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Novon

A Journal for Botanical Nomenclature

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ABSTRACT. Two novelties in the genus *Senecio* L. sect. *Senecio* of Patagonia (Argentina) are described and illustrated: a new species, *S. breviramulus* Tortosa & Adr. Bartoli belonging to series *Xerosenecio* (Cabrera) Cabrera & S. E. Freire, and the new variety *pinohachense* Tortosa & Adr. Bartoli for *S. volckmannii* Phil. belonging to series *Suffruticosi* Cabrera subser. *Candidi* (Cabrera) Cabrera & S. E. Freire. The new species is allied to *S. covasii* Cabrera and *S. pumilus* Tortosa & Adr. Bartoli, from which it differs by the smaller, narrowly elliptic leaves and narrower heads with fewer flowers. The new variety of *S. volckmannii* differs from the typical variety by the presence of female ray florets and the pedunculate capitula.

RESUMEN. Se describen e ilustran dos novedades en el género *Senecio* L. sect. *Senecio* de Patagonia (Argentina): una nueva especie *S. breviramulus* Tortosa & Adr. Bartoli, que pertenece a la serie *Xerosenecio* (Cabrera) Cabrera & S. E. Freire, y una nueva variedad, *S. volckmannii* Phil. var. *pinohachense* Tortosa & Adr. Bartoli, de la serie *Suffruticosi* Cabrera subser. *Candidi* (Cabrera) Cabrera & S. E. Freire. La nueva especie es afín a *S. covasii* Cabrera y *S. pumilus* Tortosa & Adr. Bartoli, de las cuales se diferencia por sus hojas menores, angostamente elípticas, y sus capítulos más angostos, con menor número de flores. La nueva variedad de *S. volckmannii* se diferencia de la variedad típica por la presencia de flores liguladas femeninas y capítulos pedunculados.

Key words: Argentina, Asteraceae, IUCN Red List, Patagonia, *Senecio*.

The genus *Senecio* L. is composed of about 3000 species worldwide, with the highest diversity in mountainous and desert regions of southern South

America, tropical South Africa, and central and eastern Asia (Bartoli et al., 2004).

In southern South America, the genus is represented by ca. 643 species, of which 280 were recognized by Cabrera (1949) in Chile; 90 in Brazil, Uruguay, and Paraguay (Cabrera, 1957); and 114 in Bolivia (Cabrera, 1985). In Argentina, according to Cabrera et al. (1999) *Senecio* is represented by 266 native species, arranged in three sections and 16 series. Since the publication of that paper for Argentinean species, several authors have made research contributions. In 2001, Tombesi described *S. calingastensis* Tombesi, belonging to series *Corymbosi* (Cabrera) Cabrera subser. *Brasilienses* Cabrera & S. E. Freire (Tombesi, 2001). Later, Long (2002) included *S. quequensis* Cabrera of series *Xerosenecio* (Cabrera) Cabrera & S. E. Freire subser. *Filaginoidei* (Cabrera) Cabrera & S. E. Freire in the synonymy of *S. bergii* Hieron. Subsequently, Bartoli et al. (2004) described *S. nemiae* Adr. Bartoli, Tortosa & S. E. Freire of series *Corymbosi* subser. *Adenotrichi* (Lindl.) Adr. Bartoli, Tortosa & S. E. Freire. Afterward, Tortosa and Bartoli (2005) founded two new entities, *S. fragrantissimus* Tortosa & Adr. Bartoli and *S. pumilus* Tortosa & Adr. Bartoli, both species belonging to series *Xerosenecio* subser. *Filaginoidei*. Troiani and Steibel (2006) described a new species from Patagonia, *S. chipauquilenis* Troiani & Steibel, from series *Xerosenecio* subser. *Microcephali* (Cabrera) Cabrera & S. E. Freire, and Tortosa and Bartoli included *S. rosmarinus* Phil. and *S. spegazzinii* Cabrera as synonyms of *S. volckmannii* Phil., which belongs to series *Suffruticosi* Cabrera subser. *Candidi* (Cabrera) Cabrera & S. E. Freire. Tortosa and Bartoli later resurrected *S. floccidus* Hombr. & Jacquinot of series *Xerosenecio* subser. *Filaginoidei* and concluded that *S. patagonicus* Hook. & Arn. var. *andersonii* (Hook. f.) Cabrera is

a synonym of *S. arnottii* Hook. f. (Tortosa & Bartoli, 2007). Recently, Tortosa and Bartoli (2008) have redefined *S. filaginoides* DC. and resurrected three species, *S. caricifolius* Hook. & Arn., *S. leuciscus* Phil., and *S. quenselii* Skottsb., all belonging to series *Xerosenecio* subser. *Filaginoidei*.

