Ratio length/width of pronotum similar for males and females = 1.49 (1.39-1.64). Lateral margins distinctly concave or arcuate in the anterior half. Disc of pronotum slightly convex.

Pronotum with three low, uniseriate, longitudinal carinae, which are higher and with bigger areolae on the posterior lobe. Lateral carinae somewhat convergent with median one anteriorly and posteriorly. Median carina percurrent to collum. Paranota narrow, with a single row of small areolae, strongly curved upward along all their length, but not completely reflexed or resting onto the pronotum. Collum weakly elevated and with four, rarely three, areolae along its maximum length (= medially). Pronotal disc closely and finely punctate. Posterior lobe with rather big areolae, being the biggest areolae of the insect together with those of sutural areas.

Hemelytra extending backward beyond the apex of abdomen a distance slightly longer to slightly shorter (some submacropterous specimens) than the length of metatarsi. Hemelytra length (measured parallelly to the longitudinal axis of body): males = 1.74 (1.60-1.90); females = 1.83 (1.57-2.02). Hemelytra width: males = 1.04 (0.97-1.12); females = 1.16 (0.97-1.25). Ratio length/width of hemelytra different between sexes: males = 1.68 (1.55-1.77); females = 1.58 (1.36-1.86); and related to the degree of wing development. Maximum width at or slightly anterior to the level of pronotum apex. Preapical sinus practically unnoticeable in most specimens.

Cu and R+M veins strongly carinate and elevated and discoidal area consequently strongly concave. Internal margin of discoidal area (Cu vein) with the maximum curvature toward its middle,

at the level of pronotum apex, and removed from the margin of posterior lobe of pronotum, anteriorly to its apex.

Costal area of hemelytra narrow, slightly upward-directed on the anteriormost region, with a single row of more or less elliptical areolae, usually 12-15. Subcostal area distinctly wider than half the maximum width of discoidal area and usually with three, rather regularly arranged, rows of areolae along all its length; sometimes even four rows in its widest part (= level of maximum width of hemelytra) or only two rows in its narrowest parts. Discoidal area lanceolate in shape, usually with five or six rows of areolae, almost seven in a few specimens; areolae here bigger and more irregularly arranged than on subcostal area.

Sutural areas completely overlapping each other and more or less well developed according to wing condition; usually with two to three rows of areolae in its anterior part and six to seven rows of big, rounded or polygonal, areolae in its widest part; only one to two areolae anteriorly in some submacropterous specimens; up to eight areolae in the widest part in some big specimens.

Thoracic sterna: Prosternal carinae barely visible. Meso- and metasternal carinae elevated; mesosternal carinae parallel; metasternal carinae more separated and divergent.

Legs: Protibiae 1.06 (0.92-1.22) times as long as head width (diatone). Metatibiae 1.40 (1.28-1.53) times as long as protibiae length.

Male genitalia and pygophore: Pygophore as in fig. 2a. Parameres simple, "cesta-punta"-shaped and with short setae as in fig. 2b-c.

Type material:

Holotype: ♂:

Museo Nacional de Ciencias Naturales, Madrid (MNCN): "ALMERÍA: Pulpí: / Pulpí – Pilar de Jaravía / 260 m 30SXG143394 / *Sideritis ibanyezii* / 6.05.2013 / S. PAGOLA-CARTE leg. [PR]"

Paratypes: 108 ♂♂ and ♀♀:

Museo Nacional de Ciencias Naturales, Madrid (MNCN): "ALMERÍA: Pulpí: / Pulpí – Pilar de Jaravía / 260 m 30SXG143394 / *Sideritis ibanyezii* / 6.05.2013 / S. Pagola Carte leg. [PR]", 1 ♀.

coll. PAGOLA-ZABALEGUI (Villabona): "ALMERÍA: Pulpí: / Pulpí – Pilar de Jaravía / 260 m 30SXG143394 / *Sideritis ibanyezii* / 6.05.2013 / S. Pagola Carte leg. [PR]", 2 ♂♂, 3 ♀♀.

