

Senecio pseudodepressus (Asteraceae, Senecioneae), a New Species from San Juan Province, Argentina

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Abstract—*Senecio pseudodepressus*, a new species from the Province of San Juan, Argentina, is described and illustrated. *Senecio pseudodepressus* is morphologically similar to *Senecio depressus*, but it is distinguished by having mostly 3–8-dentate leaves, pedunculate capitula and pubescent achenes. The new species is assigned to *Senecio* section *Senecio* series *Chilenses* subseries *Candidi* by its subshrubby habit, tomentose indumentum and solitary discoid capitula. A key to distinguish species of *Senecio* subser. *Candidi* with dentate leaves and large involucre is provided. The differences between *Senecio pseudodepressus* and its related taxa are also discussed.

Keywords—Compositae, *Senecio* ser. *Chilenses*, *Senecio* subser. *Candidi*, taxonomy.

Senecio L. is one of the largest genera of Asteraceae with a world-wide distribution (except Antarctica); many of its species grow in the mountainous regions and deserts of the Americas, Africa, and Asia (Cabrera 1957; Cabrera et al. 1999; Nordenstam 2007). The genus includes ca. 3,000 species in its broader concept (Cabrera 1949, 1985; Jeffrey et al. 1977) or ca. 1,250 species as circumscribed by Bremer (1994) and Nordenstam (2007). Recently, Pelsner et al. (2007) proposed, on the basis of molecular studies, a new monophyletic delimitation of *Senecio* containing ca. 1,000 species.

Senecio s. l. is the largest genus of vascular plants in Argentina, where it comprises more than 14% of the total flora (Zuloaga et al. 1999). There are 280 species of *Senecio* known to occur in Argentina, arranged in four sections and 18 series, with 116 endemic species (Cabrera et al. 1999; Bártoli et al. 2004; Troiani and Steibel 2006; Tortosa and Bártoli 2008). During the course of taxonomic studies on *Senecio* for the Flora of San Juan, a specimen determined by Angel Cabrera as *S. depressus* Hook. & Arn. was found. A comparison of the putative new taxon to *S. depressus* and other species of *Senecio* sect. *Senecio* ser. *Chilenses* DC. ex M. G. López, A. F. Wulff & Xifreda subser. *Candidi* (Cabrera) Cabrera & S. E. Freire, where *S. depressus* is placed, reveals that it has a unique set of characteristics.

The new species here described belongs to *Senecio* sect. *Senecio* ser. *Chilenses*, a series recently validated by López et al. (2011) to replace *S. ser. Suffruticosi* Cabrera (Cabrera 1985). Within this series it belongs to *S. subser. Candidi*, which has 34 species in southern South America (Argentina, Bolivia, and Chile). *Senecio pseudodepressus* shares with species of *S. subser. Candidi* its subshrubby habit, tomentose indumentum, and solitary discoid capitula.

MATERIALS AND METHODS

To compare the identity of the new species, specimens of related taxa were examined at INTA, LP, and SI (herbarium acronyms follow Thiers 2011). Floral parts were dissected and observed after hydrating them in boiling water and detergent and staining with 2% safranin. Characteristics of leaf trichomes and achenes were observed using the Dizeo de Strittmatter (1973) diaphanization technique. Observations were carried out using a Nikon Microphot-FXA light microscope equipped with a camera.

TAXONOMIC TREATMENT

SENECIO L., Sp. Pl. 2: 866. 1753.

Herbs, subshrubs, shrubs, or small trees. Leaves alternate (sometimes rosulate), entire, variously lobed or dissected,

with entire, serrate, or dentate margins. Capitula radiate, discoid or disciform, homogamous or heterogamous; involucre cylindrical, hemispheric, or campanulate, usually with a calyculus of smaller bracts; phyllaries uni-seriate. Florets often yellow, sometimes white, pink, purple, or rarely blue; ray florets pistillate, corollas liguliform or short filiform; disk florets perfect, corollas tubular; anthers ecaudate to slightly tailed, filament collar slender or dilated; style branch apices truncate with a crown of hairs, penicillate, sometimes with a tuft of longer hairs in center. Achenes 5–10 (–12)-ribbed, glabrous or pubescent; pappus bristles numerous, slender, finely barbellate, white.

