

MOSTACILLASTRUM O.E. Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 166. 1924.

Lectotype species (here designated): *M. stenophyllum* (Gillies ex Hooker & Arnott) O.E. Schulz. Schulz (1924, 1936) did not typify the genus, but he distinguished it from other genera by having petal claws as broad as the blade. However, the only species that meets that condition is *M. stenophyllum*, and it is designated herein as the lectotype.

Phlebiophragmus O. E. Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 165. 1924. TYPE: *P. macrorrhizus* (Muschler) O. E. Schulz (*Thelypodium macrorrhizum* = *Mostacillastrum gracile* (Weddell) Al-Shehbaz).

Perennial herbs with a woody caudex or base. **Trichomes** absent or simple, sometimes forked, never dendritic. **Stems** erect to ascending, rarely decumbent, simple or branched basally and/or apically. **Basal leaves** petiolate, rosulate or not, simple, entire or dentate to pinnately lobed; cauline leaves petiolate or sessile, sometimes auriculate to sagittate, entire or dentate, rarely pinnately lobed. **Racemes** several or many flowered, ebracteate corymbose, elongated slightly or considerably in fruit; fruiting pedicels slender or thickened, ascending to divaricate, very rarely reflexed. **Sepals** ovate to oblong, deciduous, erect to spreading, equal, base of inner pair not saccate; petals white, rarely lavender or yellowish, ascending, or spreading, as long as shorter longer than sepals, obovate, spatulate, or oblanceolate, apex obtuse; claw distinct, glabrous, unappendaged; stamens 6, slightly tetradynamous; filaments wingless, unappendaged, glabrous or rarely pubescent, free; anthers oblong; nectar glands confluent and subtending bases of all stamens; ovules 30–80 per ovary. **Fruits** dehiscent siliques, linear, terete, unsegmented; valves with a prominent midvein and often distinct marginal veins, smooth or rarely torulose, wingless; replum rounded; septum complete, often distinctly 1–4-veined, style distinct; stigma capitate, entire or slightly 2-lobed, narrower in diameter than style. **Seeds** uniseriate, wingless, oblong to ovate, minutely reticulate, not mucilaginous when wetted; cotyledons incumbent.

Schulz (1924, 1936) separated *Mostacillastrum* from both *Sisymbrium* and *Phlebiophragmus* mainly by having petal claws as broad as (vs. narrower than) the blade, and he distinguished *Phlebiophragmus* from *Sisymbrium* by having 2-4-veined (vs. veinless) fruits septa. However, two of the three species he recognized in *Mostacillastrum* have slender or filiform claws, and many species he assigned to *Sisymbrium* have fruits septa similar to those of *Phlebiophragmus*. An examination of extensive material of *Mostacillastrum* and *Phlebiophragmus* immediately reveals that the two are indistinguishable in every morphological character. Both genera were simultaneously published by Schulz (1924). Appel & Al-Shehbaz (2003) placed *Phlebiophragmus* in the synonymy of *Mostacillastrum* and, therefore, this genus has priority (see Article 11.5 in Greuter et al., 2000).

KEY TO THE SPECIES OF *MOSTACILLASTRUM*

- 1a. Uppermost leaves sessile, auriculate to sagittate.
 - 2a. All leaves linear to linear-lanceolate, usually grass-like, entire.....*M. dianthoides*
 - 2b. At least some leaves oblong, ovate, to lanceolate, never grass-like, entire or dentate to pinnately lobed.
 - 3a. Middle cauline leaves pinnately lobed, glabrous; plants of Peru.....*M. weberbaueri*
 - 3b. Middle cauline leaves entire or dentate, glabrous or pubescent; plants of Argentina and Chile.
 - 4a. Plants subshrubs, stems woody at least above base; leaves glabrous, entire, linear to narrowly oblong*M. carolinense*
 - 4b. Plant herbaceous, sometimes with a woody caudex; leaves pubescent or glabrous, entire or dentate, variously shaped.
 - 5a. Stems several to numerous from base; fruits tortuous, 1.5–3(–4.5) cm.....*M. andinum*
 - 5b. Stems 1 or rarely few from base; fruits not tortuous, (4–)5–10 cm.
 - 6a. Fruiting pedicels stout, 4–10(–13) mm; fruits 4–6(–7) cm; ovules 40–70 per ovary; seeds narrowly oblong (1.4–)1.6–2 mm; at least middle cauline leaves pinnately lobed*M. commune*
 - 6b. Fruiting pedicels slender, (7–)10–22(–27) mm; fruits (5–)7–11(–12) cm; ovules 90–140 per ovary; seeds ovate, 0.7–1 mm; middle leaves dentate or entire, rarely lobed*M. sagittatum*
 - 1b. All leaves petiolate, rarely sessile, neither auriculate nor sagittate.
 - 7a. Basal and middle cauline leaves entire or dentate.
 - 8a. Middle and upper cauline leaves linear to filiform; fruits septum obscurely 1-veined.
 - 9a. Fruits (3.5–)4–6(–7) cm; fruiting pedicels strongly reflexed to divaricate.....*M. orbignyana*
 - 9b. Fruits (0.8–)1–2(–2.8) cm; fruiting pedicels ascending to divaricate.

