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## ***Tachycixius arzonei* sp. n., a new planthopper species from Italy (Insecta: Hemiptera: Fulgoromorpha: Cixiidae)**

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**A b s t r a c t :** *Tachycixius arzonei* sp. n., a new species from Italy (Emilia Romana and Marche), is described and illustrated. It is very similar to *T. ligustinus* WAGNER 1959. Differences are mainly found in the shape of the vertex and in characters of the male genitalia. A preliminary key to species groups and selected species of the presumably not holophyletic genus *Tachycixius* is given. Records of *Trirhacus formosissimus* COSTA 1883 from continental Italy are erroneous; the species seems to be endemic to Corse.

**K e y w o r d s :** *Tachycixius*, *Trirhacus*, new species, Italy.

### **Introduction**

In 1883 Achille COSTA described a new Cixiid species, *Trirhacus formosissimus*, from Corse (COSTA 1883). Later, records from continental Italy (Emilia, Foresta di Campigna) were published by SERVADEI (1967, 1969). In the course of a revision of the genus *Trirhacus*, SERVADEI's material was re-examined. Accordingly, SERVADEI's specimens are not conspecific with *T. formosissimus*; they rather represent a new species of the genus *Tachycixius* close to *T. ligustinus* WAGNER 1959. A description of this new species is given below; a redescription of *Trirhacus formosissimus* will be included in a comprehensive paper on the genus *Trirhacus*.

### ***Tachycixius arzonei* spec. nov.**

**M a t e r i a l e x a m i n e d :** Holotype: male, labelled "Emilia / La Lama / 9.VI.62 / leg. A. Servadei", and paratype, female, labelled "Marche / (illegible) Canale / 27.VII.58 / leg. A. Servadei // *T. formosissimus*".

The material is deposited in coll. SERVADEI, Museo Civico di Storia Naturale (MCVR), Verona, Italy.

**S p e c i e s d e s c r i p t i o n :** Male: Body length 6.0 mm; maximum body width 2.85 mm; length of fore wing 5.05 mm; width of fore wing 1.75 mm. Female: Body length 7.0 mm; maximum body width 3.0 mm; length of fore wing 5.9 mm; width of fore wing 1.95 mm.

Both sexes very similar in colouring: General colour brownish; face light brownish; vertex darker, with light lateral bands (fig. 10), pronotum brownish-yellow, mesonotum

dark brown. Fore-wings hyaline with distinctive brown markings and dark granulae (fig. 13), veins whitish.

Male genitalia as in figs. 1-8.

**B i o l o g y :** unknown.

**D e r i v a t i o n o m i n i s :** The new species is named in honour of Prof. Dr. Alessandra ARZONE, Torino.

### Discussion

Including *Tachycixius arzonei* sp. n., the genus *Tachycixius* WAGNER 1939 presently comprises 24 species (NAST 1972, 1982, REMANE & HOCH 1988, HOCH & ASCHE 1993, OROSZ 1999, D'URSO 1999). *T. ligustinus* WAGNER 1959 seems to be the closest relative to *T. arzonei*; habitus, colouration and genitalia structures are very similar, but *T. arzonei* is smaller; face, vertex and mesonotum are distinctively darker; the apical margin of vertex is more roundish; the rigid ventromedian process of theca is shorter and stouter; the right subapical spine is shorter, and the left subapical spine is s-shaped, whereas in *T. ligustinus* it is almost straight.

Although holophyly of the species presently placed in *Tachycixius* seems unlikely, a preliminary key to species and (monophyletic?) species-groups is given below.