The list of the remaining paratypes is given as appendix (see Appendix 1). They are deposited in the following collections: Muséum National d'Histoire Naturelle Paris (MNHN) and the private collections of B. AUKEMA (Wageningen), H. GÜNTHER (Ingelheim), A. MATOCQ (Paris), A. MELBER (Hannover), J. RIBES (Barcelona), G. SCHUSTER (Schwabmünchen), H. SIMON (Dienheim) and G. STRAUSS (Biberach). A slash (/) is used to divide data on different rows of one label; a double slash (//) is used to divide data of different labels. Some comments are given in square brackets, as for

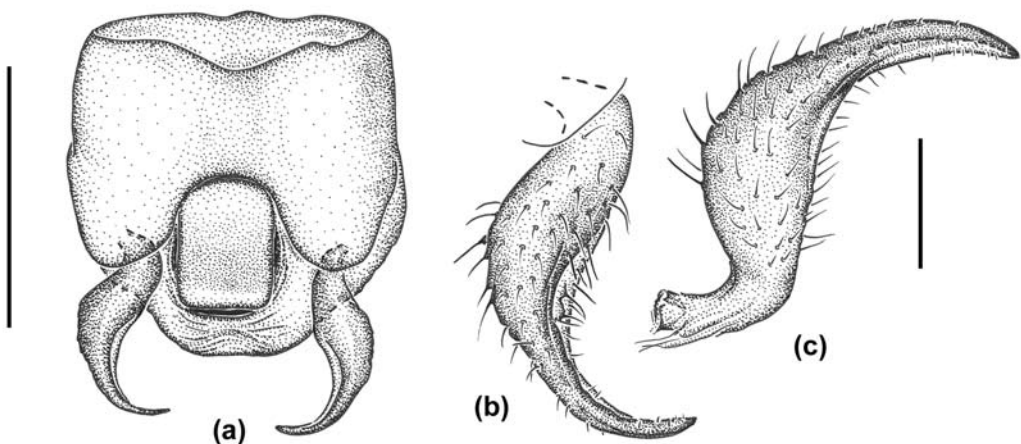


Figure 2. *Tingis (Tropidocheila) christianriegeri* n. sp.: (a) Pygophore (vestiture omitted); (b) Dorsal view of the left paramere in situ; (c) Ventral view of the left paramere removed (Scale bars = (a) 0.4 mm; (b)-(c) 0.1 mm).



Figure 3. Habitat and detail of *Sideritis ibanyezii* (Labiatae), the host plant of *Tingis* (*Tropidocheila*) *christianriegeri* n. sp. at Pulpí (Almería).

example “PR” and “HW”, meaning “printed label” and “handwritten label” respectively.

Type locality: The holotype and six paratypes were collected to one side of the road between Pulpí and Pilar de Jaravía (fig. 3), approx. 260 m a.s.l., UTM coordinates (100 x 100 m) 30SXG143394, municipal district of Pulpí, in the province of Almería (Andalusia, Spain).

Etymology: We are pleased to name this species after our colleague and friend, the great heteropterist CHRISTIAN RIEGER on the occasion of his 70th birthday, in recognition of his outstanding contribution to the knowledge of Palaearctic Heteroptera.

Biology: A host plant is known for the series of specimens collected at the type locality (Pulpí, in Almería): *Sideritis ibanyezii* (fig. 3). Adults and a few nymphs were collected on (by sweeping with net) and below (searching on the ground) that plant, which is a Labiatae species endemic to the arid southeastern Iberian Peninsula (MORALES, 2010).

Distribution: Southeastern Iberian Peninsula. Up to now only known from the Spanish provinces of Valencia, Alicante, Murcia and Almería (fig. 4).

### Discussion

According to PÉRICART (1983), the *maculata* group of species can be defined within the subgenus *Tropidocheila*, and keyed out by the following

characters: (1) pronotal paranota narrow, uniseriate and often strongly curved upward or reflexed, at least posteriorly; (2) eyes glabrous; (3) setae of pronotum and hemelytra short to moderately long; (4) dorsal surface, legs and antennae without dense, whitish, adpressed pubescence; (5) hemelytral subcostal area along its whole length as wide as (and often distinctly wider than) one half the discoidal area in its widest part; (6) discoidal area more or less strongly concave and with its external margin (R+M vein) very highly elevated; (7) inner margin of discoidal area (Cu vein) more or less removed from the margin of pronotal lobe, anteriorly to its apex.