Senecio pseudodepressus L. Salomón & S. E. Freire, sp. nov.—TYPE: ARGENTINA. San Juan: Iglesia, Rio de Las Taguas, 29°17'23"S, 69°58'59"W, 24 Jan 1995, R. Kiesling, B. Ruthsatz, and I. Holz 8679 (holotype: SI!).

Morphologically similar to *Senecio depressus* in its subshrubby habit, densely grey-tomentose, solitary discoid capitula, and calyculus length, but distinguished by its mostly dentate leaves, peduncle capitula length, and its pilose achenes.

Subshrub 7–10 cm tall, profusely branched at base, densely grey-tomentose on stems, leaves, and phyllaries, with long aseptate-flagellate trichomes. Stems ascending, leafy. Leaves alternate, densely arranged, sessile, (6–)8–12 (–18) × (2.5–) 4–6 (–8) mm, oblanceolate, 3–8 (–12)-dentate, rarely entire, base slightly attenuated, margins revolute, pubescent on both surfaces. Capitula homogamous and discoid, solitary, pedunculate, peduncles 10–20 mm long; involucre (9–)10(–12) × 14–22 mm, campanulate, calyculate, calycular bracts 4–12, ca. 5–6 × 0.5–0.8 mm, linear-triangular, pilose; phyllaries 18–22(–26), (9–)10(–12) × 1–2 mm, linear-oblong, dorsally pubescent, apex acuminate with a tuft of short trichomes. Florets isomorphic, numerous, perfect; corollas yellow, tubular, ca. 7 mm long, 5-lobed, lobes triangular-ovate, 0.6–0.9 mm long, apically papillate; anthers 5, ca. 2.5 mm long, basally auriculate, filament collars slightly balusterform, ca. 0.8 × 0.2 mm, apical anther appendages ca. 0.6 mm long, ovate lanceolate; style branches ca. 1 mm long, slightly convex, papillate, surrounded by a crown of hairs, unequal in length. Achenes ca. 4 mm long, subcylindrical, 10-ribbed, with elongate myxogenic duplex hairs, ca. 0.15 mm long; carpopodium annular, cells 4–5-seriate; pappus bristles ca. 5 mm long, barbellate, white. Figures 1–3.

