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Nomenclatural changes in the family Membracidae (Hemiptera, Auchenorrhyncha, Membracoidea)

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Nomenclatural changes are provided for names in the family Membracidae. The following replacement names are proposed: *Gargara (Gargara) discoidea* **nom.nov.** for *Gargara (Gargara) discoidalis* Ananthasubramanian, 1980; *Tricentrus substitutus* **nom.nov.** for *Tricentrus yunnanensis* (Yuan & Li, 2002); *Indicopleustes esakii* **nom.nov.** for *Indicopleustes typicus* Esaki, 1932; *Neoproterpia* **nom.nov.** for *Proterpia* Stål, 1867; *Membracis expansa* Walker, 1851 **status revised** is reinstated as valid on taxonomic grounds. The correct original spelling is fixed for *Leptocentrus florifacialis* Yuan in Yuan & Chou, 2002, and seven incorrect original spellings are documented for five additional species in which a correct spelling was later adopted by one or more of the original authors. The name *Microtalis minutus* Buckton, 1902 is emended to *Microtalis minuta* Buckton, 1902 and *Brachytalis punctulatus* Ramos is emended to *Brachytalis punctulata* Ramos in both cases to agree with the feminine gender of *Microtalis* Fowler, 1895 and *Brachytalis* Metcalf & Bruner, 1925.

Key words: Homoptera, treehopper, homonym, synonym, nomen novum, replacement, classification, taxonomy

Modern cybertaxonomic tools based on relational databases provide a powerful mechanism for validation of nomenclature related information. Work on the MOWD: Membracoidea of the World Database (McKamey, 2017) and the World Auchenorrhyncha Database (Dmitriev, 2003 onward) led to the discovery of several problems related to Auchenorrhyncha nomenclature (e.g. McKamey, 1994, Liang & McKamey, 1996, McKamey, 2003, McKamey, 2006, Dmitriev & Dietrich, 2006, McKamey & Hicks, 2007, Zahniser, McKamey & Dmitriev, 2012, Dmitriev & McKamey, 2013). Additional nomenclatural issues were discovered in the development of the Treehoppers Website (Deitz and Wallace, 2002 onward) and likely others remain to be resolved. This paper is dedicated to the family Membracidae. To bring the taxonomy of this group into the compliance with International Code of Zoological Nomenclature (ICZN, 1999), several nomenclatural changes are proposed. *Nomina nova* are here presented for three species and one genus that required a replacement name. Regarding species names described with alternate original spellings, we document seven incorrect original spellings associated with five species for which at least one of the original authors subsequently adopted one original spelling as valid, with no mention of those spellings deemed incorrect (fixation of spelling as First Reviser under ICZN Article 24.2.4). We also act as First Reviser under ICZN Article 24.2 to fix the correct original spelling for one species originally described with three alternate spellings. Lastly, we make a mandatory change to two valid adjectival species names to agree with the gender of their current (and original) genus (ICZN Article 34.2).

Results

Membracidae Rafinesque, 1815

Centrotinae Amyot & Serville, 1843

Gargarini Distant, 1908

Erecticornia longovipositoris Yuan & Tian in Yuan, Tian & Xu, 1997:189 (correct original spelling) also spelled as *Erecticornia langovipositoris* Yuan, Tian & Xu, 1997:189 (incorrect original spelling).

Note: Acting as First Reviser, Yuan & Chou, 2002:523 implicitly fixed the correct spelling by adopting only it as valid (ICZN article 24.2.4).

Gargara (Gargara) discoidea **nom.nov.**

= *Gargara (Gargara) discoidalis* Ananthasubramanian, 1980:30 (from India) primary homonym of *Cyrtolobus discoidalis* (Emmons, 1854:157) (original genus *Gargara*; from the USA).

Etymology: proposed species name derived from a Latin adjective *discoideus* – “disk-shaped”.

Tricentrus camelloleifer Yuan & Xu in Yuan, Fan, Cui & Xu, 1997:97 (correct original spelling) also spelled as *Tricentrus camellolefer* Yuan, Fan, Cui & Xu, 1997:91 (incorrect original spelling).

Note: Acting as First Reviser, Yuan & Chou, 2002:391 implicitly fixed the correct original spelling by adopting only it as valid (ICZN article 24.2.4).

Tricentrus cassiae Yuan & Xu in Yuan, Fan, Cui & Xu, 1997:99 (correct original spelling) also spelled as *Tricentrus cassae* Yuan, Fan, Cui & Xu, 1997:103 and *Tricentrus caesalpiniae* Yuan, Fan, Cui & Xu, 1997:91 (incorrect original spellings)

Note: Acting as First Reviser, Yuan & Chou, 2002:539 implicitly fixed the correct original spelling by adopting only it as valid (ICZN article 24.2.4).