Five species were hitherto known as belonging to that group: two of wide distribution: *T. maculata* (central Europe and almost not reaching the Mediterranean peninsulae) and *T. liturata* (south Mediterranean including southern Iberian Peninsula); and a “subgroup” of three species with more limited distribution and morphologically very similar: *T. alberensis*, *T. temperei* (both from southern France and eastern Spain and both described by PÉRICART in MAGNIEN et al., 1979) and *T. sideritis* ŠTUSÁK, 1973 (Ponto-Pannonian).

*Tingis* (*Tropidocheila*) *christianriegeri* n. sp. belongs to the *maculata* group of species and to the subgroup of *alberensis*–*sideritis*–*temperei*, which share the following characters: (1) inner margin of discoidal area (Cu vein) removed from

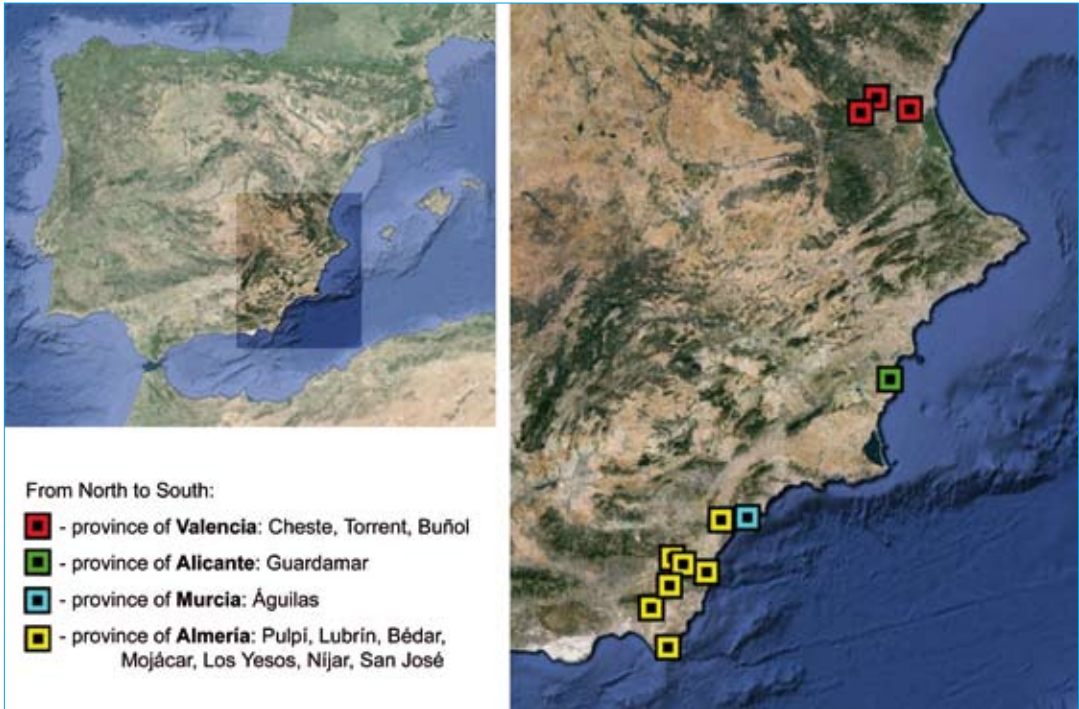


Figure 4. Map of the known distribution of *Tingis (Tropidocheila) christianriegeri* n. sp., showing the localities in which it has been collected (modified from Google Earth).

the margin of pronotal lobe along less than its posterior half (different from *T. liturata*); (2) costal area of hemelytra uniseriate along all its length, with elliptical areolae (uniseriate + biseriate with rectangular areolae in *T. maculata*); (3) dorsal areolae relatively shallow (in comparison to *T. liturata*); (4) without marked sexual dimorphism of antennae (different from *T. liturata*).

Among those three species, *T. temperei* is the most easy to separate, given its small size (2.4–2.8 mm long), darker colour and some morphometric characters (PÉRICART 1983). *T. temperei* is associated to *Plantago holosteam* (Plantaginaceae), while both *T. alberensis* and *T. sideritis* depend on plants of the genus *Sideritis* (Labiatae = Lamiaceae); the former on *S. hirsuta*, the

latter on *S. montana*, *S. comosa* and *S. taurica* (PÉRICART, 1983), and *S. romana* ssp. *purpurea* (RIEGER, 2007).

