



Nomenclatural novelties in *Baccharis* subgen. *Baccharis* (Asteraceae, Astereae)

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Abstract

Four new names (*Baccharis gaucha* for *B. axillaris* var. *dentata*; *B. neoaustralis* for *B. papillosa* subsp. *australis*; *B. neutruncata* for *B. truncata*, and *B. tetroica* for *B. tricuneata* var. *procumbens*) and 12 new combinations at species rank (*B. chaparensis*, *B. chrysophylla*, *B. fimbriata*, *B. integrifolia*, *B. kessleri*, *B. longipedicellata*, *B. minor*, *B. mornicola*, *B. pycnocephala*, *B. vargasii*, *B. viscosissima*, and *B. yungensis*) are provided totalling 16 nomenclatural novelties for *Baccharis* subgen. *Baccharis*. Moreover, a neotype is designated for *B. mornicola*. Comments on the distribution of these species and their closest congeneric species are provided, as well as morphological characters to differentiate them.

Keywords: Asterids, Asterales, Baccharidinae, classification, Compositae, taxonomy

Introduction

Baccharis Linnaeus (1753: 860) is endemic to the Neotropics with some introduced invasive species in Europe and Oceania. The genus is the only one belonging to subtribe Baccharidinae and comprises 440 species classified in 47 sections and seven subgenera (Heiden *et al.* 2019). The tufted indumentum of the leaves and stems and the unisexual florets generally arranged in separate specimens are putative synapomorphies (Müller 2006, Heiden *et al.* 2019).

Baccharis subgen. *Baccharis* can be recognized by the male florets bearing style apex with middle sweeping hairs distinctly longer than the basal and terminal ones, corollas of female florets filiform and without a subapical wreath of trichomes, mostly deciduous pappus of female florets, and glabrous, ≥ 5 -ribbed cypselae (Müller 2006, Heiden *et al.* 2019). It comprises 17 sections and is the most species-rich subgenus within *Baccharis*. North America, the Caribbean islands, the Andes, the Patagonian steppe, and eastern Brazil are the main centers of species diversity of the subgenus (Heiden *et al.* 2019).

Herein, four new names and 12 new combinations at species rank are provided totalling 16 nomenclatural novelties. In addition, a neotype is designated for the name *B. mornicola*. Hence, the subgenus comprises 241 species, i.e., 55% of the genus specific diversity. Comments on the distribution of these species and their closest congeneric species are provided, as well as morphological characters to differentiate them.

Nomenclatural novelties

New names

Baccharis gaucha G.Heiden, **nom. nov.** *Baccharis axillaris* var. *dentata* Candolle (1836: 407). *Baccharis incisa* var. *dentata* (Candolle 1836: 407) Baker (1882: 88) [non *Baccharis dentata* (Vellozo 1829: 334) Barroso (1976: 123)]. Type:—BRAZIL. [Rio Grande do Sul] “sub n. 956, ... sub n. 953”; *without locality, without date, ♂ F. Sellow 2976 = H. I. B. 956* (lectotype: P-00509660!, designated by Malagarriga 1958: 285; isolectotype: GH-00247133 digital image!).

Etymology:—The specific epithet comes from the Brazilian vernacular word *gaúcho*, which refers to the people born in Rio Grande do Sul in southern Brazil, from where the species is endemic.

Baccharis gaucha is endemic to Serra do Sudeste (Southeastern Dissected Plateau) in the state of Rio Grande do Sul in southern Brazil and characterized by obovate leaves, cuneate basis, dentate margins with 1 or 2 coarse teeth on each side, and acute or obtuse not mucronulate apical tooth. It can be separated from *B. axillaris* Candolle (1836: 407) which is also endemic to Brazil (Paraná, Rio Grande do Sul, Santa Catarina, São Paulo) and has oblong leaves, rounded basis, entire or sparsely dentate margins with one shallow tooth in each side, and a rounded mucronulate apex. *Baccharis incisa* Hooker & Arnott (1841: 29) which is also endemic to Brazil (Paraná, Rio Grande do Sul, Santa Catarina, São Paulo), can be separated from *B. gaucha* by its ovate leaves, cuneate basis, fimbriate-dentate margins with 2 or 3 teeth in each side, and fimbriate-acute not mucronulate apical tooth.