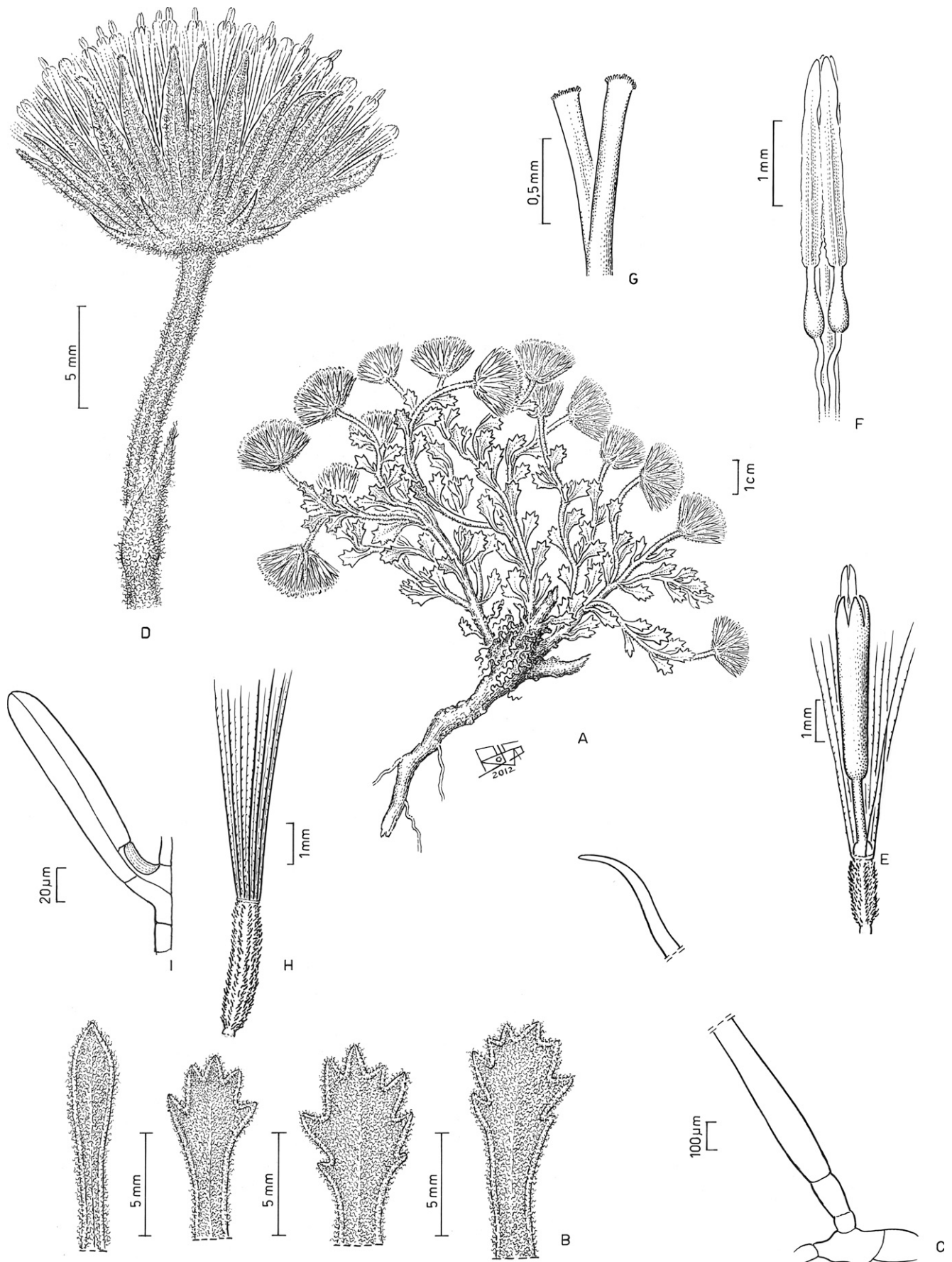


FIG. 1. *Senecio pseudodepressus*. A. Habit. B. Leaves. C. Leaf trichome. D. Capitulum. E. Floret. F. Stamens. G. Style branches. H. Achene with pappus. I. Myxogenic duplex hair. [Kiesling et al. 8679 (SI)].