*T. christianriegeri* n. sp. is very similar to *T. alberensis* and *T. sideritis* and it also seems to live on *Sideritis* plants. Separation between *T. alberensis* and *T. sideritis* is mainly based on the setae of the former and the bigger size of the latter. The new species cannot be identified neither as *T. alberensis* nor as *T. sideritis*.

Its size and most other characters of external morphology are quite similar to those of *T. alberensis* and it can be presumed that they are two closely related species<sup>1</sup>. However, the differences concerning the types, abundance and arrangement of pronotal and hemelytral setae, together with distributional and host information, reveal the existence of this third, up to now unnoticed (almost cryptic) species of *Sideritis*-associated *Tingis (Tropidocheila)* of the *maculata* group.

The following discussion on setae relies on the examination of many specimens from the south-

<sup>1</sup> The pygophore and parameres have also been examined in one paratype of *T. alberensis*: They are quite similar to those of the new species, a frequent situation among Tingidae, with indistinguishable genitalia.



Figure 5. *Tingis (Tropidocheila) christianriegeri* n. sp.: Hemelytra of one female paratype from Guardamar (Alicante), an extreme specimen with very long setae of the type “straight, inclined”, arranged in two rows forming an angle near 180°.

eastern Iberian Peninsula (most of which are now designated as type specimens of *T. christianriegeri* n. sp.) as well as a large number of specimens of *T. alberensis* from southern France and Catalonia by us (see Appendix 2) and by our colleague ARMAND MATOCQ (who has checked the extensive type material deposited in the PÉRICART collection at MNHN, Paris). *T. alberensis* always bears the setae as in PÉRICART’S (1979) description: lateral margins of pronotum and hemelytra, and carinae (including R+M and Cu veins) provided with a single row of rather long, straight and perpendicular setae. On the other hand, *T. christianriegeri* n. sp. always bears a double row of alternately inclined, straight setae on Cu vein and a single row of curved setae on R+M vein (see fig. 1); in addition, it usually lacks, or bears only

a few, setae on pronotal and hemelytral margins. The double arrangement of setae along veins or carinae is not a new character in Tingidae (see, for example, the revision of the Australian genus *Inoma* by CASSIS & SYMONDS, 2008), but it is undoubtedly an outstanding novelty in the context of the keys to Euro-Mediterranean *Tingis*. Moreover, in some specimens of the new species it may be a striking character (see fig. 5).

*Sideritis ibanyezii*, the plant on which some specimens of *T. christianriegeri* n. sp. were collected (see fig. 3), is endemic to the arid southeastern Iberian Peninsula. Given that all the specimens examined are from that area (Valencia, Alicante, Murcia and Almería), it may be assumed the vicariant distribution of *T. christianriegeri* n. sp. with respect to *T. alberensis* (which seems to depend rather specifically on *Sideritis hirsuta*) on the basis of the plant host association. According to MORALES (2010), the known distribution of *Sideritis ibanyezii* is Alicante, Murcia and Almería. Nevertheless, the genus *Sideritis* is highly diversified in the Iberian Peninsula and it is likely that the new *Tingis* could live in association to more than one species of the *Leucantha* section of *Sideritis*, in which *S. ibanyezii* and other species of similar distribution and/or habitat are included (for example, *S. bourgeana*, *S. leucantha*, *S. pusilla* or *S. tragoriganum*) but not *S. hirsuta* (OEBÓN & RIVERA, 1994).

#### Acknowledgements

We are in debt with ARMAND MATOCQ (Paris), for examining the type material of *T. alberensis* of PÉRICART collection, for sending us some specimens of both *T. alberensis* and *T. christianriegeri* n. sp. and for sharing his opinions with us. We are also very grateful to JORDI RIBES (Barcelona), for opening his collection to us so kindly.