Baccharis neoaustralis G.Heiden, **nom. nov.** *Baccharis papillosa* subsp. *australis* Müller (2006: 70) [non *Baccharis australis* Hellwig 1990: 376]. Type:—BOLIVIA. Chuquisaca: Oropeza, Cajamarca ca. 30 km hacia Ravelo, ca. 3300 m, 9 Oct. 1984, ♂, *S. Beck* 8826 (holotype: JE- 00007403 digital image!; isotypes: HBG-506335!, LPB-0000538 digital image!, M-0172474 digital image!).

Etymology:—The specific epithet *australis* refers to the distribution in southern Bolivia plus *neos* from the Greek referring to the new name proposed, since the name *B. australis* has been previously occupied.

Baccharis neoaustralis is endemic to central-southern Bolivia (Chuquisaca, Cochabamba) and characterized by resinous young shoots, and leaves up to 8 cm long, with elliptic, obovate or oblanceolate blades, acute or rarely obtuse apex, and entire or with up to 4 short teeth on each side margins. It can be separated from *B. papillosa* Rusby (1912: 129) which is also endemic to Bolivia (Chuquisaca, Cochabamba, Potosí) and has tomentose young shoots, rarely laxly puberulent, leaves up to 4 cm long, obovate or circular blades, rarely elliptic or oblanceolate, mostly obtuse or truncate apex, and entire margins or each margin with 2, rarely up to 4, coarse teeth or obtuse lobes.

Baccharis neotruncata G.Heiden, **nom. nov.** *Baccharis truncata* Philippi (1864: 148), **nom. illeg.**, non *Baccharis truncata* Gardner (1848: 82). *Baccharis rhomboidalis* var. *truncata* (Philippi 1864: 148) Heering (1916: 126). *Baccharis rhomboidalis* subsp. *truncata* (Philippi 1864: 148) Hellwig (1990: 300). Type:—[CHILE. O'Higgins: Colchagua] “in Andibus prov. Colchaguae”, Dec. 1860, *C.L. Landbeck s.n.* (holotype: SGO).

Etymology:—The specific epithet refers to the truncate leaf blade apex plus *neos* from the Greek referring to the new name proposed, since the name *B. truncata* has been previously occupied.

Baccharis neotruncata is endemic to Chile (Biobío, Maule, Metropolitana, O'Higgins, Valparaíso) and characterized by solitary capitula at the end of first-order side branches, male capitula 8–12 mm long, corolla of male florets 5.1–7 mm long, corolla of female florets 4.6–4.9 mm long, with pappus of female floret 6–9 mm long at fruit maturity and cypselae longer than 1.9–2.8 mm long. It can be separated from *B. rhomboidalis* Rémy (1849: 99), which is also endemic to Chile (Araucanía, Bío Bío, Los Lagos) and has solitary capitula at the end of second-order side branches, male capitula 6–8 mm long, corolla of male florets 4.4–5.1 mm long, corolla of female florets 3.5–4.6 mm long, with pappus of female floret 4–6.5 mm long at fruit maturity and cypselae 1.4–1.8 mm long.

Baccharis tetroica G.Heiden, **nom. nov.** *Baccharis tricuneata* var. *procumbens* Cuatrecasas (1967: 39) [non *Baccharis procumbens* Hieronymus (1905: 479)]. Type:—COLOMBIA. Boyacá: Nevado del Cocuy, Chorreón de San Paulino, woods on south slope, 3750 m, 10 Sep. 1938, ♀, *J. Cuatrecasas* 1356 (holotype: US-00129370!; isotypes: BC-624225 digital image!, COL!, F- 0049727F!, P- 00755753!).