- 10a. Sepals spreading, 3–5 mm long; petals oblong, 4.5–7(–8) mm long, claw nearly as wide as blade; seeds oblong 1–1.5 mm long; ovules 24–46 per ovary.....*M. stenophyllum*
- 10b. Sepals ascending, 1.5–2 mm long; petals spatulate, 2.5–3 mm long, claw much narrower than blade; seeds ovoid, 0.5–0.6 mm long; ovules 48–76 per ovary.....*M. hunzikeri*
- 8b. Middle and upper cauline leaves ovate, lanceolate or oblanceolate; fruits septum prominently 1–3-veined.
- 11a. Plants annual; seeds 0.8–1.1 mm, coarsely reticulate, with 150–200 muri on each side*M. ferreyrae*
- 11b. Plant perennial; seeds 1–1.7 mm, minutely reticulate, with 500–700 muri on each side.
- 12a. Plants glabrous or subglabrous; flowers yellow or creamy white; fruits 3–5 cm.....*M. oleraceum*
- 12b. Plants densely pubescent; flowers white; fruits 5–6.5 cm.....*M. morrisonii*
- 7b. Basal and middle cauline leaves pinnately lobed to pinnatisect.
- 13a. Fruits septum prominently 2–4-veined; seeds 0.7–1 mm.
- 14a. Leaves pectinate, adaxially sulcate, with some branched trichomes; sepals 1.8–2.5 mm; petals 2.5–3.5 mm*M. pectinifolium*
- 14b. Leaves pinnatifid to pinnatisect, adaxially flat, with simple trichomes; sepals 3–4 mm; petals 4–5.5 mm*M. gracile*
- 13b. Fruits septum somewhat broadly 1-veined; seeds 1.5–2.5 mm.
- 15a. Fruits erect, appressed to rachis; petals 2–3 mm.....*M. ameghionii*
- 15b. Fruits not appressed to rachis; petals 3.5–5.5 mm.
- 16a. Stems herbaceous; filaments and petal bases glabrous.....*M. leptocarpum*
- 16b. Stems woody at base; filaments and petal bases pubescent.
- 17a. Fruiting raceme corymbose, hardly elongated in fruit; leaves glabrous; Buenos Aires*M. ventanense*
- 17b. Fruiting raceme elongated considerably in fruit; leaves usually pubescent with simple and branched trichomes; La Pampa to Patagonia.....*M. subscandens*

Mostacillastrum ameghinoi (Speg.) O.E. Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 168. 1924. *Sisymbrium ameghinoi* Speg., Anal. Mus. Nac. Buenos Aires 7: 217. 1902. TYPE: Argentina. Chubut: Río Chico, 1900, *C. Ameghino s. n.* (holotype, LP; fragment, B!).

Perennial herbs, glabrous throughout. **Stems** erect, woody at base, glabrous, to 3 dm. **Basal leaves** and middle ones petiolate; blade oblanceolate, 5–13 cm, pinnatifid into flat, oblong to linear lateral lobes 3 or 4 on each side, these entire or dentate; uppermost leaves smaller, pinnately divided. **Racemes** corymbose, elongated in fruit; fruiting pedicels stout, 0.5–1.5 cm, erect, subappressed to rachis, straight, glabrous. **Sepals** ovate, 2–3 × ca. 1.5 mm, ascending, glabrous; petals white, spatulate, 2.5–3 × ca. 1 mm, obuse, attenuate to a slender claw; filaments 3–3.5 mm; anthers oblong, 0.8–1 mm; ovules 60–70 per ovary. **Fruits** terete, 3–6 cm × 1.5–2 mm, erect to ascending; valves not torulose, glabrous, with a prominent midvein and marginal veins; septum complete, obscurely 1-veined; style 1–2 mm; stigma slightly 2-lobed. **Seeds** oblong, uniseriate, 1.8–2 × 0.8–1 mm.

Distribution: Argentina (Chubut, Santa Cruz).

This very rare species is known only from handful specimens, and nothing is known about its biology.

Mostacillastrum andinum (Phil.) Al-Shehbaz, Darwiniana 44: 346. 2006. Basionym: *Sisymbrium andinum* Phil., Linnaea 28: 665. 1856. *Hesperis andina* (Phil.) Kuntze, Revis. Gen. Pl. 2: 934. 1891. TYPE: Chile. Laguna Malvarco, 1855, *P. Germain s.n.* (lectotype, designated by Pizzaro (1960), SGO 45137!).

Sisymbrium corymbosum Phil., Linnaea 28: 666. 1856; *S. amplexicaule* Phil. var. *corymbosum* (Phil.) Reiche, Fl. Chile 1: 73. 1896; *Hesperis corymbosa* (Phil.) Kuntze, Revis. Gen. Pl. 2: 934. 1891. TYPE: Chile. Santiago, *R.A. Philippi s.n.* (holotype, SGO 49245!).