### Key to species-groups and selected species of taxa summarized within *Tachycixius* today

- 1 Aedeagus with one movable subapical spine on the left and one on the right side of the theca .....3
- 1\* Arrangement and/or number of movable subapical spines different .....2
- 2 Aedeagus with two movable subapical spines at the right side of the theca; sometimes an additional spine is present on the left side. On Canary Islands ..... *T. canariensis*-group:  
*T. canariensis* LINDBERG 1954, *T. lavatubus* REMANE & HOCH 1988, *T. crypticus* HOCH & ASCHE 1993, *T. retrusus* HOCH & ASCHE 1993
- 2\* Aedeagus "with three long falcate appendages arising from the middle and with a small bifid basal ventral tooth" (LINNAVUORI 1962: 4). Israel. *T. perarmatus* (LINNAVUORI 1962)
- 3 Movable spines curved, bifurcate (at least one of them). Southeastern Europe, Turkey, Caucasus ..... *T. viperinus*-group:  
*T. viperinus* (DLABOLA 1965), *T. bidentifer* DLABOLA 1971, *T. bifurcatus* LOGVINENKO 1971, *T. chevsureticus* LOGVINENKO & NEPARIDZE 1971, *T. creticus* DLABOLA 1974, *T. cypricus* DLABOLA 1974
- 3\* Movable spines acute with a single tip .....4
- 4 Theca with a thorny crest on ventral side. Western Europe. *T. venustus* (GERMAR 1830)
- 4\* Theca without a thorny crest on ventral side, but sometimes rigid spines or a crest are present .....5
- 5 Theca with a rigid bifurcate process on ventral side. Turkey ..... *T. logvinenkovae* DLABOLA 1974
- 5\* Ventral part of theca different .....6
- 6 Postclypeus distinctly swollen. Pyrenees. .... *T. pyrenaicus*-group:  
*T. pyrenaicus* (FIEBER 1876), *T. distinctus* (SIGNORET 1865), *T. gravesteini* RIBAUT 1960

- 6\* Postclypeus normal, not swollen.....7  
 7 Medial part of theca ventral with three rigid, spine-like processes. Southeastern Europe. ...  
 ..... *T. desertorum*-group:  
*T. desertorum* (FIEBER 1876), *T. tigrinus* LOGVINENKO 1971  
 7\* Medial part of theca ventral with one rigid, spine-like process. Sometimes additional  
 spines at the base of the theca. .... *T. pilosus*-group:  
*T. pilosus* (OLIVIER 1791; Typus generis), *T. longiceps* (LINNAVUORI 1956), *T. ligustinus*  
*WAGNER* 1959, *T. remanei* D'URSO 1999, *T. soosi* OROSZ 1999, *T. arzonei*  
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The most important diagnostic characters to distinguish species closely related to *T. arzonei* ("*T. pilosus*-group") are situated in the structures of the male genitalia, especially in the size and shape of the aedeagus and its movable and rigid spine-like processes (see LINNAVUORI 1956, WAGNER 1959, OSSIANNILSSON 1978, D'URSO 1999 and OROSZ 1999). Additional differences can be found in body-size, proportions and colouration; they are summarized in table 1.

**Table 1:** Diagnostic characters for the identification of species of the "*T. pilosus*-group" (except genitalia; after LINNAVUORI 1956, WAGNER 1959, OSSIANNILSSON 1978, D'URSO 1999 and OROSZ 1999).

Species	<i>T. pilosus</i>	<i>T. soosi</i>	<i>T. remanei</i>	<i>T. longiceps</i>	<i>T. arzonei</i>	<i>T. ligustinus</i>
apical margin of vertex (see figs 9, 10)	rounded	rounded	roundish triangular	roundish triangular	rounded	roundish triangular
colour of mesonotum	black	pale brownish	black	?	brownish	pale brownish
body length, males [mm]	4-6	4.56-5.24	4.60-5.20	5	6,0	6.9-7.0
body length, females [mm]	4-6	5.5-6.14	5.06-6.13	5	7.0	7.3
fore wing length, males	?	3.88-4.5	?	?	5.05	5.8-5.9
fore wing width, males	?	1.28-1.54	?	?	1.75	1.9-2.1
Distribution	Central & S-Europe, N-Africa (?), Nearctic (?)	Hungary	Italy: Sicily and surrounding islands	Morocco, Balearic Islands (?; DLABOLA 1974)	Italy: Emilia Romagna, Marche	Italy: Liguria