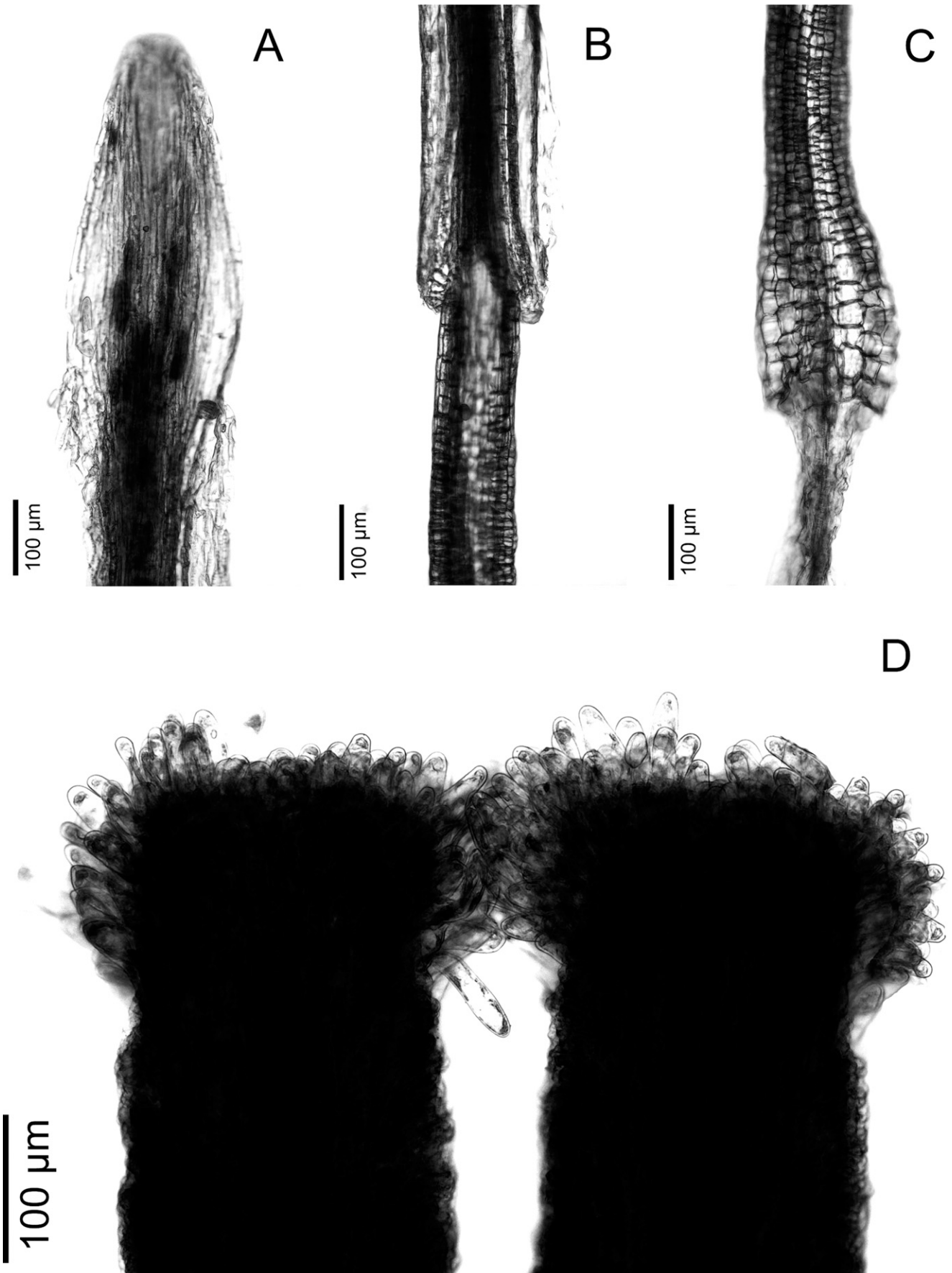


FIG. 2. *Senecio pseudodepressus*. Anthers and style branches: A. Anther appendage. B. Auriculate base. C. Balusterform collar. D. Style branches apices showing slightly truncate apex with a crown of hairs subequal.

KEY TO THE SPECIES OF *SENECIO* SECT. *SENECIO* SER. *CHILENSES* SUBSER. *CANDIDI* WITH
DENTATE LEAVES AND LARGE INVOLUCRES (8–14 MM LONG)

1. Calyculus half or more length of involucre 2
 2. Phyllaries ca. 13 *S. tocomarensis*
 2. Phyllaries 15 or more 3
 3. Achenes pilose *S. pseudodepressus*
 3. Achenes glabrous 4
 4. Phyllaries 22–25 *S. depressus*
 4. Phyllaries 15–20 5
 5. Capitula solitary, sessile or subsessile (peduncle 2–15 mm); phyllaries ca. 15;
calyculus half or more length of involucre *S. alloephyllus* var. *alloephyllus*
 5. Capitula solitary or 2–4, pedunculate (peduncle 10–40 mm); phyllaries 15–20;
calyculus reaching half length of involucre *S. leucomallus* var. *incisus*
1. Calyculus less than half length of involucre 6
 6. All leaves on a plant dentate 7
 7. Stems leafy to the apex *S. coluhuapiensis*
 7. Stems scapiform 8
 8. Phyllaries 12–14 *S. maulinus*
 8. Phyllaries ca. 20 *S. repollensis*
 6. Entire and dentate leaves on same plant 9
 9. Phyllaries (15–)16–22; achenes usually pilose 10
 10. Petiolate leaves *S. aquilaris*
 10. Sessile leaves 11
 11. Plants 10–15 cm tall; leaves 12–20 mm long; phyllaries glabrescent or tomentose *S. skottsbergii*
 11. Plants 2–7 cm tall; leaves 5–15 mm long; phyllaries woolly 12
 12. Achenes pilose *S. pissisii*
 12. Achenes glabrous *S. tinctorobus*
 9. Phyllaries 12–15; achenes glabrous 13
 13. Plants 5–10 cm tall; involucre 8–10 mm tall *S. looseri*
 13. Plants 15–20 cm tall; involucre 10–12 mm tall *S. lorentziella*