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- Appendix 1**  
List of the remaining paratypes of *Tingis* (*Tropidocheila*) *christianriegeri* n. sp.:
- coll. PÉRICART in MNHN (Paris): “HISP.: ALMERIA / Aqilas [means “Aguilas”] / 10. Mai 1989 / leg. U. GÖLLNER [PR]”, 1 ♀;
- coll. PÉRICART in MNHN (Paris): “ESPAGNE: VALENCIA: Cheste / pr. Chiva 3 VI 1991 / sur *Stachys* pr. *recta* / Magnien, Matocq, Péricart [PR] // *Tingis* / *alberensis* [HW]”, 3 ♂♂, 5 ♀♀;
- coll. MATOCQ (Paris): “ESPAGNE: VALENCIA: Cheste / pr. Chiva 3 VI 1991 / sur *Stachys* pr. *recta* / Magnien, Matocq, Péricart [PR] // *Tingis* / *alberensis* [HW]”, 1 ♂, 1 ♀;
- coll. RIBES (Barcelona): “TORRENTE / VALENCIA MORÓDER [PR] // TINGIS / GRISEOLA PUT. [PR] // *Tingis* / *griseola* / Put. / WGN det. [HW] // *Tingis* / *alberensis* m. / J. PÉRICART, det. 1981 [PR+HW]”, 1 ♂;
- coll. RIBES (Barcelona): “BUÑOL / (VALENCIA) MORÓDER [PR] // TINGIS / GRISEOLA PUT. [PR]”, 1 ♀;
- coll. GÜNTHER (Ingelheim): “ESPANA, Prov. Alicante / Guardamar 2.5.1988 / Günther leg. [PR] // *Tingis* *alberensis* / PER. / H. Günther det. 1989 [PR+HW]”, 1 ♀;
- coll. GÜNTHER (Ingelheim): “ESPANA, Prov. Alicante / Guardamar 2.5.1988 / Günther leg. [PR] // *Tingis* *alberensis* / Péricart / H. Günther det. 2005 [PR]”, 1 ♀;
- coll. GÜNTHER (Ingelheim): “ESPANA, Prov. Alicante / Guardamar 4.5.1988 / Günther leg. [PR] // *Tingis* *alberensis* / PER. / H. Günther det. 1989 [PR+HW]”, 1 ♂, 2 ♀♀;
- coll. GÜNTHER (Ingelheim): “ESPANA, Prov. Alicante / Guardamar 4.5.1988 / Günther leg. [PR] // *Tingis* *alberensis* / Péricart / H. Günther det. 2005 [PR]”, 1 ♂, 1 ♀;
- coll. GÜNTHER (Ingelheim): “HISP. (Alicante) / Guardamar, 7.5.89 / Günther leg [PR] // *Tingis* *alberensis* / Péricart / H. Günther det. 2005 [PR or PR+HW]”, 5 ♂♂, 7 ♀♀;
- coll. GÜNTHER (Ingelheim): “ESPANA. Alicante / Guardamar / Günther leg. 7.8.1989 [HW] // *Tingis* *alberensis* / Péricart / H. Günther det. 2005 [PR]”, 1 ♀;
- coll. GÜNTHER (Ingelheim): “ESPANA / Prov. Alicante / Guardamar, 28.4.1991 / Günther leg. [PR] // *Tingis* *alberensis* / Péricart / H. Günther det. 2005 [PR]”, 1 ♀;
- coll. GÜNTHER (Ingelheim): “ESPANA / Prov. Alicante / Guardamar, 23.5.1992 / H. Günther leg. [PR] // *Tingis* *alberensis* / Péricart / H. Günther det. 2005 [PR]”, 2 ♀♀;
- coll. GÜNTHER (Ingelheim): “ESPANA, Prov. Almeria / Lubrin 7.5.1988 / Sa. de los Filabres / Günther leg. [PR] // *Tingis* *alberensis* / PER. / H. Günther det. 1989 [PR+HW]”, 3 ♀♀;
- coll. GÜNTHER (Ingelheim): “HISP. (Almeria) / Mojácar 10.5.89 / Günther leg. [PR] // *Tingis* *alberensis* / Péricart / H. Günther det. 2005 [PR+HW]”, 1 ♀;
- coll. GÜNTHER (Ingelheim): “HISP. (Almeria) / Aguilas 10.5.89 / Günther leg. [PR] // *Tingis* *alberensis* / Péricart / H. Günther det. 2005 [PR or PR+HW]”, 1 ♂, 3 ♀♀;
- coll. GÜNTHER (Ingelheim): “ESPANA Almeria / Nijar, 5.4.1990 / M. Baena leg. [PR] // *Tingis* *alberensis* / Péricart / H. Günther det. 2005 [PR]”, 1 ♂, 1 ♀;
- coll. GÜNTHER (Ingelheim): “ESPANA mer. / Prov. Almeria 8.5.1997 / San José, Cabo de Gata / Günther leg. [PR+HW] // *Tingis* *alberensis* / Péricart / H. Günther det. 2005 [PR]”, 3 ♂♂;
- coll. GÜNTHER (Ingelheim): “ESPANA mer. / Prov. Almeria 8.5.1997 / San José, Cabo de Gata / Günther leg. [PR or PR+HW] // *Tingis* *alberensis* Per. / H. Günther det. 2005 [PR or PR+HW]”, 9 ♂♂, 4 ♀♀;
- coll. GÜNTHER (Ingelheim): “ESPANA mer. / Prov. Almeria / San José, Cabo de Gata / Günther leg. 14.5.1998 [PR+HW] // *Tingis* *alberensis* Per. / H. Günther det. 2005 [PR]”, 1 ♀;
- coll. STRAUSS (Biberach): España: Alicante: Guardamar, 23.5.2002, H. Günther leg., 1 ♀;
- coll. STRAUSS (Biberach): España: Almería: Mojácar, 5.5.2006, H. Günther leg., 1 ♂;
- coll. STRAUSS (Biberach): España: Almería: San