Etymology:—The specific epithet honours the Spanish botanist José Cuatrecasas Arumí (1903–1996), who worked at the Smithsonian Institution and devoted a significant part of his career studying Andean plants and Asteraceae. In 1998 the Smithsonian Institution released the Cuatrecasas Botanical Fund to support and enhance taxonomic studies on South American plants, and the current work benefited from this award in 2011. The proposed name refers to the literal translation of Cuatrecasas (four houses) from Spanish to Greek.

Baccharis tetroica is endemic to Colombia (Boyacá, Cundinamarca, Norte de Santander, Santander) and characterized by procumbent to prostrate branches with corolla of female florets 3.3–4.4 mm long. It can be separated from *B. tricuneata* Persoon (1807: 424), which occurs in Colombia (Antioquia, Boyacá, Caldas, Cauca, Cundinamarca, Norte de Santander, Santander, Tolima, Valle del Cauca) and Venezuela (Mérida, Táchira, Trujillo) and is a shrub to treelet with erect branches and with corolla of female florets 2.5–3.2 mm long.

New combinations

Baccharis chaparensis (Müller 2006: 77) G.Heiden, **comb. et. stat. nov.** *Baccharis papillosa* subsp. *chaparensis* Müller (2006: 77). Type:—BOLIVIA. Cochabamba: Chapare, gorge of Río Apaza N Represa Corami, road Cochabamba-Villa Tunari, humid grassland, ca. 3200 m, 17°12'S, 65°54'W, 8 Mar. 2002, ♀ & ♂, *J. Müller 9264* (holotype: JE-00007401 digital image!; isotypes: BR-0000009586819 digital image!, BR-0000009587892 digital image!, G- 00020228!, GH-00230657 digital image!, HBG-522090!, LPB-0000539 digital image!, MO-2246687!, NY-00804158!, P00648214!).

Baccharis chaparensis is endemic to Bolivia (Cochabamba) and characterized by resinous young shoots and leaf blades 0.12–0.5 cm wide, seemingly 1-veined. It can be separated from *B. papillosa* (Rusby 1912: 129), which is also endemic to Bolivia (Chuquisaca, Cochabamba, La Paz, Potosí), based on the tomentose young shoots and leaf blades 0.5–2.8 cm wide, pinnately veined.

Baccharis chrysophylla (Hellwig 1990: 318) G.Heiden, **comb. et. stat. nov.** *Baccharis santelicensis* subsp. *chrysophylla* Hellwig (1990: 318). *Baccharis tola* var. *chrysophylla* (Hellwig 1990: 318) Müller (2006: 96). Type:—CHILE. Tarapacá: Zapahuira-Portezuelo de Chapiquiña, 4300 m, 15 Apr. 1986, ♀, *F.H. Hellwig 7957* (holotype: M-0029795 digital image!).

Baccharis chrysophylla occurs in Bolivia (Oruro) and Chile (Tarapacá) and is characterized by scaly shoots, leaves crowded at the apex of branches, and solitary capitula in leaf axil. It can be separated from *B. tola* Philippi (1860: 30), which occurs in Argentina (Jujuy, La Rioja, Mendoza, Salta), Bolivia (Chuquisaca, Oruro, Potosí, Tarija), and Chile (Antofagasta, Atacama), based on the shoots smooth, leaves evenly distributed along branches and solitary capitula at shoot apex.

Baccharis fimbriata (Müller 2006: 97) G.Heiden, **comb. et. stat. nov.** *Baccharis tola* subsp. *fimbriata* Müller (2006: 97). Type:—BOLIVIA. Tarija: José María Avilés, altiplano beside the upper valley of Río Rosario W Rosario, tola vegetation, 21°55'S, 65°08'W, ca. 3800 m, 27 Feb. 2002, ♀, *J. Müller 9217* (holotype: JE-00007388 digital image!; isotypes: BR-0000009589568 digital image!, GH-00230664 digital image!, LPB-0000550 digital image!, MO-2246680!, NY-0804162!).