Tricentrus dorsocameloideus Yuan & Xu in Yuan, Fan, Cui & Xu, 1997:95 (correct original spelling) also spelled as *Tricentrus dorsoacameloideus* Yuan, Fan, Cui & Xu, 1997:102 and *Tricentrus dorsocaineloideus* Yuan, Fan, Cui & Xu, 1997:96 (incorrect original spellings)

Note: Acting as First Reviser, Yuan & Chou, 2002:372 implicitly fixed the correct original spelling by adopting only it as valid (ICZN article 24.2.4).

Tricentrus substitutus **nom.nov.**

= *Tricentrus yunnanensis* (Yuan & Li in Yuan & Chou, 2002:351) (original genus *Centrotoscelus*, from China) secondary homonym of *Tricentrus yunnanensis* Yuan & Fan in Yuan & Chou, 2002:410 (also from China).

Etymology. Latin participle *substitutus* – “substituted.”

Note: Wallace and Deitz (2004) treated *Centrotoscelus* Funkhouser, 1914, as a junior synonym of *Tricentrus* Stål, 1866.

Leptocentrini Distant, 1908

Leptocentrus florifacialis Yuan in Yuan & Chou, 2002:158 (correct original spelling) also spelled as *Leptocentrus florifoscialis* Yuan & Chou, 2002:505 and *Leptocentrus florifascialis* Yuan & Chou, 2002:506 (incorrect original spellings).

Note: We here fix the correct original spelling acting as First Reviser (ICZN article 24.2.3).

Maarbarini Wallace & Deitz, 2004

Indicopleustes esakii **nom.nov.**

= *Indicopleustes typicus* Esaki, 1932:1733 (from Japan) secondary homonym of *Indicopleustes typicus* (Kato, 1928:223) (original genus *Formocentrus*, from Taiwan).

Etymology: named in honor of Teiso Esaki.

Darninae Amyot & Serville, 1843

Hemikypthini Goding, 1929

Neoproterpia **nom.nov.**

=*Proterpia* Stål, 1867:557 (type species: *Hemiptycha rotundicornis* Fairmaire, 1846) homonym of *Proterpia* Gistel, 1848:viii (type *Cancer salinus* Linnaeus, 1758 unneeded replacement name for *Artemia* Leach, 1819:543, Branchiopoda: Artemiidae).

Etymology: new genus name derived from the original genus name *Proterpia* with a prefix *neo-* – “new.” The gender is feminine.

Note: Although the genus name *Proterpia* Gistel, 1848 was not used as valid after 1899, ICZN article 23.9.1 cannot be applied to preserve the name *Proterpia* Stål, 1867 because, to the best of our knowledge, the latter was not used in 25 works, published by 10 authors.

Included species:

Neoproterpia rotundicornis (Fairmaire, 1846:314) **comb.nov.** (orig. gen. *Hemiptycha*)

Neoproterpia truncaticornis (Goding, 1930:15) **comb.nov.** (orig. gen. *Proterpia*)

Membracinae Rafinesque, 1815

Membracini Rafinesque, 1815

Enchenopa brasiliensis Strümpel & Strümpel, 2007:422 (correct original spelling) also spelled as *Enchenopa brasiliensis* Strümpel & Strümpel, 2007:421 (incorrect original spelling).

Note: Acting as First Reviser, Strümpel & Strümpel, 2014:51 implicitly fixed the correct original spelling by adopting only one spelling as valid (ICZN article 24.2.4).

Membracis expansa Walker, 1851:475 **status revised**

=*Membracis flaveola* Gmelin, 1789:2092 **syn.nov.** (from South America) is a primary homonym of *Membracis flaveola* Fabricius, 1787:262 (syn. of *Membracis foliata* (Linnaeus, 1758:435), also from South America)

= *Membracis surgens* Walker, 1851:475 **syn.nov.**

= *Membracis jessica* Goding, 1920:158 **syn.nov.**

= *Membracis maculate* Goding, 1928:204 **syn.nov.**

Smiliinae Stål, 1866

Micrutalini Haupt, 1929

Micrutalis minuta Buckton 1902 **emend.nov.**

Micrutalis minutus Buckton 1902: 178

Note: We here correct the ending of the adjectival species name *Micrutalis minutus* Buckton to *Micrutalis minuta* Buckton to agree with the feminine gender of *Micrutalis* Fowler, 1895 (ICZN: Article 34.2). This species is currently regarded as valid (Sakakibara 1999: 206).

Genus of unknown tribal position

Brachytalis Metcalf & Bruner, 1925

Brachytalis punctulata Ramos, 1957:92 **emend.nov.**

Brachytalis punctulatus Ramos, 1957:92

Note: We here correct the ending of the adjectival species name *Brachytalis punctulatus* Ramos to *Brachytalis punctulata* Ramos to agree with the feminine gender of *Brachytalis* Metcalf & Bruner, 1925 (ICZN: Article 34.2).

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