José, Cabo de Gata, 18.6.2005, H. Günther leg., 1 ♂;  
 coll. SCHUSTER (Schwabmünchen): España: Alicante: Guardamar, 4.5.1988, H. Günther leg., 1 ♂, 1 ♀;  
 coll. SCHUSTER (Schwabmünchen): España: Almería: San José, Cabo de Gata, 18.6.2005, H. Günther leg., 1 ♂, 1 ♀;  
 coll. AUKEMA (Wageningen): España: Alicante: Guardamar, 2.5.1988, H. Günther leg., 1 ♂;  
 coll. AUKEMA (Wageningen): España: Alicante: Guardamar, 4.5.1899, H. Günther leg., 1 ♂, 2 ♀♀;  
 coll. AUKEMA (Wageningen): España: Almería: San José, Cabo de Gata, 18.6.2005, H. Günther leg., 1 ♂;  
 coll. AUKEMA (Wageningen): España: Almería: Mojácar, 13.6.2005, H. Günther leg., 1 ♂;  
 coll. MELBER (Hannover): España: Almería: Bédar: Sierra de Bédar, 7.5.1988, P. Sprick leg., 3 ♂♂, 6 ♀♀;  
 coll. MELBER (Hannover): España: Alicante: Guardamar, 2.5.1988, P. Sprick leg., 2 ♂♂, 1 ♀;  
 coll. SIMON (Dienheim): España: Almería: Karst von Los Yesos, 13.4.2001, H. Simon leg., 1 ♂, 1 ♀;  
 coll. SIMON (Dienheim): España: Almería: 5 km SW San Jose, 19.4.2001, H. Simon leg., 3 ♂♂, 3 ♀♀;  
 coll. SIMON (Dienheim): España: Almería: 2 km SW San Jose, 1.5.2012, H. Simon leg., 3 ♂♂, 3 ♀♀.

## Appendix 2

List of the 77 specimens (seven of them, paratypes) examined of *Tingis (Tropidocheila) alberensis* Péricart, 1979:

coll. PÉRICART in MNHN (Paris): "Pyrénées-Orientales: Banyuls / Col de Mollo, alt. 600 / 20 VI 1977 J.Péricart leg. [PR] // sur *Sideritis hirsuta* L. [PR] // *Tingis / alberensis m / Paratype / J. Péricart 1979 [HW] // PARATYPE [PR, red]*", 1 ♂;  
 coll. RIBES (Barcelona): "Sonadell / -Pla Montclús / 2-VI-63. Ribes / [UNDERSIDE:] (Segrià) [HW] // CATALONIA / Lleida [HW] // Péricart vid. / 1979 1515 [PR+HW] // *Tingis / alberensis m. / J. Péricart 1979 / PARATYPE [HW, red]*", 1 ♂;  
 coll. RIBES (Barcelona): "Avià / (Berguedà) / 23-8-75. Ribes [HW] // CATALONIA / Barcelona [HW] // *Tingis / alberensis m. / J. Péricart 1979 / PARATYPE [HW, red]*", 2 ♀♀;  
 coll. RIBES (Barcelona): "Tavertet / (Osona) / 1-IX-78 Ribes [HW] // *Tingis / alberensis m. / J. Péricart 1979 / PARATYPE [HW, red]*", 2 ♂♂, 1 ♀;  
 coll. RIBES (Barcelona): "Cercs / (Berguedà) / 15-VII-84 Eva R. / [UNDERSIDE:] CATALONIA [HW]", 2 ♀♀;

