

## *Baccharis malmei* (Asteraceae), a new species from southeastern Brazil

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*Baccharis malmei* Jochen Müll. *sp. nova* is described from southeastern Brazil. Its morphological delimitation, especially against the similar *B. singularis*, is discussed and the history of misapplication of *B. cassinifolia* and *B. daphnoides*, which are synonyms of *B. singularis*, is depicted. Two synonyms of *B. singularis* are lectotypified.

Key words: Asteraceae, *Baccharis*, new species, nomenclature, taxonomy

Vellozo (1831) illustrated a Brazilian *Baccharis* species in at least two tables under two different names, which were published earlier by Vellozo (1829). *Chrysocoma singularis* (table 7) is based on a female, whereas *C. lateralis* (table 21) is based on a male plant. Additionally, *C. purpurea* (table 45) might be based on male material of the same species. De Candolle (1836) described *Baccharis cassinifolia* and *B. cassinoides* in sect. *Cuneifoliae*, stating that they are very similar to each other. Baker (1882–1884) united all these names and some additional ones, which were published later (*Baccharis corydalis* *nom. nud.*, *B. daphnoides*, *B. senicula*), into *B. cassinifolia*, including also material from the Andes. Baker's delimitation of *B. cassinifolia* was largely based on leaf shape and consistence, neglecting characters of the fertile organs, so the material listed by him under this name is heterogeneous. The cited specimens from the Andes of Colombia, Bolivia, and Argentina belong to *B. nitida*, *B. papillosa*,

and *B. tucumanensis*, respectively.

Malme (1933) separated *B. daphnoides* from *B. cassinifolia*, attributing plants with terminal corymbose capitulescences to the former, and plants with capitula in axillary racemes greatly exceeded by the subtending leaves to the latter name. Malagarriga Heras (1957) also recognized both species, but named them conversely. Finally, Barroso (1976) followed Malme's (1933) concept of *B. cassinifolia*, but recognized the priority of *Chrysocoma singularis* over *B. daphnoides*, providing the due combination *B. singularis* for this taxon. The two species were classified by her into two different species groups. Contrary to the concepts of Malme (1933) and Barroso (1976), all syntypes of the latter name housed at G-DC belong to *B. singularis*, which also includes *B. cassinoides*, *B. daphnoides* and *B. senicula*. Hence, there is no valid name available for the species named "*Baccharis cassinifolia*" by the two authors.

***Baccharis malmei*** Jochen Müll., *sp. nova*  
(Fig. 1; Barroso 1976: photo 13)

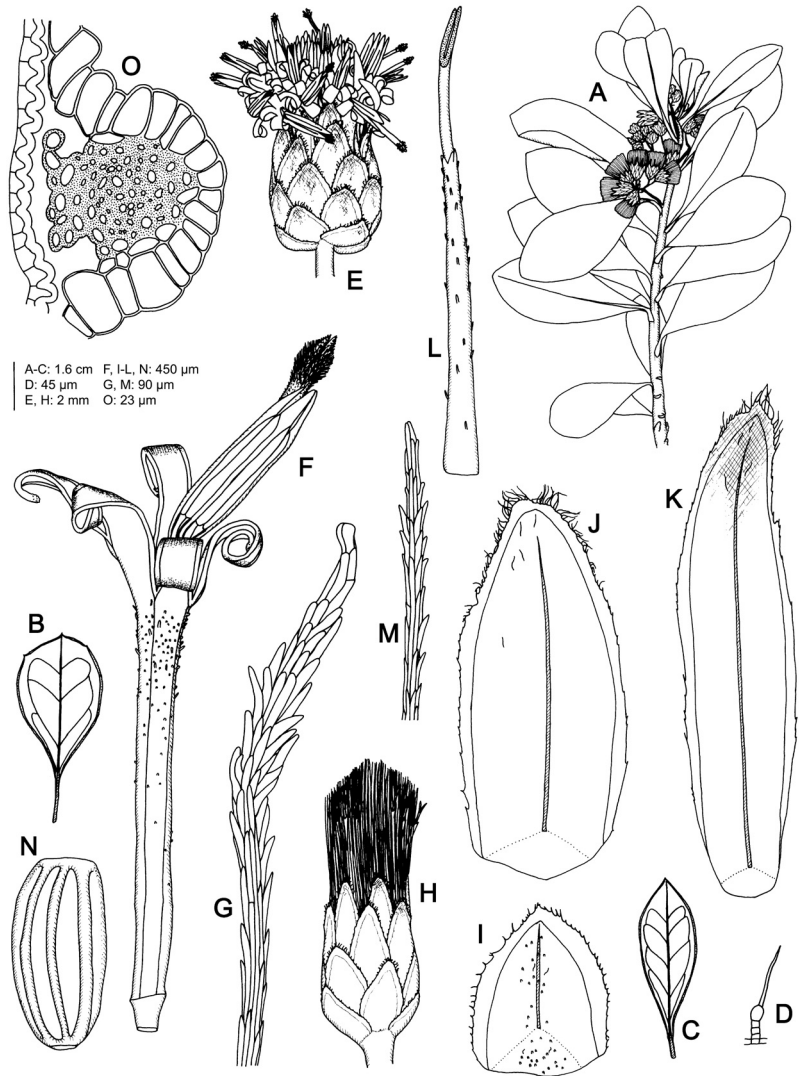
*B. singulari similis, sed capitulis in racemis brevibus axillaribus (non in paniculis corymbiformibus terminalibus) et pappo floribus femineis non crescento post augmine styli differt.*