Baccharis fimbriata occurs in Argentina (Jujuy, Salta) and Bolivia (Potosí, Tarija) and is characterized by the linear, oblanceolate or obovate leaves with plane teeth and capitula with fimbriate phyllaries. It can be separated from *B. tola* Philippi (1860: 30), which occurs in Argentina (Jujuy, La Rioja, Mendoza, Salta), Bolivia (Chuquisaca, Oruro, Potosí, Tarija), and Chile (Antofagasta, Atacama), based on the oblanceolate or oblong leaves with twisted or recurved teeth, and capitula with dentate phyllaries.

Baccharis integrifolia (Müller 2006: 78) G.Heiden, **comb. et. stat. nov.** *Baccharis papillosa* subsp. *integrifolia* Müller (2006: 78). Type:—BOLIVIA. La Paz: Inquisivi, cultivated land above Titi Amaya (N Quime), ca. 3400 m, 16°55'S, 67°12'W, 1 Aug. 1999, ♀, *J. Müller 7276* (holotype: JE-00007400 digital image!; isotypes: BR-0000009589698 digital image!, LPB-0000540 digital image!, NY-00804161!).

Baccharis integrifolia is endemic to Bolivia (Cochabamba, Santa Cruz) and is characterized by the resinous young shoots and leaves that are elliptic, oblanceolate or obovate with mostly entire margins or rarely with 1 or 2 short teeth on each side. It can be separated from *B. papillosa* (Rusby 1912: 129), which is also endemic to Bolivia (Chuquisaca, Cochabamba, La Paz, Potosí), based on the tomentose young shoots and obovate to nearly circular leaves with entire margins or with up to 4 coarse teeth or obtuse lobes on each side.

Baccharis kessleri (Müller 2006: 81) G.Heiden, **comb. et. stat. nov.** *Baccharis papillosa* subsp. *kessleri* Müller (2006: 81). Type:—BOLIVIA. Cochabamba: Chapare, gorge of Río Apaza N Represa Corani, road Cochabamba-Villa Tunari, moist scrub, ca. 3200 m, 17°12'S, 65°54'W, 8 Mar 2002, ♀, *J. Müller 9275* (holotype: JE-00006229 digital image!; isotypes: BR-0000009589391 digital image!, E-00187783!, G-00020229!, GH-00230516 digital image!, HBG-522091!, HBG- 522092!, LPB-0000541 digital image!, MICH-1200777 digital image!, MO-2246686!, NY-00804159!, P-00648213!).

Baccharis kessleri is endemic to Bolivia (Cochabamba) and characterized by the resinous young shoots, male capitula bearing 60–120 florets and female capitula bearing 80–170 florets. It can be separated from *B. papillosa* (Rusby 1912: 129), which is also endemic to Bolivia (Chuquisaca, Cochabamba, La Paz, Potosí), based on the tomentose young shoots, male capitula bearing 15–40 florets, and female capitula bearing 10–60 florets.

Baccharis longipedicellata (Müller 2006: 75) G.Heiden, **comb. et. stat. nov.** *Baccharis papillosa* subsp. *longipedicellata* Müller (2006: 75). Type:—BOLIVIA. La Paz: Larecaja, planicie de Icharani E Laripata, ca. 3250 m, pasture, 30 Aug. 1999, ♀, *J. Müller 7595* (holotype: JE-00006225 digital image!; isotypes: BR-0000009589599 digital image!, GH-00230515 digital image!, LPB-0000542 digital image!, MO-2246688!, NY-00804170!).

Baccharis longipedicellata occurs in Bolivia (La Paz) and Peru (Puno) and is characterized by the resinous young shoots, mostly uniform leaves 3–8 cm long, narrowly elliptic, obovate or oblanceolate leaf blades, mostly entire margins or rarely with up to 3 short teeth on each side, and pedunculate capitula with peduncles (3–)6–35 mm long. It can be separated from *B. papillosa* (Rusby 1912: 129), which is endemic to Bolivia (Chuquisaca, Cochabamba, La Paz, Potosí), based on the tomentose young shoots, leaves 1–4 cm long, obovate to nearly circular leaf blades, entire margins or with up to 4 coarse teeth or obtuse lobes on each side, and capitula with peduncles up to 3–7(–10) mm long.