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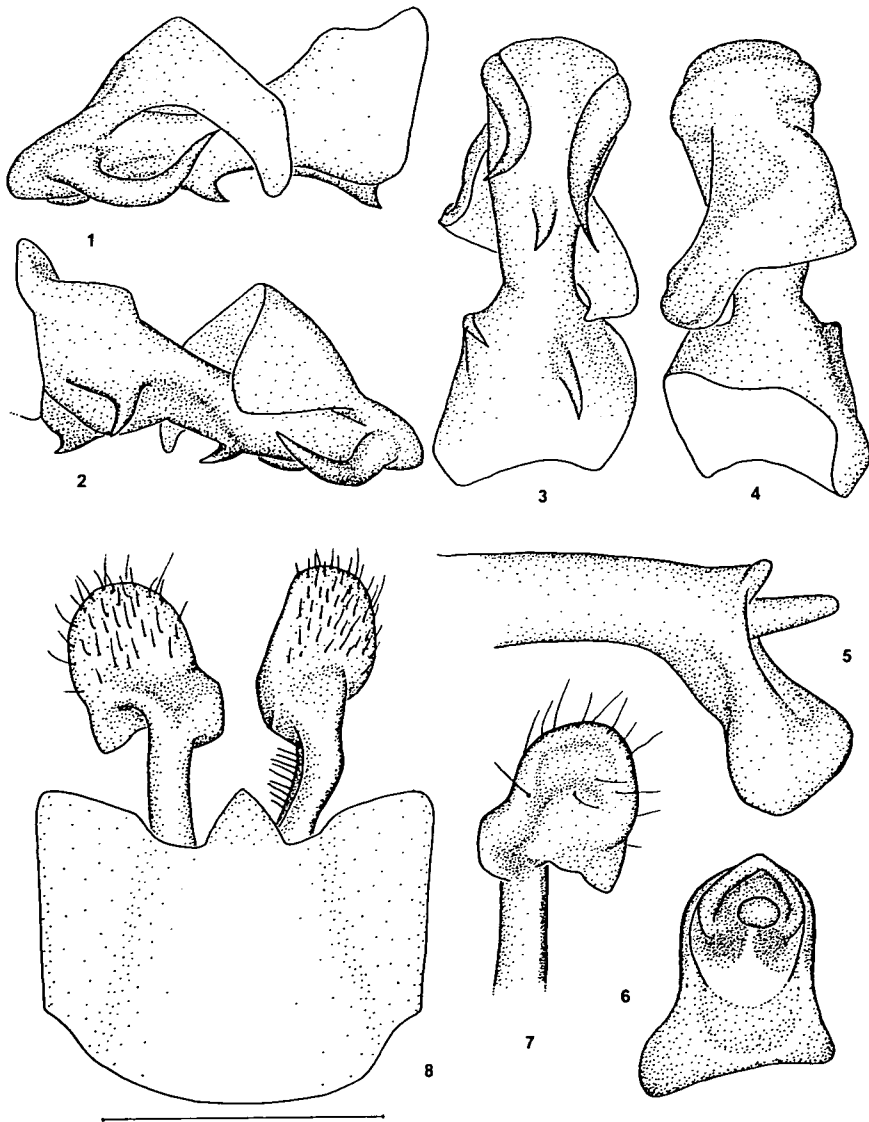
### Zusammenfassung

*Tachycixius arzonei* sp. n. wird aus Italien neu beschrieben. Die Art ist *T. ligustinus* aus Ligurien ähnlich. Unterschiede sind vor allem in der Form des Scheitelvorderrandes und im Bereich der männlichen Genitalarmatur zu finden. Ein vorläufiger Schlüssel zu Artengruppen und einzelnen Arten der gegenwärtig vermutlich nicht holophyletischen Gattung *Tachycixius* wird vorgelegt. Nachweise von *Trirhacus formosissimus* COSTA 1883 aus Mittelitalien beziehen sich auf *Tachycixius arzonei*; *Trirhacus formosissimus* ist offensichtlich in Korsika endemisch.

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**Figs 1-8:** *Tachycixius arzonei* sp. n. 1 – Aedeagus, right lateral aspect; 2 – same, left lateral aspect; 3 – same, ventral aspect; 4 – same, dorsal aspect; 5 – anal segment, left lateral aspect; 6 – same, caudal aspect; 7 – right paramere, inner maximum view; 8 – genital segment and parameres, ventral aspect. Scale bar = 0,5 mm.