DISCUSSION

Senecio pseudodepressus can be differentiated from the following 13 taxa of *Senecio* sect. *Senecio* ser. *Chilenses* subser. *Candidi* principally by its leaves, capitula and achenes (Table 1). The newly described species is morphologically most similar to *S. depressus* in having a similar subshrubby habit, entire and dentate leaves on the same plant, number of phyllaries, and calyculus half the length of the involucre. However, *S. pseudodepressus* differs from *S. depressus* in its pedunculate capitula with peduncles 10–20 mm long (vs. sessile or subsessile capitula with peduncles 2–6 mm) usually 3–8(–12)-dentate leaves (vs. usually entire or more rarely 3(–5)-dentate) and pilose achenes (vs. glabrous).

Senecio alloephyllus O. Hoffm. var. *alloephyllus* and *S. leucomallus* var. *incisus* A. Gray from Santa Cruz and Tierra

del Fuego provinces resemble *S. pseudodepressus* by their apically dentate leaves and calyculus which is half or more the length of the involucre. Nevertheless, *S. alloephyllus* var. *alloephyllus* differs by having ca. 15 phyllaries (vs. 18–22 (–26)) and glabrous achenes (vs. pilose). *Senecio leucomallus* var. *incisus* differs by its plant height (20–40 cm vs. 7–10 cm) and glabrous achenes (vs. pilose). *Senecio aquilaris* Cabrera is similar to *S. pseudodepressus* in its shrubby habit and its pilose achenes, but differs in phyllary number (ca. 20 vs. 18–22 (–26)). *Senecio pissisii* Phil. also resembles *S. pseudodepressus*. They have in common pilose achenes, and both occur in San Juan Province. *Senecio pissisii* differs from *S. pseudodepressus* by having mostly entire leaves (vs. 3–8(–12)-dentate), plants 4–7 cm tall (vs. 7–10 cm), and calyculus less than half the length of the involucre (vs. half the length of the involucre). *Senecio pseudodepressus* is distinguished from *S. lorentziella* Hicken and *S. looseri* Cabrera by having usually 18–22 phyllaries (vs. 12–15 in *S. lorentziella* and ca. 13 in *S. looseri*), plants 7–10 cm tall (vs. 15–20 cm in *S. lorentziella* and 5–10 in *S. looseri*), and pilose achenes (vs. glabrous in *S. lorentziella* and *S. looseri*). *Senecio coluhuapiensis* Speg., *S. repollensis* Cabrera, and *S. tocomarensis* Cabrera & Zardini can be easily distinguished from the new species by their glabrous achenes, whereas *S. skottsbergii* Cabrera mainly differs by having all or most of its leaves entire.

Senecio tinctorobus I. M. Johnst. from Chile resembles *S. pseudodepressus* because of its subshrubby habit and its leaves with 3–7-dentate margins. *Senecio tinctorobus* differs in having leaves laxly distributed (vs. densely arranged), calyculus shorter than half the length of the involucre (vs. half the length of the involucre) and glabrous achenes (vs. pilose). *Senecio maulinus* Reiche, also from Chile, is similar to *S. pseudodepressus* in its pilose achenes. It differs from *S. pseudodepressus* in phyllary number (12–14 vs. 18–22(–26)) and plant height (10–15 cm vs. 7–10 cm).