Sisymbrium andinum Phil. var. *latifolium* Phil., Anal. Univ. Chile 81: 188. 1892; *Sisymbrium sagittatum* Hook. & Arn. var. *latifolium* (Phil.) Speg., Anales Mus. Nac. Hist. Nat. Buenos Aires 7: 216. 1902. TYPE: Chile. Valle Hermoso, Cordillera de Linares, Jan. 1872, *R.A. Philippi s.n.* (holotype, SGO 45136!).

Sisymbrium consanguineum Phil. ex Reiche, Fl. Chile 1: 75. 1896; *S. corymbosum* Phil. var. *consanguineum* (Phil. ex Reiche) O.E. Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 65. 1924. TYPE: Chile. Cordillera de Santiago, valle largo, Feb. 1982, 2700 m, *R.A. Philippi s.n.* (holotype, SGO 71623!).

Sisymbrium morenoanum Chodat & Wilczek, Bull. Herb. Boiss. Ser. 2, 2: 291. 1902; *Sisymbrium andinum* Phil. var. *morenoanum* (Chodat & Wilczek) O.E. Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 64. 1924. TYPE: Argentina.

Mendoza: Vallée du Río Atuel, Cajon de Burro, 2600 m, Jan-Feb 1897, *E. Wilczek 438* (holotype, G!; isotype, US!).
Sisymbrium morenoanum var. *robustum* Chodat & Wilczek, Bull. Herb. Boiss. Ser. 2, 2: 291. 1902. TYPE: Argentina.

Mendoza: Pasto Mollar, Río Atuel, 2200 m, *E. Wilczek 437* (holotype, G!).

Perennial herbs, often with woody, many branched caudex to 1 cm in diam., sparsely to densely pubescent with simple and forked trichomes often with both forks branched, rarely glabrous throughout. **Stems** erect to ascending or subdecumbent, several to many from caudex, often woody at base, (1–)1.5–5.5(–6.5) dm. **Basal leaves** to 15 cm, often soon withered, dentate to sinuate or pinnatifid, with petioles to 8 cm; middle cauline leaves sessile, auriculate at base, oblong to lanceolate, 1–4.5(–6) cm × 3–8(–13) mm, coarsely dentate to subentire. **Racemes** corymbose, elongated considerably in fruit; rachis straight, pubescent or glabrous; fruiting pedicels slender, (3–)5–10(–14) mm, spreading to divaricate, straight or slightly curved, pubescent or glabrous. **Sepals** oblong, 2.5–4.5 mm, ascending, glabrous or pubescent; petals white, spatulate, 3.5–6 × 1.5–2.5 mm, obuse, attenuate to base; filaments 3–4.5 mm; anthers oblong, 0.8–1.1 mm; ovules 30–52 per ovary. **Fruits** terete, 3–7 cm × 1.5–2 mm, spreading to divaricate, slightly to strongly tortuose; valves torulose, glabrous, prominently 3-veined; septum complete, with a distinct midvein; style 1–4 mm; stigma entire. **Seeds** oblong, uniseriate, 1.5–2.5 × 0.8–1.1 mm, minutely winged distally.

Flowering: Nov–Jan.

Habitat:

Elevation: 1800–3300 m.

Distribution: Argentina (Mendoza, Neuquén), Chile (Región IV, V, Metropolitana de Santiago).

Specimens examined: **ARGENTINA. Mendoza.** Las Mangas, *Carrete 205* (LP, SI); San Carlos, camino a Laguna del Diamante, *Cuezzo & Barkely 20Mz413* (GH); Dep. Luján, Las Cuevas, *Hunziker et al. 11215* (SI). Dep. Las Heras, Punta del Inca, A° Cruz de Caña, *Wingenroth 124* (SI); Las Heras, pié del Paramillo de Cuevas, *Roig 10742* (SI), *Roig 10761* (SI); Las Cuevas, Refugio Militar General Lamadrid, *Boelcke et al. 9726* (BAA, SI). Dep. San Rafael, valle Río Atuel, *Boelcke 4162* (BAA); Los Molles, *Sleumer 668* (B). **Neuquén.** Dep. Chos Malal, cajón del A° del Cruce, *Boelcke et al. 11246* (BAA); 34 km de Tricao Malal camino a Mina de Azufre, *Boelcke et al. 11658* (BAA); SE del macizo del Domingo, *Boelcke et al. 11297* (BAA); cajón inferior del A° Turbio, *Boelcke et al. 11307* (BAA, WIS). **San Juan.** Dep. Caligasta, ente Los Patillos Valle de Los Patos, *Kurtz 9685* (CORD, SI); Valle Hermoso, *Kiesling 8510* (SI). **CHILE. Región IV.** Coquimbo, Dep. Illapel, Cajón de los Pelambres, Hacienda Cuncumén, *Looser 2120* (BAA, GH, MO, SI, US). Dep. Ovale, Río Gordito, *Jiles 2545* (CONC, M); Mantos Grandes, *Jiles 3575* (CONC). **Región V.** Aconcagua, Juncal, *Zöllner 9151* (MO, NA); Mono de Agua, *Zöllner 10191* (NA). Dep. Los Andes, Portillo, Laguna del Inca, *Marticorena & Weltdt 586* (CONC). **Region Metropolitana de Santiago.** Camino Baños de Colina, Valle de Colina, Los Valdés, *Garaventa 3511* (SI), *Garaventa 3514* (BACP); Santuario de la Naturaleza Yerba Loca, *Sweeney 0269* (MO); Parque Nacional El Morado, Cajón del Morales, *Teillier & González 2395* (SGO); Balle de Morales, *Garaventa 3514* (BACP, F, SI); entre Laguna del Yeso y Baños del Plomo, *Bohlen 1449* (CONC); San José de Maipo, Cajón del Morales, *Teillier & Márquez 5268* (CONC), *Saavedra & Pauchard 225* (SGO); Maipo, *Claude-Joseph 2938* (US); Maipo-Tal, *Grandjot 3537* (GH, SI)