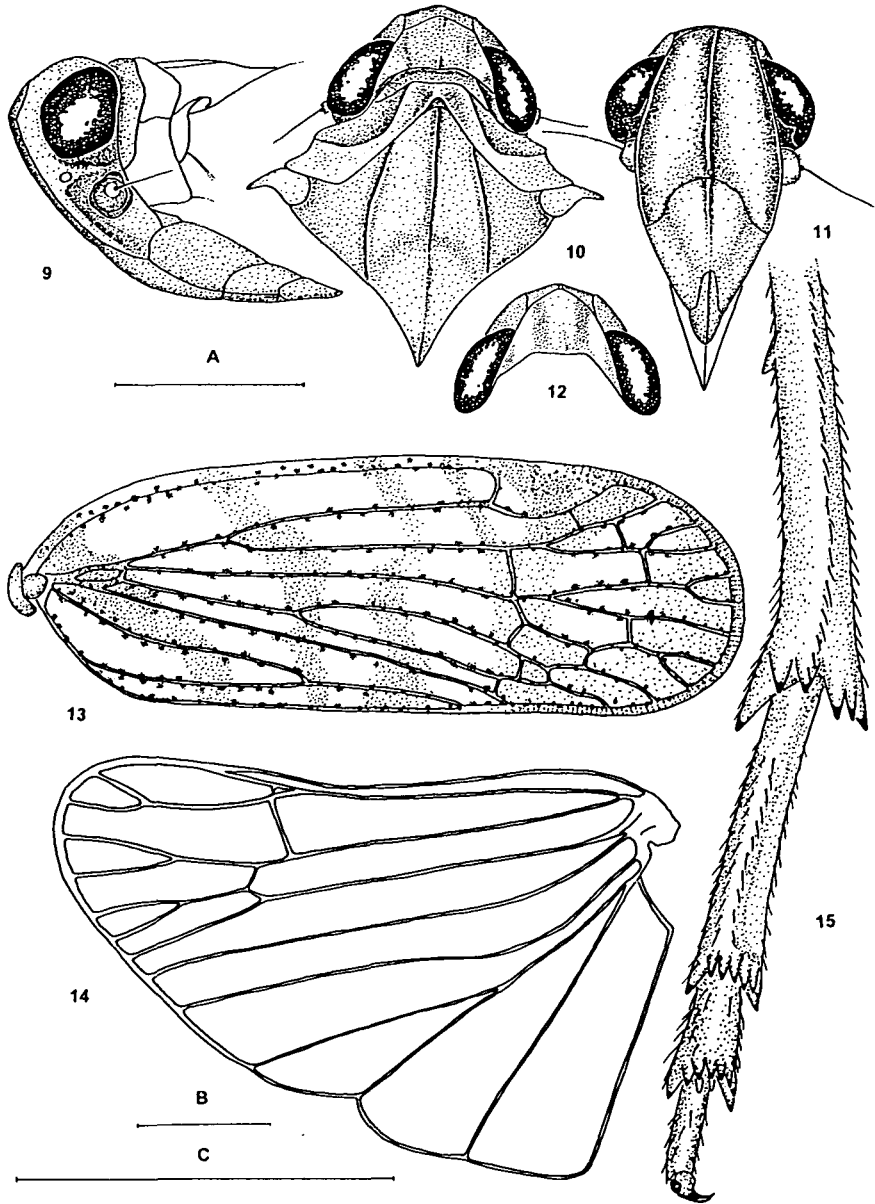


Fig 9-11: *Tachycixius arzonei* sp.n.; 9 – head, lateral aspect; 10 – head and thorax, dorsal aspect; 11 – face. Fig. 12: *Tachycixius ligustinus* WAGNER, head in dorsal aspect (male specimen ex coll. HAUPT). Figs 13-15: *Tachycixius arzonei* sp.n.; 13 – right tegmen; 14 – left hind wing; 15 – right tarsus III. Scale bar = 1 mm; A for figs. 9-12, B for figs 13 and 14, C for fig 15.

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