Baccharis minor (Hellwig 1990: 363) G.Heiden, **comb. et. stat. nov.** *Baccharis zoellneri* subsp. *minor* Hellwig (1990: 363). Type:—CHILE. Biobío: Tal des Río, Caramávida, weg nach San Alfonso, Gebüsche am Wegrand, ca. 800 m, 3 Nov 1985, ♀, *F.H. Hellwig 4718* (holotype: M; isotypes: JE-00004560 digital image!, SGO).

Baccharis minor is endemic to Chile (Araucanía, Biobío) and characterized by the corolla of the male floret 3–3.8 mm long, female capitula 5–6 mm long, corolla of the female floret 2–2.9 mm long, pappus at cypsela maturity 3–5 mm long. It can be separated from *B. zoellneri* (Hellwig 1990: 352), which is also endemic to Chile (Aysén, Los Lagos, Magallanes), based on the corolla of the male floret 4.4–4.6 mm, female capitula 6–9 mm long, corolla of the female floret 3.4–4.6 mm, and pappus at cypsela maturity 7–8 mm long.

Baccharis mornicola (Urban 1923: 9) G.Heiden, **comb. et. stat. nov.** *Baccharis myrsinites* var. *mornicola* Urban (1923: 9). Type:—HAITI. Ouest: Obleon, Morne Tranchant, in fruticeto aprico, 1800 m, without date, *W. Buch 2044* (holotype: HAC not found). Neotype (designated here):—HAITI. Ouest: Massif de la Selle, Ganthier, high plateau of Morne de la Selle, path Badeau to Saltrou, in thickets on the road Bachau-Saltron, 2000 m, 27 Jan. 1925, ♀, *E.L. Ekman 3100* (neotype: K!; isoneotypes: NY-1627763!, S-16-49032!, US-00841744!).

Baccharis mornicola occurs in the Dominican Republic and in Haiti being endemic to Hispaniola island and characterized by the linear-elliptic or linear-oblanceolate leaf blades and solitary axillary capitula. It can be separated from *B. myrsinites* Persoon (1807: 424), which also occurs in the Dominican Republic and Haiti, being also endemic to Hispaniola, based on the obovate or oblanceolate leaf blades, and capitula arranged in terminal racemes.

The holotype specimen *Buch 2044* has not been found among the collections of herbarium HAC or at herbaria B, GH, HAJB, L, MO, NY, S, and US, considered likely places to host Wilhelms Buch duplicates (Harvard University Herbaria & Libraries 2020). Therefore, *Ekman 3100* at K (a female specimen) with duplicates at NY, S, and US, is designated as a neotype. The specimen was collected nearby the type locality and is in agreement with the taxon original description.

Baccharis pycnocephala (Hellwig 1990: 150) G.Heiden, **comb. et. stat. nov.** *Baccharis linearis* subsp. *pycnocephala* Hellwig (1990: 150). Type:—CHILE. Biobío, Hochtal bei Trapa-Trapa, 24 Mar. 1986, ♀, *F.H. Hellwig 6180* (holotype: M-0031175 digital image!; isotype: SGO).

Baccharis pycnocephala is endemic to Chile (Araucanía, Biobío, Los Lagos, Maule) and characterized by the loosely leafed twigs, unbranched or with few side branches, male capitula 7.5–9 mm long, corolla of male florets 5.5–5.9 mm, female capitula 10–14 mm, and cypselae 2.2–3 mm long. It is distinguished from *B. linearis* (Ruiz & Pavón 1798: 205) Persoon (1807: 425), which is also endemic to Chile (Araucanía, Atacama, Biobío, Coquimbo, Los Lagos, Maule, Metropolitana, O'Higgins, Valparaíso), based on the densely leafed twigs, profusely branched or with few side branches, male capitula 5.5–7.5 mm long, corolla of male florets 4.8–5.2 mm long, female capitula 7–10 mm, and cypselae 1.1–1.8 mm long.