coll. Ribes (Barcelona): "Pyrénées-Orientales: Banyuls / Col de Mollo, alt.600m / 20 VI 1977 J.Péricart leg. [PR] // sur *Sideritis hirsuta* L. [PR] // *Tingis / sp. [HW]*", 2 ♂♂;  
 coll. Ribes (Barcelona): "Vaucluse / Saumane de Vaucluse / 6 VI 1979 J.Péricart leg. [PR] // sur *Sideritis hirsuta* L. [PR] // *Tingis / alberensis Pér. [HW]*", 2 ♂♂;  
 coll. Ribes (Barcelona): "Colluspina / (Osona) / 18-VII-77 Ribes [HW] // *Tingis / alberensis m. / J.PÉRICART,det.1979 [PR+HW]*", 1 ♂, 3 ♀♀ (?);  
 coll. Ribes (Barcelona): "Vidrà / (Ripollès) / 3-X-61 [HW] // *Tingis / maculata* H.S. / E.Wagner det.1961 [PR+HW]", 25 ♂♂ / ♀♀;  
 coll. Ribes (Barcelona): "Umg.Digne(B.A) / Les Sieyes 700m / 15.u.17.7 56 [PR] // Südfrankreich / E.Wagner leg. [PR] // *Tingis / maculata / WGN. det. [HW]*", 2 ♀♀;  
 coll. Ribes (Barcelona): "Vidrà / (Ripollès) / 2-X-62. Ribes [HW]", 1 ♂, 1 ♀;  
 coll. Ribes (Barcelona): "Coll de Josa / (Alt Urgell) / 24-VII-78 Ribes / [UNDERSIDE:] CATALONIA [HW]", 2 ♂♂, 1 ♀;  
 coll. Ribes (Barcelona): "Colluspina / (Osona) / 10-VII-77 Ribes / [UNDERSIDE:] CATALONIA [HW] // *Tingis / alberensis m / J. PERICART,det. 1983 [PR+HW]*", 3 ♀♀;  
 coll. Ribes (Barcelona): "Avià / (Berguedà) / 23-8-75 Ribes [HW] // *Tingis / alberensis m / J. PERICART,det. 1981 [PR+HW]*", 2 ♂♂;  
 coll. Ribes (Barcelona): "Umg.Digne(B.A) / Les Sieyes 700m / 15.u.17.7 56 [PR] // Südfrankreich / E.Wagner leg. [PR]", 1 ♂;  
 coll. Ribes (Barcelona): "Balenyà / (Osona) / 29-VI-62 // *Tingis / maculata / E.Wagner det. 1952 [PR+HW]*", 1 ♀;  
 coll. Ribes (Barcelona): "L'Albi / (Garrigues) / 14-5-67. Ribes [HW] // *T. stachydis? / Štusák det.'68 [HW]*", 1 ♂;  
 coll. Ribes (Barcelona): "Coll de Josa / (Alt Urgell) / 24-VIII-79 Ribes / [UNDERSIDE:] CATALONIA [HW]", 1 ♂, 3 ♀♀ (?);  
 coll. Ribes (Barcelona): "Coll de Josa / (Alt Urgell) / 24-VIII-79 Ribes / [UNDERSIDE:] CATALONIA [HW]", 2 ♂♂, 2 ♀♀;  
 coll. Ribes (Barcelona): "Colluspina / (Osona) / 18-VII-78 Ribes", 3 ♂♂;  
 coll. Ribes (Barcelona): "Colluspina / (Osona) / 18-VII-77 Ribes", 4 ♀♀;  
 coll. Ribes (Barcelona): "Colluspina / (Osona) / 10-VII-77 Ribes", 3 ♀♀;  
 coll. Ribes (Barcelona): "Colluspina / (Osona) / 10-VII-77 Ribes / [UNDERSIDE:] CATALONIA", 1 ♀ (?).