TYPE: Brazil. Rio de Janeiro: Serra do Tingua, ♀; *Glaziou* 8776 (holotype BR!; isotypes BR!, G!, S!).

Shrub, 1–2 m tall; branching monopodial and sympodial, erectopatent. Shoots green or olive green, like leaves resinous, older shoots brown or grey, grooved. Larger leaves 3.5–10 cm long, 1.2–3.5 cm wide, 2–4 times as long as wide, leaf blades coriaceous, obovate or oblanceolate, acute or acuminate, entire or in upper third with up to 2 short, acute teeth on each side, pinnately veined with 3–7(–8) pairs of major lateral veins. Leaf blades mostly slightly revolute, narrowed into a petiole 3–25 mm long. Midrib adaxially flat, central vascular strand on both sides with sclerenchyma strands. Leaves only with abaxial stomata and only adaxial palisade parenchyma. Both leaf surfaces (and twigs) with tufts of 4–6-cellular flagellate hairs (basal cell not included) and biseriate glandular hairs. Guard cells of leaf stomata 50–85  $\mu\text{m}$  long. Capitula pedicellate, borne in mostly corymbiform racemes (rarely small corymbiform panicles) 1–3 cm long and wide mostly in axils of leaves and greatly exceeded by them, sometimes also at branch ends; racemes combined to narrow and foliate double racemes 3–10 cm long; pedicels 1–7 mm long, with 0–2 bracts. Male capitula 6.5–8.5 mm long, involucre urn-shaped or campanulate, 4.5–6.5 mm long, 3.2–4.2 mm wide, phyllaries 23–35 in 5–8 rows, flowers 17–32. Clinanthium flat, glabrous or with a few uniseriate hairs; alveolate, ridges lower than or about as high as scar diameter, with short to long, obtuse apices. Outermost phyllaries ovate to wider than long, median phyllaries ovate, innermost phyllaries lanceolate, oblanceolate or linear, 2–5 times as long as outermost. All phyllaries indurate, straw-colored, light green or (light) brown, sometimes darker in subapical region, margins broadly scarious, long dentate, at least apically fimbriate in median and inner phyllaries, often tinged with purple, brown or orange;