Mostacillastrum carolinense (Scappini, C.A. Bianco & Prina) Al-Shehbaz, Scappini, C.A. Bianco & Prina, Darwiniana 44: 346. 2006. Basionym: *Sisymbrium carolinense* Scappini, C.A. Bianco & Prina, Darwiniana 42: 304. 2004. TYPE:

Argentina. San Luis: Depto Pringles: La Carolina, 22 Nov. 2001, *E. Scappini & C. Bianco 5316* (holotype, RIOC).

Subshrubs, woody at base, glabrous throughout. **Stems** erect to ascending, woody and several at base, 2–4 dm. **Basal leaves** short petiolate, entire; middle cauline leaves sessile, auriculate at base, linear to narrowly oblong, 2.5–4 cm × 2–4 mm, entire, glabrous, glaucous. **Racemes** corymbose, 10–12-flowered, elongated considerably in fruit; rachis straight; fruiting pedicels slender, 4–12 mm, divaricate, straight, glabrous. **Sepals** ovate, 3–3.5 mm, ascending, glabrous; petals creamy white, spatulate, 3.5–4 × ca. 1 mm, obuse, attenuate to base; median filaments ca. 3 mm; anthers oblong, ca. 1.5 mm; ovules 52–70 per ovary. **Fruits** linear, terete, 2.5–4.5 cm × 1–1.5 mm, erect to ascending, not tortuose; valves glabrous, with a prominent midvein; septum complete, without a midvein; style ca. 0.5 mm long; stigma entire, as wide as style. **Seeds** oblong, uniseriate, 1–1.3 × 0.5–1.0.6 mm.

Distribution: Argentina (San Luis).

Specimens examined: Argentina. San Luis, Dept. Pringles, *Scappini et al. 3452* (MO).

Mostacillastrum commune (Speg.) Al-Shehbaz, Darwiniana 44: 346. 2006. Basionym: *Sisymbrium sagittatum* Hook. & Arn. var. *communis* Speg., Anal. Soc. Ci. Argent. 47: 169. 1901; *S. commune* (Speg.) Romanczuk, Parodiana 1(1): 21. 1981.

TYPE: Argentina. Santa Cruz: “Secus río Sant Cruz, 1874, *C. Berg s.n.* (lectotype, designated by Romanczuk (1981), LP 10451).

Sisymbrium sagittatum var. *exauriculatum* Speg., Anal. Mus. Nac. Hist. Nat. Buenos Aires 7: 215. 1902; *S. andinum* Phil. var. *exauriculatum* (Speg.) O.E. Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 64. 1924. TYPE: Argentina. Prope Chonkenk-aik, secus río Chicl, 1898, *C. Ameghino* s.n. (holotype, LP).

Sisymbrium sagittatum var. *normalis* Speg., Anal. Mus. Nac. Hist. Nat. Buenos Aires 7: 215. 1902. TYPE: Argentina. Chubut, Parraik, secus río Sehuen, Mar 1898, *C. Meghino* (lectotype, here designated, LP).

Sisymbrium sagittatum var. *purpurascens* Speg., Anal. Soc. Ci. Argent. 47: 169. 1901. TYPE: Argentina. Prope Chonkenk-aik, secus río Chicl, Feb 1898, *C. Ameghino* s.n. (holotype, LP).