During the revision of *Senecio* sect. *Senecio* (Asteraceae) in Patagonia, we found a new species of series *Xerosenecio* subser. *Microcephali* and a new variety of *S. volckmannii*, which belongs to series *Suffruticosi* subser. *Candidi* (Cabrera et al., 1999). Both series are found in southern South America; series *Xerosenecio*, composed of ca. 45 species, is characterized by discoid capitula that are grouped in terminal corymbs, while in series *Suffruticosi*, with 143 species, the capitula are solitary or occasionally in groups of two to three (to five) and are discoid or with marginal filiform flowers. The presence of solitary or grouped capitula as well as radiate or discoid capitula may be variable within a single species. The overlapping of these characters raised doubts regarding the infrageneric classification proposed by Cabrera and Freire (Cabrera et al., 1999) for the austral South American species of *Senecio*. Although useful for a genus with such a large number of species, this artificial classification does not reflect the phylogenetic relationships of the species; this was demonstrated by Tortosa and Bartoli (2006), who transferred to the synonymy of *S. volckmannii* two species with solitary heads, *S. rosmarinus* and *S. spegazzinii*, which were previously included by Cabrera et al. (1999) in series *Xerosenecio* subser. *Filaginoidei*.

NEW SPECIES FOR *SENECIO* SER. *XEROSENECIO*

1. *Senecio breviramulus* Tortosa & Adr. Bartoli, sp. nov. TYPE: Argentina. Neuquén: Minas, Las Ovejas, camino a Las Lagunas, Mallín Quemado, 37°01'S, 70°45'W, 2 Feb. 1982, C. P. Movia s.n. (holotype, BAA 17904). Figure 1.

Inter species *Senecionis* seriei *Xerosenecionis* (Cabrera) Cabrera & S. E. Freire ramulis brevibus foliis ad basem confertis sursum laxis ad *S. covasii* Cabrera et *S. pumilum* Tortosa & Adr. Bartoli accedens, sed foliis anguste ellipticis minoribus et capitulis angustioribus pauci- (12- ad 14-) floribus ad eis recedens.

Dwarf shrubs, 12–15 cm tall, much branched at the base; stems woody, prostrate, giving rise at their nodes to tender, herbaceous, ascending shoots, lanuginose, with leaves congested at shoot bases, 0.6–1 mm diam.; flowering shoots arising from leafy shoots, with scattered leaves. Leaves alternate, sessile, linear to narrowly elliptic, spatulate, rounded or slightly acute at the apex, 0.8–1.2 cm × 0.8–1.2 mm, margin involute, entire or with 1 or 2 teeth per side, densely glaucous and lanuginose on both surfaces. Capitules-

cence at the end of leafy shoots, with 6 to 11 capitula; peduncles 0.3–2 cm. Capitula discoid, 12- to 14-flowered; involucre calyculate, narrowly obconic, ca. 5 × 2.5 mm; calycular bracts ca. 5, elliptic, 1–1.5 mm, lanuginose; phyllaries 8 or 9, dorsally lanuginose, acuminate, apex dark. Disk florets hermaphroditic; corolla yellow, tubular, glabrous, 5–6 mm, lobes triangular, ca. 0.7 mm long, ca. 0.5 mm wide at base; anthers minutely tailed, 2–2.5 mm; filament collars spatulate, ca. 0.45 mm; apical anther appendages deltoid, ca. 0.25 mm; the basal tails ca. 0.1 mm; style branches ca. 1.2 mm. Cypselae cylindric, glabrous, ca. 3.5 mm, ribbed; pappus bristles many, slender, barbellate, ca. 5.5 mm, whitish cream.

Distribution and habitat. *Senecio breviramulus* has been found in the mountains in the north of Neuquén Province, Argentina, at elevations of 1700–1800 m. This species grows on dry sandy soil with rocky outcrops in rather scattered populations and is associated with species of *Festuca* L., *Stipa* L., *Poa* L., *Mulinum* Pers., and *Chuquiraga* Juss.

IUCN Red List category. Due to the reduced population size, very restricted area of occupancy, and lack of data on changes in population size, this species should be considered Critically Endangered (CR) according to IUCN Red list criteria (IUCN, 2001).

Etymology. The specific epithet *breviramulus* is from the Latin and refers to the dwarf stature and short stems of the new species.

Discussion. *Senecio breviramulus* is allied to *S. covasii* Cabrera and *S. pumilus* Tortosa & Adr. Bartoli by its plants with ascending branchlets with the leaves congested at stem bases, but with the flowering shoots with scattered leaves. The new species can be distinguished from them by its smaller, narrowly elliptic leaves and the smaller, narrow heads with fewer florets (12 to 14 vs. 20 or more in both affined species). The new species is placed in series *Xerosenecio* because of the shape and size of the involucre, which we regard as having special taxonomic value to redefine the series (Tortosa & Bartoli, unpublished).

