

## The mealybug *Trionymus angustifrons* Hall transferred to *Dysmicoccus* Ferris with new synonymy (Hemiptera, Sternorrhyncha, Coccoomorpha, Pseudococcidae)

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**Abstract.** – The mealybug *Trionymus angustifrons* Hall, 1926, is transferred to the genus *Dysmicoccus* Ferris, 1950, as a new combination, *Dysmicoccus angustifrons* (Hall, 1926), n. comb. The original names *Pseudococcus multivorus* Kiritchenko, 1936, and *P. lanatus* Balachowsky, 1932, are treated as new junior synonyms of *Dysmicoccus angustifrons* (Hall, 1926), a species belonging to a group with reduced numbers of cerarii and with two sizes of oral collar tubular ducts on the dorsum and venter. Lectotypes are designated for *Trionymus angustifrons* and *Pseudococcus lanatus*. Spain and mainland Greece are new locality records for the species.

**Résumé.** – La pseudococcine *Trionymus angustifrons* Hall transférée dans le genre *Dysmicoccus* Ferris avec deux nouveaux synonymes (Hemiptera, Sternorrhyncha, Coccoomorpha, Pseudococcidae). *Trionymus angustifrons* Hall, 1926, est transféré dans le genre *Dysmicoccus* Ferris, 1950, et devient *Dysmicoccus angustifrons* (Hall, 1926), n. comb. Sont mis en synonymie *Pseudococcus multivorus* Kiritchenko, 1936, et *P. lanatus* Balachowsky, 1932, n. syn. avec *Dysmicoccus angustifrons* (Hall, 1926), espèce appartenant à un groupe possédant un nombre réduit de cerarii et des glandes tubulaires dorsales et ventrales de deux tailles. Des lectotypes sont désignés pour *Trionymus angustifrons* et *Pseudococcus lanatus*. L'Espagne et la Grèce continentale sont de nouveaux signalements pour l'espèce.

**Keywords.** – Scale insects, *Dysmicoccus*, new combination, new synonyms, new locality records, lectotype designations.

We discovered the present change during a recent study of a new species of *Dysmicoccus* Ferris, 1950, on lavender (*Lavandula × intermedia*, Lamiaceae) in France (GERMAIN *et al.*, 2015). This new species, including *D. pietroi* Marotta, 1992, described from Italy on grass, belongs to a group with a reduced number of cerarii usually numbering 4-14 pairs, whereas most species of *Dysmicoccus* possess 17 pairs of cerarii. Furthermore, the species with a reduced number of cerarii also have two sizes of oral collar tubular ducts on both the dorsum and venter whereas most species possessing 17 pairs of cerarii lack tubular ducts on the dorsum except for some species with a few around the margins. The species described as *Trionymus angustifrons* Hall, 1926, from Egypt, also belongs to the group and here we transfer the species to *Dysmicoccus* and treat the names *Pseudococcus multivorus* Kiritchenko, 1936, and *Pseudococcus lanatus* Balachowsky, 1932, as junior synonyms. In addition, at least *D. boninsis* (Kuwana, 1909) and *D. triadus* Williams, 1987, may also belong to the same group. Lectotypes are designated for *T. angustifrons* and *P. lanatus*.

Terms of characters used here are the same as those used in WILLIAMS (2004).

Depositories of the type material are as follows: **BMNH**, Department of Life Sciences, The Natural History Museum, London, United Kingdom; **MNHN**, Muséum national d'Histoire naturelle, Paris, France; **ZISP**, Zoological Institute, Saint Petersburg, Russia; **KPCT**, Scale Insect Collection in Çukurova University, Adana, Turkey.

***Dysmicoccus angustifrons* (Hall, 1926), n. comb.**

*Trionymus angustifrons* Hall, 1926: 11. Lectotype, adult female, here designated, Egypt (BMNH).

*Erium angustifrons* (Hall); LINDINGER, 1935: 122.

*Pseudococcus angustifrons* (Hall); GOUX, 1941: 40.

*Pseudococcus lanatus* Balachowsky, 1932: 87, n. syn.; GOUX, 1933: 235. Lectotype, adult female, here designated, France (MNHN).

*Trionymus lanatus* (Balachowsky); KOZÁR & WALTER, 1985: 73.

*Pseudococcus multivorus* Kiritchenko, 1936: 151, n. syn. Lectotype, adult female, Ukraine, designated by DANZIG (1997: 105) (ZISP).

*Trionymus multivorus* (Kiritchenko); TER-GRIGORIAN, 1973: 63.

*Dysmicoccus multivorus* (Kiritchenko); KOTEJA & ŽAK-OGAZA, 1979: 672; MAROTTA, 1990: 73.

*Pseudococcus mendosus* Kiritchenko, 1936: 153. Lectotype, adult female, Azerbaijan, designated by DANZIG (1997: 108) (ZISP). Synonymised with *Pseudococcus multivorus* by BORCHSENIUS (1949: 138).