Baccharis vargasii (Müller 2006: 214) G.Heiden, **comb. et. stat. nov.** *Baccharis subalata* var. *vargasii* Müller (2006: 214). Type:—BOLIVIA. Santa Cruz: Caballero, 1 km E Siberia, tramo de 1–2 km, subiendo al este por arriba de La Escuela, ladera de exposición SSW, 3000–3050 m, 17°49'S, 64°45'W, 26 Jul. 1996, ♀, I.G. Vargas; J. Peña & S. Jiménez 5043 (holotype: NY-00688460!; isotype: USZ!).

Baccharis vargasii is endemic to Bolivia (Cochabamba, Santa Cruz) and characterized by the striate stems with narrow wings, up to 1 mm wide, and corymbose capitulescences. It can be separated from *B. subalata* Weddel (1856: 174), which occurs in Bolivia (Chuquisaca, Cochabamba, La Paz, Santa Cruz) and Peru (Cusco), based on the winged stems with wide wings, more than 1 mm wide, and pyramidal capitulescences.

Baccharis viscosissima (Kuntze 1898: 133) G.Heiden, **comb. et. stat. nov.** *Baccharis magellanica* var. *viscosissima* Kuntze (1898: 133). *Baccharis tola* subsp. *tolae* var. *viscosissima* (Kuntze 1898: 133) Müller (2006: 91). Type:—CHILE. Atacama: Conchi, Mar. 1892, ♀, O. Kuntze s.n. (holotype: NY-162267!; isotype: US-701091!).

≡ *Baccharis tola* subsp. *altiplanicola* Hellwig (1990: 333). Type:—CHILE. Tarapacá: Pica-Salar de Huasco, 4000 m, 19 Apr. 1986, ♀, F.H. Hellwig 5660 (holotype: M-0029797 digital image!).

Baccharis viscosissima occurs in Argentina (Catamarca, Jujuy, Salta, Tucumán), Bolivia (Potosí), and Chile (Antofagasta, Tarapacá) and is characterized by the obdeltate or obovate leaf blades with plane teeth. It can be separated from *B. tola* Philippi (1860: 30), which occurs in Argentina (Jujuy, La Rioja, Mendoza, Salta), Bolivia (Chuquisaca, Oruro, Potosí, Tarija), and Chile (Antofagasta, Atacama), based on the oblanceolate or oblong leaf blades with twisted or recurved teeth.

Baccharis yungensis (Müller 2006: 73) G.Heiden, **comb. et. stat. nov.** *Baccharis papillosa* subsp. *yungensis* Müller (2006: 73). Type:—BOLIVIA. La Paz: Inquisivi, Cerro Cruz Pata NW Quime, scrub, ca. 3350 m, 16°58'S, 67°13'W, 30 Jul. 1999, ♀, J. Müller 7246 (holotype: JE-00006224 digital image!; isotypes: BR-0000009589490 digital image!, LPB-0000544 digital image!, MO-2246681!, NY-00804160!).

Baccharis yungensis is endemic to Bolivia (Cochabamba, La Paz) and characterized by the resinous young shoots, leaves 3–8 cm long, narrowly elliptic, obovate or oblanceolate leaf blades, entire margins or with 1–6 short or coarse teeth on each side, and pedunculate capitula with peduncles (1–)3–15 mm long. It can be separated from *B. papillosa* (Rusby 1912: 129), which is also endemic to Bolivia (Chuquisaca, Cochabamba, La Paz, Potosí), based on the tomentose young shoots, leaf blades obovate to nearly circular, 1–4 cm long, entire margins or with up to 4 coarse teeth or obtuse lobes on each side, and capitula subsessile or peduncles up to 7(–10) mm long.

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