outermost phyllaries abaxially mostly at least near base with biseriate glandular hairs and often flagellate hairs; innermost phyllaries mostly glabrous besides few subapical flagellate hairs. Corolla 5.8–7.2 mm long, tube 4–4.5 mm long, throat 0–0.4 mm long, a rim or cup-shaped, lobes 1.7–2.7 mm long, coiled at maturity; corolla externally with biseriate hairs and glandular hairs on throat and in distal 80% of tube. Style exceeding corolla, its apex capitate by long median sweeping hairs and nearly completely divided. Anthers including apical appendage 0.8–1.5 times as long as filaments. Pollen grains 19–25  $\mu\text{m}$  in diameter. Sterile ovary glabrous or with few or scattered biseriate glandular hairs. Pappus 4.5–5.7 mm long, bristles 30–45, in several series (rarely pappus uniseriate with some additional bristles), apically broadened, with moderately long-protruding erectopatent cell ends. Female capitula 8–13 mm long, involucre urn-shaped or campanulate, 5.5–8 mm long, 3.3–4 mm wide, phyllaries 18–40 in 4–8 rows, flowers 20–35. Clinanthium flat or convex, otherwise like in male capitula. Phyllaries similar to those of male capitula. Corolla 3.3–5 mm long, with 5 obtuse apical teeth, externally with scattered biseriate hairs for most of its length. Style 4.8–6.5 mm long, branches 0.5–0.9 mm long. Achenes 1.5–2.7 mm long, 0.6–1 mm wide, light brown, glabrous, nearly cylindrical with narrowed base and apex, slightly compressed laterally, with 8–12 strong longitudinal ribs. Pericarp cells medium-sized or large in cross section. Pericarp thicker than testa epidermis, without papillae, cuticle smooth. Ribs with thick sclerenchyma bundles, fibre walls slightly thicker to slightly thinner than lumen diameter. Epidermal cells of testa with curved, moderately or strongly thickened outer walls, testa with narrowly rectangular to quadratic crystal plates 3–15  $\mu\text{m}$  long. Pappus not elongated at achene maturity, 5.3–7.2 mm long, slightly to much longer than style, bristles 50–100, deciduous, in several rows, apically slightly broadened, with moderately long protruding erectopatent cell ends.

DISTRIBUTION AND ECOLOGY. The specimens I have studied are from the states of Rio de Janeiro and Paraná in south eastern Brazil. Barroso (1976) cited the species (as *B. cassinifolia*) also for the states of São Paulo and Santa Catarina. *Baccharis malmei* was collected in humid



**Fig. 1.** *Baccharis malmei* (A, C, D, H–O from the holotype, B, E–G from *Hatschbach 46063*). — A: Female plant, flowering shoot. — B and C: Leaves. — D: Flagellate hair (leaf). — E: Male capitulum. — F: Male flower. — G: Apex of male pappus bristle. — H: Female capitulum. — I–K: Phyllaries of female capitulum, outer to inner. — L: Female flower. — M: Apex of female pappus bristle. — N: Achene. — O: Achene cross section, pericarp and testa epidermis (rib).

forests and scrub at altitudes between 900 and 1100 m. Collections of flowering *B. malmei* were made throughout the year.

**ADDITIONAL SPECIMENS EXAMINED** (paratypes): **Brazil.** Paraná, Morro 7 (Mun. Quatro Barras), *Cordeiro & Ribas 550* (S, ♀); Serra do Mar, Monte Alegre, *Dusén 3505* (S, ♂); *Dusén 8199* (S, ♂); *Dusén 14071* (S, ♂); Poço d'Anta (Mun. São José dos Pinhães), *Hatschbach 46063* (BR, ♂); Morro 7 (Mun. Quatro Barras), *Ribas & Nicolack 300* (S, ♂).

*Baccharis malmei* differs from *B. singularis* by (1) capitula borne in axillary racemes (rarely panicles), which are exceeded by the subtending leaves (vs. capitula borne in terminal corymbiform panicles), (2) pappus of female flowers

not elongated at achene maturity (vs. pappus greatly elongated), and (3) achenes with broad intercostal pericarp cells and smooth cuticle (vs. intercostal pericarp with both broad cells with smooth cuticle and narrow cells with striate cuticle). Other *Baccharis* species with capitula arrangement similar to *B. malmei*, like *B. dentata* or *B. rivularis*, differ by leaves with usually more than two teeth on each side and by not or slightly capitate style apices of male flowers. Additionally, *B. dentata* differs from *B. malmei* by female pappus greatly (vs. not) elongated at achene maturity and papillose achenes with striate (vs. smooth) cuticle; *B. rivularis* by more or less patent (vs. erectopatent) free cell ends at

the apex of female pappus bristles and low (vs. strong) achene ribs.