**Type-material.** – The LECTOTYPE (**present designation**) of *Trionymus angustifrons* is an adult female, designated to clarify the status of this species. The lectotype is designated from material in the BMNH and is selected from a slide labelled: left label “BM. 1926.402./ SYNTYPES x2/ W. J. Hall/ 11/7/1925”, right side engraved: “*Trionymus/ angustifrons/ Hall/ Ambrosia/ maritima/ Egypt/ WJH/ 15/5/26*”. There are three specimens on the slide and the left specimen is the lectotype and clearly marked. The other two specimens on the same slide are paralectotypes. In addition, paralectotypes are as follows: 1 slide similarly engraved, but with Egypt: Barrage, with three adult females, marked Cotype with an additional label, labelled Hall Collection/ B.M. Reg. No./ 1926–415. One slide with the same data, engraved, three adult females, but with A-93 and an additional label, labelled BM, 1940, 180. One slide with the same data, three adult females, but BM 1958-578. One slide labelled, same data, with three adult females [Brit. Mus. 1958-229] (all BMNH).

The LECTOTYPE (**present designation**) of *Pseudococcus lanatus* is an adult female labelled *Pseudococcus/ <sup>s</sup>/Kentrophyllum/ lanatum/ île de Port-Cros (Var). A. Balachowsky VI.1930*, slide number 3921/1 (MNHN). PARALECTOTYPES: 18 adult females on 13 slides, same data numbers 3921/ 2–14, except that slide 3921/8 has the date 6.VI.1930 (all MNHN). There are also four specimens on one slide with same data sent by A. Balachowsky to E. E. Green (BMNH).

The name *Dysmicoccus angustifrons* under *T. angustifrons* or *P. angustifrons* has been recorded by ABD-RABOU (2001), HALL (1926), LINDINGER (1935), BEN-DOV (1991, 1994), EZZAT (1962), FOLDI (2001), GOUX (1941), MATILE-FERRERO (1988) and MOHAMMAD & GHABBOUR (2008).

Hall's choice of the species name *angustifrons* is misleading. In the original description, Hall described it as markedly narrowed in front so he chose the Latin word “angustus” meaning narrow combined with the Latin word “frons”, in this sense meaning front. The narrowness, however, was caused during preparation of some of the specimens causing the antennae to move inwards resulting in the margins of the head to be dragged inwards also. Other specimens studied by Hall are quite normal in shape.

**Other material examined.** – Four slides labelled *P. lanatus* from France, Bouches-du-Rhône, Marseille, Sainte-Marguerite, lotissement La Pinède, on *Malva sylvestris*, 25.V.1933, L. Goux (MNHN); 8 slides labelled *T. angustifrons* from France, Bouches-du-Rhône, Marseille, La Madrague-de-Montredon, on Compositae, 29.VII.1939, L. Goux (MNHN).

We have studied specimens, all labelled *T. multivorus*, also from: Hungary, Kolontó Kiskunsagi Nemzeti Park, on *Alkama tinctoria*, 8.VI.1982, F. Kozár; Szársonlyó, on *Lactuca sp.*, 1985, B. Nagy (BMNH); Turkey, Antalya, on *Eryngium sp.*, 4.VII.1970 (BMNH); 1 ♀, Ağrı-Doğubeyazıt-Telçeker, 39°29,251'N - 44°11,345'E, 1544 m, on *Thymus sp.*, 7.VI.2006, M. B. Kaydan (KPCT: 2802); 3 ♀, Hakkari; Çukurca, 37°14,924'N - 43°36,916'E, 1328 m, on *Salvia sp.*, 22.V.2006, M. B. Kaydan (KPCT: 2722); 1 ♀, Iğdir; Tuzluca-Gaziler road, 40°6,198'N - 43°27,931'E, 1037 m, on *Geranium sp.*, 28.VI.2005, M. B. Kaydan (KPCT: 1942); 2 ♀, Van, Bahçesaray-Gayda road, 38°5,572'N - 42°47,574'E, 1570 m, on *Eryngium sp.*, 28.VI.2006, M. B. Kaydan (KPCT: 3071).

Specimens are also at hand labelled *P. multivorus* from mainland Greece, North SKW.E.59, on *Chondrilla* sp. (roots), 10.XII.1969, L. Caresche (MNHN, 6 slides) and from Spain, Madrid, Rivas – Vacía, on *Ecbalium elaterium*, 3.VIII.1999, Perez Hidalgo (MNHN, 8 slides). These are 2 new locality records for this species.

**Distribution.** – The present distribution of *Dysmicoccus angustifrons*, therefore, is: Armenia, Azerbaijan, Crete, Egypt, France, Georgia, Greece, Hungary, Iran, Israel, Italy, Poland, Russia, Sardinia, Saudi Arabia, Spain, Turkey, Turkmenistan, and Ukraine. Most of the records under *Pseudococcus multivorus*, *T. angustifrons* and *T. lanatus* are listed in the printed catalogue by BEN-DOV (1994) and records from Iran are by MOGHADDAM (2009: 31), from Sardinia by PELLIZZARI (2003) and those from Russia are listed in DANZIG (1997). All records are now available in ScaleNet, an online database of the scale insects (BEN-DOV *et al.*, 2015).

*Dysmicoccus angustifrons* is polyphagous and is known from many plant families although it is common on Asteraceae. It lives on all parts of the plant but more often on the roots, crowns (KOSZTARAB & KOZÁR, 1988, under *T. multivorus*) and leaves when the ovisacs appear.

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