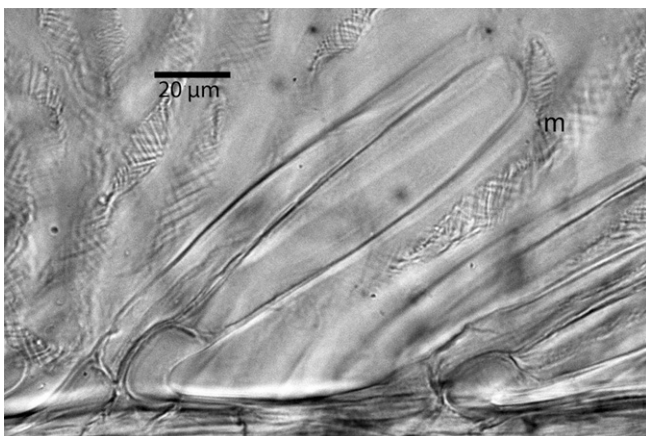


FIG. 3. *Senecio pseudodepressus*. Elongate myxogenic duplex hairs of the achene. m = mucilage.

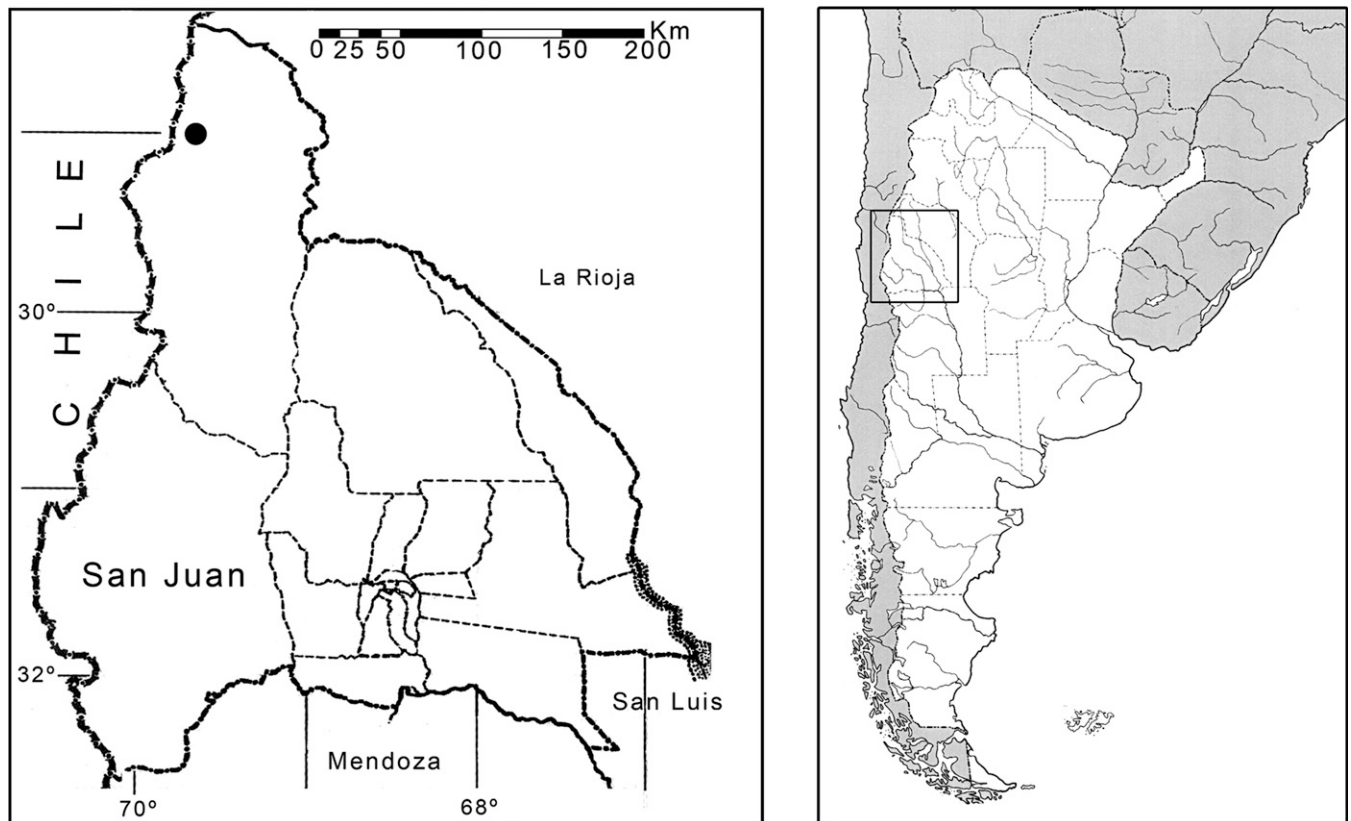
TABLE 1. Morphological comparison of *Senecio pseudodepressus* and closely related species of sect. *S. ser. Chilenses* subser. *Candidi*.