Annual or biennial herbs, without woody caudex, sparsely to densely pubescent with simple and forked trichomes often with both forks branched, sometimes glabrous throughout. **Stems** erect to ascending, usually simple from base, not woody at base, often many branched above (1.5–)2.5–8 dm. **Basal leaves** to 10 cm, subrosulate, later withered, sinuate to coarsely dentate, with petioles to 3 cm; middle cauline leaves sessile, auriculate at base, oblong to lanceolate, 1–5(–7) cm × 3–15 mm, dentate to entire. **Racemes** corymbose, elongated considerably in fruit; rachis slightly flexuous to straight, pubescent or glabrous; fruiting pedicels slender, 4–10 mm, spreading to divaricate, straight or slightly curved upwards, pubescent or glabrous. **Sepals** oblong, 3–4 mm, ascending, glabrous or pubescent; petals white or creamy white, spatulate, 2.5–4.5 × 1–1.5 mm, obuse, attenuate to base; filaments 3–5 mm; anthers oblong, 0.7–1.2 mm; ovules 50–92 per ovary. **Fruits** terete, 3–7.5 cm × 0.8–1.3 mm, suberect to ascending or divaricate, no tortuose; valves smooth, glabrous, prominently 3-veined; septum complete, with a distinct midvein; style 0.5–1(–1.5) mm; stigma entire. **Seeds** oblong, uniseriate, 1.4–2 × 0.7–1 mm, apiculate or not distally.

Flowering: Nov–Feb

Habitat: sandy soil on basaltic rock outcrop, sandy loam, scree.

Elevation: 150–3250 m.

Distribution: Argentina (Chubut, Mendoza, Neuquén, Río Negro, San Juan, Santa Cruz), Chile (Región IV, V, Metropolitana de Santiago).

Specimens examined: **ARGENTINA. Chubut.** Pampa Chica, 12 Nov 2908, Skottsberg s.n. (SGO); Tecka, Ea Quichaura, Soriano 2278 (BAA). Tehuelches, Donat 200 (BM, CAS, G, GH, MO, S, SI, UC). Dep. Río Senguerr, Alto Río Senguerr, Soriano 2586 (BAS) **Mendoza.** Dep. Las Heras, Camino Uspallata a Puente del Inca, Boelcke 8919 (BAA); Punete del Inca, Hauman 134 (G), Cuezco & Barkley 20Mz288 (GH). Dep. Malarque, Los Molles, Feb 1983, Del Vitto s.n. (BACP); Alto Valle del Sosneado, Burkart et al. 14054 (SI); Laguna del Sosneado, Leal 23205 (BAA), Böcher et al. 842 (BAA, MO); Alto Valle del Atuel, Leal 15588 (BAA). Dep. San Rafael, Portezuelo del Choique, Boelcke 4212 (BAA); Valle del Río Atuel, 58 km W El Sosneado, Boelcke et al. 10248 (BAA, SI). **Neuquén.** Dep. Chos Malal, valle del A° Domingo, Boelcke et al. 11388 (BAA, G, MO, SI); Cajón del A° Turbio, Boelcke et al. 11312 (BAA). Dep. Minas, valle superior del A° Atrouco, Boelcke et al. 11470 (BAA). Dep. Los Lagos, Ecía, Fortin Chacabuco, Boelcke & Correa 6314 (BAA). **Río Negro.** S. Carlos de Bariloche, Ellenberg 1160 (BAA); 21 km de Pilcaniyeu, Nicora 3660 (SI). Parque Nacional Nahuel Huapi, Boelcke 1867 (BAA); Cerro del Medio, Boelcke & Correa 6314 (SI). **Santa Cruz.** Río Gallegos, Cerro Los Conyentos, Sleumer 974 (BAA). Dep. Lago Buenos Aires, 50 km W of town Lago Buenos Aires on road to Chilechico, *Eyerdam et al.* 24493 (G, GH, UC); Los Antiguos, Correa & Nicora 3622 (BAA). Dep. Lago Argentin, 10 km S of Hotel Punta del Lago, road La Argentina to Lago Viedma, *Eyerdam et al.* 24383 (DS, F, G, MO, UC).

Mostacillastrum commune has long been confused with *M. andinum*, from which it is easily distinguished by being an annual or biennial (vs. long-lived perennial) without (vs. with) woody caudex, and by having simple (vs. often several to many) stems from base, short (0.5–1(–1.5) vs. 1–4 mm) styles, straight or curved (vs. slightly to strongly tortuose) fruits 0.8–1.3 (vs. 1.5–2) mm wide and with smooth (vs. torulose) valves.

Mostacillastrum dianthoides (Phil.) Al-Shehbaz, Darwiniana 44: 346. 2006. Basionym: *Sisymbrium dianthoides* Phil., Anales Mus. Nac. Chile, Sect. 2 Bot. 8: 2. 1891. TYPE: Chile. Between Isma and Huasco, 3600 m, 28 Feb 1885, *F. Philippi* 1829 (holotype, SGO # 63190!).

Sisymbrium arequipanum Al-Shehbaz, Ann. Missouri Bot. Gard. 76: 1176–1178. 1989. TYPE: Peru. Arequipa: Pichu Pichu, sandy hillside, 5 Jan 1937, 13,500 ft [ca. 4110 m], *Dora Stafford* 6674 (holotype, F!; isotype, K!).