### *Baccharis singularis* (Vell.) G.M. Barroso

Rodriguésia 28(40): 96. 1976. — *Chrysocoma singularis* Vell., Fl. flum. 325. 1829. — TYPE: Original specimens unknown.

*Chrysocoma lateralis* Vell., Fl. flum. 329. 1829, *syn. nov.*

— TYPE: Original specimens unknown.

?*Chrysocoma purpurea* Vell., Fl. flum. 334. 1829. —

TYPE: Original specimens unknown. — Synonymized by Barroso (1976).

*Baccharis cassinifolia* DC. (“*cassinifolia*” *orth. err.*), Prodr. 5: 412. 1836, *syn. nov.* — TYPE: Brazil. Rio de Janeiro: Rio de Janeiro, *Lund 128* (lectotype, here designated: G-DC!, ♀♂).

*Baccharis cassinoides* DC., Prodr. 5: 412. 1836, *syn. nov.* — TYPE: Brazil. São Paulo: without locality, *Sellow s.n.*, Mus. Imp. Bras. 477 (holotype P!; isotype G-DC!, fragment, ♀).

*Baccharis senicula* Mart., Bot. Z. 1838, Beibl. 2: 61. 1838. — LECTOTYPE (here designated): Brazil. Bahia: bei den Villa Ilhéus, 5.VI.1837 *Martius 667* (BR!, ♂). — Synonymized by Barroso (1976).

*Baccharis daphnoides* Hook. & Arn., J. Bot. 3: 34–35. 1841. — TYPE: Uruguay. *Baird s.n.* (holotype K, photo!, ♂). — Synonymized by Barroso (1976).

Usually the tables of the *Flora Fluminensis* are used for lectotypification of names published in that work (e.g., De Lima 1995). However, as pointed out by F. Barrie (pers. comm.), these tables do not qualify as original material for the names published by Vellozo (1829) under Art. 9, Note 2 ICBN (Greuter *et al.* 2000), because they were prepared after Vellozo’s death. Since, according to Stafleu and Cowan (1986), the Biblioteca Nacional, Rio de Janeiro, holds original drawings of Vellozo, those should be considered to ascertain whether they include drawings of *Chrysocoma lateralis*, *C. purpurea*, and *C. singularis*, or these names should be neotypified. The relevant material is actually hardly accessible (H. de Lima pers. comm.); thus formal typification is not aimed at here, and a general survey on Vellozo’s drawings is encouraged.

DISTRIBUTION AND ECOLOGY. *Baccharis singularis* is distributed in the lowlands and hills near the Atlantic Ocean from southeastern Bahia to Uruguay. It is an element of rather humid scrub at usually low altitudes, up to 700 m according to Barroso (1976). Flowering specimens were collected between January and August.

SELECTED SPECIMENS EXAMINED: **Brazil.** Bahia, without locality, *Blanchet 1591* (G; G-DC; P, ♀♂, syntype of *B. cassinifolia*); Mun. de Ilhéus, rod. BR 415, Trecho, Ilhéus/Itabuna km 14, *King & Mattos Silva 8003* (M, ♀); Mucuri, V.1816 *Wied s.n.* (BR, BR-818420, GOET, ♀). Paraná, Jacarehy, *Dusén 8264* (M, S, ♂). Rio Grande do Sul, Quintas pr. Rio Grande (oppid.), Lagõa dos Patos, *Malme 1572* (S, ♀). Rio de Janeiro, Rio de Janeiro, *Widgren 275* (BR, S, ♀). Santa Catarina, Morro da Fazenda, Itajaí, *Reitz & Klein 1803* (S, ♀). São Paulo, Santos, *Lindley 711* (BR, ♂).

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