Paratype. ARGENTINA. Neuquén: Chos Malal, Vegas de Pelán, 36°54'S, 70°20'W, 24 Jan. 1964, O. Boelcke 11120 (BAA).

KEY TO SPECIES ALLIED TO *SENECIO BREVIRAMULUS* IN PATAGONIA

- 1a. Involucre campanulate, 5–6 × 4–5 mm; stems, leaves, and phyllaries lanuginose when young, loosely lanuginose or glabrate when mature. . . *S. covasii*
- 1b. Involucre obconic or narrowly obconical; stems, leaves, and phyllaries always lanuginose.

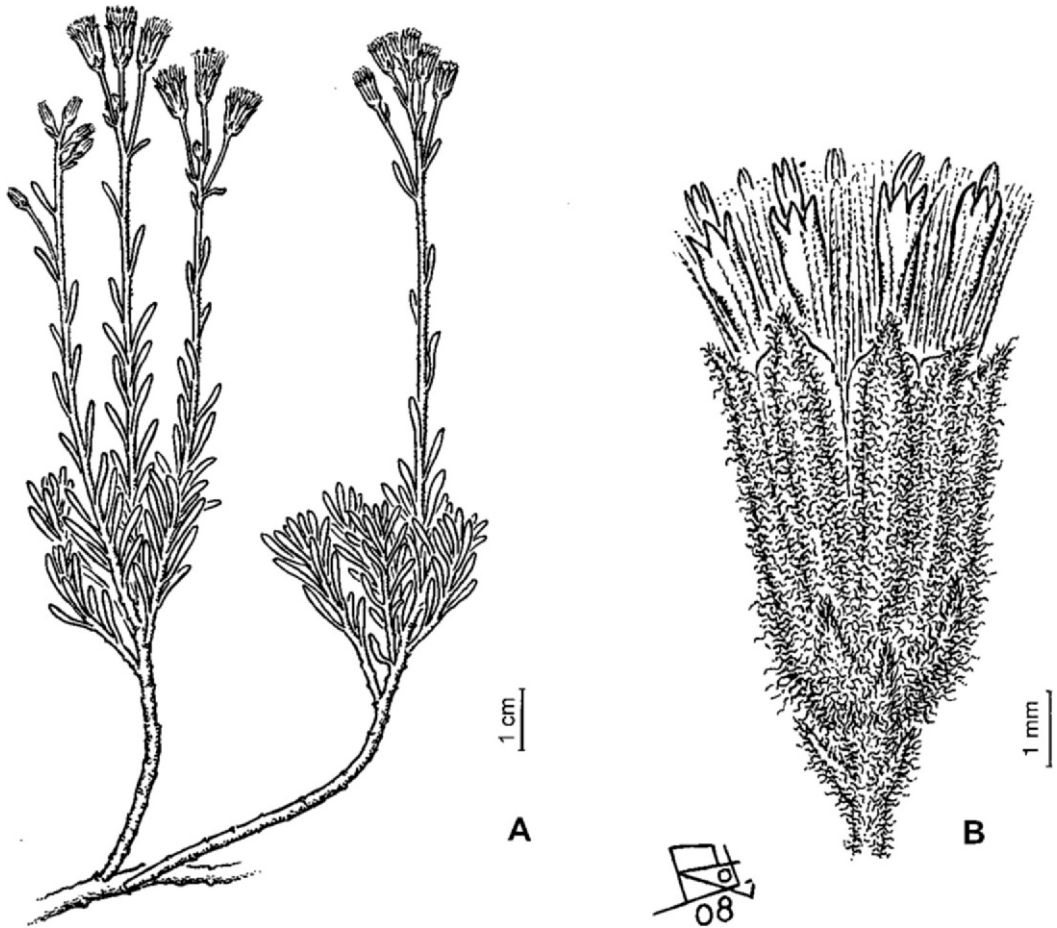


Figure 1. *Senecio breviramulus* Tortosa & ADR. Bartoli. —A. Fertile habit. —B. Capitulum. Drawn from the holotype *Movia s.n.* (BAA 17904).