Plants perennial herbs with unbranched caudex often with leaf remains of previous years, glabrescent or sparsely to rarely densely pubescent with simple 0.1–0.6 mm. **Stems** erect, glabrous or rarely sparsely pubescent, 0.6–3(–9) dm. **Basal leaves** rosulate, linear to narrowly linear-lanceolate, 3–14 cm × 2–5(–8) mm, glabrous or pubescent, entire or remotely dentate; middle cauline leaves sessile, auriculate, linear to linear-lanceolate, 1.5–4 cm × 1–4 mm, entire, uppermost leaves narrower and smaller. **Racemes** corymbose, elongated considerably in fruit; fruiting pedicels (2–)4–10(–13) mm, ascending to divaricate, straight, glabrous or rarely sparsely pubescent. **Sepals** oblong, 2.5–3.5 × 1–1.4 mm, erect, always pubescent; petals white, spatulate, 3–4.55 × 0.7–1.5 mm, obuse, attenuate to a slender claw; filaments 2.5–3.5 mm; anthers oblong, 0.6–1 mm; ovules 30–50 per ovary. **Fruits** terete, 1.5–4(–5.5) cm × 1.5–2 mm, erect to ascending; valves not torulose,

glabrous, with a prominent midvein; septum complete, veinless; style 0.4–0.7 mm; stigma entire. **Seeds** oblong, uniseriate, (1–)1.2–1.8(–2) × 0.5–0.8 mm.

Fl Nov–May

Alt.: 3200–4400 m.

Sandy soil among rocks, rocky quebrada, macchia-type vegetation, scrub on mountain slopes.

Specimens examined: **ARGENTINA. Jujuy:** Dep Riconada, camino a Abrapampa, Ladera NO con Polylepis, 24 Jan 1971, *Ancibor & Ruthsatz s.n.* (BAA); 48 km SSW de Mina Pirquitas, Laguna Pululos, 22°32'W, 66°47'W, *Morrone et al.* 2578 (SI). **CHILE. I:** Tarapacá: Cor. Co Columtusca, *Werdermann 1512* (B). **II:** Antofagasta, Dep El Loa, Ojo de San Pedro, oren del ríp San Pedro, afleunte del Loa, *Pisano & Venurelli 1786* (SGO); cerca de los geiseres del Tatio, *Ricardi et al.* 491 (CONC, SGO); Camino de San Pedro de Atacama a Paso Jama, 22°56'W, 67°51'W, Arroyo et al. 97070 (CONC); Volcán Licancabur, 22°56'W, 66°51'W, Rodríguez & Aqueveque 3227 (CONC). **PERU. Arequipa:** SW slope of Nevado Chachani, *Straw 2326* (US); road from Arequipa to Chiguata, beyond Chiguata towards Juliaca, 16°23'W, 71°20'W, *M. & K. Weigend 2000/7* (MO, NY); road Arequipa-Ubinas, past Chiguata, 17°23'S, 71°19'W, *van der Werff et al.* 20703, 20805 (MO).

Since the description of this species as the Peruvian endemic *Sisymbrium arequipanum* (Al-Shehbaz, 1989), more material of *Mostacillastrum dianthoides* from Chile and Argentina have become available for my study, and it is clear that a single species is involved.

Mostacillastrum ferreyrae (Förther & Weigend) Al-Shehbaz, Darwiniana 44: 347. 2006. Basionym: *Sisymbrium ferreyrae* Förther & Weigend, Brittonia 51: 120. 1999. TYPE: Peru. Arequipa: Prov. Caravelí, Loma vegetation, ca. 3 km E of Km 655 of Pan-American Hwy South, sandy and rocky slopes 350–960 m, 4 Oct 1997, *M. Weigend & H. Förther 97/739* (holotype, MSB; isotypes, F, NY!, USM).

Plants annual herbs, glabrous throughout. **Stems** erect, glabrous, 2–3 dm. **Basal leaves** not observed; middle cauline leaves with petioles 0.5–1.5 cm; blade lanceolate to oblanceolate, 2–3 × 0.6–1 cm, repand, glabrous; uppermost leaves narrower and smaller. **Racemes** corymbose, elongated considerably in fruit; fruiting pedicels slender, 8–15 mm, divaricate, straight, glabrous. **Sepals** oblong, 2–3 × 0.7–1 mm, ascending, glabrous; petals white, spatulate, 2.5–3.5 × 1–1.5 mm, obuse, attenuate to a slender claw; filaments 2–2.5 mm; anthers oblong, ca. 0.5 mm; ovules 40–62 per ovary. **Fruits** terete, 4–5 cm × 1.2–1.5 mm, ascending to divaricate; valves slightly torulose, glabrous, with a prominent midvein and obscure marginal veins; septum complete, with 3 longitudinal veins; style 0.2–0.5 mm; stigma entire. **Seeds** obvate, uniseriate, 0.8–1.1 × 0.6–0.8 mm; seed coat coarsely reticulate, with 150–200 muri 0.06–0.1 mm on each side.