| Species | Plant height (cm) | Leaf | | Capitula | | | Achenes | Distribution |
|---|-------------------|------------------------|---------------------------|----------------------|---------------------|-------------------------------------|-----------------------|--|
| | | Shape | Margins | Peduncle length (mm) | Phyllaries (number) | Calyculus to involucre length ratio | | |
| <i>S. alloephyllus</i> var. <i>alloephyllus</i> | ca. 20 | Oblanceolate | Entire/3-dentate | 2–15 | ca. 15 | 1/2–2/3 | Glabrous | Argentina (Santa Cruz, Tierra del Fuego) |
| <i>S. aquilaris</i> | 5–12 | Spatulate | Entire/2–3-dentate | - | ca. 20 | 1/3 | Pilose | Argentina (Jujuy), Bolivia |
| <i>S. coluhuapiensis</i> | 8–10 | Oblong-linear | 3–5-dentate | 10–20 | ca. 13 | 1/3 | Glabrous | Argentina (Chubut) |
| <i>S. depressus</i> | 4–10 | Spatulate | Entire/3–5-dentate | 2–6 | 22–25 | 1/2 | Glabrous | Argentina (Neuquén, Mendoza) |
| <i>S. leucomallus</i> var. <i>incisus</i> | 20–40 | Oblanceolate-spatulate | 3–5-dentate | 10–40 | 15–20 | 1/2 | Glabrous | Argentina (Santa Cruz, Tierra del Fuego) |
| <i>S. looseri</i> | 5–10 | Oblong-spatulate | Entire/3–5-dentate | 5–15 | ca. 13 | 1/6 | Glabrous | Argentina (Mendoza, San Juan) |
| <i>S. lorentziella</i> | 15–20 | Oblanceolate | Entire/3–5-dentate | 10–20 | 12–15 | 1/4 | Glabrous | Argentina (Mendoza, San Juan) |
| <i>S. maulinus</i> | 10–15 | Ovovate-spatulate | 3–5-dentate | - | 12–14 | 1/6–1/3 | Pilose | Chile (Talca) |
| <i>S. pissisii</i> | 4–7 | Oblong-spatulate | Entire/3-dentate | 7–18 | 15–20 | 1/3 | Pilose | Argentina (San Juan) |
| <i>S. pseudodepressus</i> | 7–10 | Oblanceolate | Entire/3–8 (–12)-dentate | 10–20 | 18–22 (–26) | 1/2 | Pilose | Argentina (San Juan) |
| <i>S. repollensis</i> | 10–15 | Spatulate | 3–5-dentate | 2–15 | ca. 20 | 1/3 | Glabrous | Argentina (Neuquén) |
| <i>S. skottsbergii</i> | 10–15 | Oblong | Entire/rarely 3–5-dentate | 5–15 | 16–20 | 1/3 | Glabrous or papillose | Argentina (Neuquén, Chubut, Santa Cruz) |
| <i>S. tinctolobus</i> | 2–7 | Oblong | Entire/3–7-dentate | 5–15 | 18–22 | 1/6 | Glabrous | Chile (Atacama) |
| <i>S. tocomarensis</i> | 10–15 | Oblanceolate | 3–6-dentate | - | ca. 13 | 2/3 | Glabrous | Argentina (Salta) |

Etymology—The epithet “pseudodepressus” refers to the resemblance to *Senecio depressus*.

Distribution, Ecology, and Conservation Status—*Senecio pseudodepressus* is known only for Rio de Las Taguas, Iglesia Department in the Province of San Juan, Argentina, at nearly

3,700 m elevation (Fig. 4). We do not have sufficient information to determine the conservation status of the species, so it is worth noting the importance of future collections to determine its conservation status and to establish its distribution more accurately.

FIG. 4. Known distribution of *Senecio pseudodepressus* in San Juan province, Argentina.

Phenology—Plants were found in fruit and with immature capitula in late January.

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