- 2a. Involucre narrowly obconic, ca. 5×2.5 mm; florets 12 to 14; leaves narrowly elliptic, spatulate, $0.8\text{--}1.2$ cm \times $0.8\text{--}1.2$ mm; flowering shoots $0.6\text{--}1$ mm diam. . . . *S. breviramulus*
- 2b. Involucre obconic, $6\text{--}7 \times 3\text{--}3.5$ mm; florets 20 to 24; leaves elliptic, $0.8\text{--}2$ cm \times $1.5\text{--}3$ mm; flowering shoots $1.2\text{--}2$ mm diam. . . . *S. pumilus*

NEW VARIETY IN *SENECIO* SER. *SUFFRUTICOSI* SUBSER. *CANDIDI*

1. *Senecio volckmannii* Phil., *Linnaea* 33: 152. 1864. TYPE: Chile. Coquimbo: Cord. Santa Ana, ad balneas del Toro, s.d., *H. Volckmann s.n.* (holotype, SGO, photo LP).

1a. *Senecio volckmannii* var. *volckmannii*.

1b. *Senecio volckmannii* var. *pinohachense* Tortosa & ADR. Bartoli, var. nov. TYPE: Argentina. Neuquén: Dpto. Picunches, paso Pino Hachado, en el hito, "lígulas amarillas, muy vistosas," $38^{\circ}39'S$, $70^{\circ}54'W$, 2018 m, 10 Feb. 1970, *E. G. Nicora 7435* (holotype, BAA). Figure 2.

A varietate typica *Senecionis volckmannii* Phil. haec varietas floribus ligulatis praesentibus et pedunculis $1.5\text{--}4.5$ cm longis differt.

Shrub $0.1\text{--}0.15$ m tall, with dense white woolly indument mixed with glabrous zones on stems, leaves, and phyllaries. Leaves alternate, sessile, obovate-elliptic, not spatulate, $2\text{--}3(3.5)$ cm \times $3\text{--}6$ mm, margins entire. Capitula radiate, solitary, pedunculate; peduncles $1.5\text{--}4.5$ cm; involucre widely campanulate, ca. 12×10 mm; calycular bracts few, narrowly triangular, $5\text{--}8$ mm; phyllaries 20 to 22, linear, acuminate. Ray florets pistillate, ca. 12; corolla yellow, tube ca. 5 mm, with scattered, short glandular trichomes in the basal portion; limb ca. $10 \times 1.5\text{--}2.5$ mm. Disk florets hermaphroditic; corolla yellow, ca. 9 mm, glabrous. Cypselae pubescent.

Distribution and habitat. *Senecio volckmannii* var. *pinohachense* occurs at the southern limit of the species range. The type collection was collected near



Figure 2. *Senecio volckmannii* Phil. var. *pinohachense* Tortosa & Adr. Bartoli. —A. Fertile habit. —B. Capitulum. Drawn from the holotype *Nicora* 7435 (BAA).

the boundary between Argentina and Chile at an elevation of 2018 m. The paratype comes from a mountain chain that extends to 1523 m, located in western Neuquén Province, Argentina.

IUCN Red List category. There are only two collections representing this variety. It may be considered Critically Endangered (CR) according to IUCN Red list criteria (IUCN, 2001).

Etymology. The varietal epithet *pinohachense* is taken from the geographic location Pino Hachado, which refers to the name of the path where the type specimen was collected. In Spanish, “pino hachado” refers to a pine that has been cut down with an axe. The place name could allude to *Araucaria araucana* K. Koch, a native species.

Discussion. *Senecio volckmannii* is a South American species. The typical variety is found in northern Chile, in the regions of Antofagasta, Atacama, and Coquimbo, and in northwestern Argentina into Mendoza Province (see Cabrera et al., 1999; Tortosa & Bartoli, 2006). Among taxa of

Senecio ser. *Suffruticosi* subser. *Candidi*, the parent species is characterized by its narrowly obovate-elliptic to broadly elliptic, spatulate leaves (vs. narrower blades in the new variety) with entire margins (rarely toothed), and sessile heads (vs. pedunculate). *Senecio volckmannii* var. *pinohachense* differs from the typical variety in its radiate and pedunculate heads.

Senecio volckmannii is sometimes found with *S. poeppigii* Hook. & Arn., which belongs to section *Streptothamnus* Greenm. The species are similar in having both discoid and radiate varieties. *Senecio poeppigii* differs, however, in having a different indument (white tomentose), smaller heads (involucre 8–9 mm high), fewer florets of flowers (ca. 40), and ray florets (when present) that lack glandular trichomes.

Paratype. ARGENTINA. **Neuquén:** Dpto. Aluminé, Cordón Rucachoroi, 39°16'S, 71°14'W, s.d., V. Fleming s.n. (Hb. L. Cusato 3932 b, BAA).

Acknowledgments. We thank John Pruski (MO) and an anonymous reviewer for helpful criticism,

Victoria C. Hollowell (MO) for her accurate editorial work, and Francisco Rojas for the illustrations. This study was supported by the Universidad de Buenos Aires and Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Argentina.

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