Fl. Nov–Apr

Alt. 350–950 m

Sandy and rocky areas in loma vegetation.

Specimens examined: **CHILE. II:** Antofagasta, Dep. Taltal, Quebrada Agua Grande, entre Pan de Azúcar y Caleta Esmeralda, Alto de La Cachina, *Pisano & Bravo 578* (SGO). **PERU. Arequipa:** Prov. Camaná, Lomas de Camaná, *Ferreyra 6445* (US).

Mostacillastrum ferreyrae is closely related to the south Peruvian *M. oleraceum* and *M. morrisonii*, which it resembles in having undivided petiolate cauline leaves, uniseriate seeds, and 3-veined septa. It differs from *M. oleraceum* by being an annual (vs. perennial) with white (vs. yellow) flowers, from *M. morrisonii* by being a completely glabrous annual (vs. densely pubescent perennial), and from both species by having smaller (0.8–1.1 vs. 1.3–1.6 mm), coarsely reticulate seeds with each side having 150–200 muri 0.06–0.1 mm (vs. minutely reticulate seeds with 600–700 muri 0.01–0.03 mm). Weigend & Förther (1999) suggested that the species is related to the north Peruvian *Polypsecadium llatasii* (as *Sisymbrium*), but the latter has larger petals (6–7 vs. 2.5–3.5 mm), biseriate (vs. uniseriate) seeds 60–80 (vs. 40–62) per fruit, and veinless (vs. prominently 3-veined) septa. In my opinion, *M. ferreyrae* is more closely related to *M. morrisonii* than to *P. llatasii*. The latter is known only from the type collection, and more material is needed to determine whether one or two species are involved.

Mostacillastrum gracile (Wedd.) Al-Shehbaz, Darwiniana 44: 347. 2006. Basionym: *Sisymbrium gracile* Wedd., Ann. Sci. Nat. Bot. Ser. 5, 1: 288. 1864; *Heterothrix gracilis* (Wedd.) O.E. Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 297. 1924; *Pennellia gracilis* (Wedd.) O.E. Schulz in Engler & Harms, Die Naturl. Pflanzenfam., ed. 2, 17B: 644. 1936. TYPE: Peru: Cordillera de Tacora, 1851, *H. A. Weddell s.n.* (lectotype, designated by Macbride (1938), P!; isolectotype, P!; fragments, BAA!).

Thelypodium macrorrhizum Muschl., Bot. Jahrb. Syst. 40: 268. 1908; *Phlebiophragmus macrorrhizus* (Muschl.) O.E. Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 165. 1924; *Sisymbrium macrorrhizum* (Muschl.) J.F.

Macbr., *Candollea* 5: 355. 1934. TYPE: Peru. between Airampal and Pampa de Arrieros, Arequipa-Puno road, 3200–3400 m, 25 Aug 1902, A. *Weberbauer* 1395 (lectotype, here designated, B!).

Erysimum ramosissimum Muschl., *Bot. Jahrb. Syst.* 40: 273. 1908; *Phlebiophragmus macrorrhizus* var. *ramosissimus* (Muschl.) O.E. Schulz in Engler, *Pflanzenreich* IV. 105(Heft 86): 166. 1924; *Sisymbrium macrorrhizum* var. *ramosissimum* (Muschl.) J.F. Macbr., *Publ. Field Mus. Nat. Hist. Bot. Ser.* 13(2): 978. 1938. TYPE: Peru. Pampa de Arrieros, between Arequipa and Puno, 3700–3800 m, 17 Mar 1905, A. *Weberbauer* 4847 (holotype, B!).

Sisymbrium meyenii O.E. Schulz in Engler, *Pflanzenreich* IV. 105(Heft 86): 76. 1924; *Phlebiophragmus macrorrhizus* var. *meyenii* (O.E. Schulz) O.E. Schulz, *Bot. Jahrb. Syst.* 66: 98. 1933; *Sisymbrium macrorrhizum* var. *meyenii* (O.E. Schulz) J.F. Macbr., *Publ. Field Mus. Nat. Hist. Bot. Ser.* 13(2): 978. 1938. TYPE: Peru. Puno: Pisacoma, *Meyen s.n.* (holotype, B!).

Plants suffruticose or perennial herbs, sparsely to densely pubescent with simple trichomes 0.4–0.6 mm. **Stems** erect, often woody below, glabrous or hirsute, 2–9 dm. **Basal leaves** not observed; middle cauline leaves with petioles 0.5–2 cm; blade lanceolate to ovate-lanceolate in outline, (2–)3–10(–12) × (0.5–)1–6 cm, pinnatisect to pinnatifid into flat, oblong to linear lateral lobes 3–5 on each side; uppermost leaves narrower and smaller. **Racemes** corymbose, elongated considerably in fruit; fruiting pedicels slender, 0.5–1.5 cm, divaricate to slightly descending, straight or curved upwards, glabrous or rarely sparsely pubescent. **Sepals** oblong, 3–4 mm, ascending, glabrous or rarely sparsely pubescent; petals white or rarely pink, spatulate, 4–5 × 1–1.7 mm, obuse, attenuate to a slender claw; filaments 3–3.5 mm; anthers oblong, 0.7–0.8 mm; ovules 40–60 per ovary. **Fruits** terete, 2.5–4(–5) cm × 0.7–0.8(–1) mm, erect to ascending; valves not torulose, glabrous, with a prominent midvein and often distinct marginal veins; septum complete, with a distinct central band often appearing 2 or 3 veined; style 0.1–1 mm; stigma entire. **Seeds** oblong, uniseriate, 0.8–1 × 0.4–0.6 mm.

Fl. Mar–May

Alt. 1800–3900 m.

Habitat: Steep crumbling cliff, cliff slopes in rough bushland, decomposed rock, rocky banks, semi desert areas.

Specimens examined: **CHILE.** Paychama, *Troll 3284* (M). **I:** Arica: Altos de Putre, *Escobar x-136* (SI); camino al Portezuelo de Chapiquiña, a 40 km de Arica, [18°30'S, 69°57'W], Ricardi et al. 191 (CONC), Ricardi et al. 152 (BAA, CONC); Pachica Arica, *Troll 3346* (M); Cordillera de Arica, Pié de la cuesta de Chapiquiña, [18°23'S, 69°32'W], *Ricardi et al. 52* (CONC); camino a Chapiquiña, quebrada frente a la Central Hidroeléctrica, [18°21'S, 69°35'W], Ricardi et al. 293 (BACP, CONC, SI); camino de Zapahuira a Putre, Ricardi et al. 174 (BACP, CONC, SI); camino a Chapiquiña, [18°23'S, 69°32'W], *Ricardi et al. 291* (BACP, CONC). Prov. Parinacota, cerca de Putre, 18°12'S, 69°34'W, *Arroyo 84-580A* (CONC); Zapahuira, 18°21'S, 69°35'W, Belmonte 97050 (CONC); camino entre Zapahuira y Arica, Pampa Malahumaña, 18°22'S, 69°37'W, Matthei & Rodríguez 322 (CONC). Prov. Iquique, Maniña, 20°05'S, 69°14'W, *Larraín 97662* (CONC); camin de Huara a Cancosa, entre Pachica y Poroma, 19°53'S, 69°17'W, Ricardi et al. 379 (CONC). **II:** Antofagasta, Punta Negra, cerca Chuquicamata, Martín 591-bis (SI). **IV:** Parq. Nac. Fray Jorge, 30°29'S, 71°40'W, Arancio 92789 (CONC). **PERU. Arequipa:** Quebrada de San Lazaro, above Arequipa, *Munz 15521* (DS, GH); Misti, *Sandeman 3807* (F, K); road from Arequipa to Chiguata towards Juliaca, *M. & K. Weigend 2000/14* (M, MO, NY); above Arequipa, *Weberbauer 6843* (F, G, GH), *Pennell 13207* (F, GH, K, NY), *Pennell 13234* (F, GH, NY); Arequipa-Yura road, 16°04'S, 71°40'W, van der Werff et al. 20509, 20534 (MO); Arequipa-Cusco road, 16°05'S, 71°37'W, van der Werff et al. 20596, 20622 (MO). **Junín:** camino de Palca, Isern 2115 (F). **Lima:** Matucana, *Macbride & Featherstone 417* (F, G, NY); Viso, *Mabride & Featherstone 634* (F, G); Haurochiri, Infiernillo, *Goodspeed et al. 11613* (F, G, GH, K, NA); Huarochiri, Valley of Río Rimac, near Lima-Oroya hwy at km 70 E of Lima, *Goodspeed 33119* (UC). **Moquegua:** Carumas, *Weberbauer 7290* (F); Cuajones Mine, Torata, *Weberbauer 7462* (F).

Weddell (1864) cited two collections (*Weddell s.n.* and *Mandon 910*, both at P) under *Sisymbrium gracile*, but as indicated by Al-Shehbaz (1990b), these collections belong to two different genera, of which *Weddell s.n.* is recognized herein as *Mostacillastrum* and *Mandon 910* as *Pennellia*. Schulz (1924), who did not examine both collections, erroneously cited them as *P. gracilis* (Wedd.) O.E. Schulz, whereas Fournier (1865) and Macbride (1938) maintained both as *S. gracile*. A close comparison of the two syntypes of *S. gracile* with the original description clearly shows that Weddell (1864) used his collection as the basis for the species. Indeed, the two Weddell specimens at P were annotated by him as *S. gracile*, whereas *Mandon 910* was not. Therefore, Macbride (1938) was the first to lectotypify the species. In every aspect of the plant, the types of *Thelypodium macrorrhizum*, *Erysimum ramosissimum*, and *Sisymbrium meyenii* are indistinguishable from that of *S. gracile* and therefore are considered herein as conspecific.

Mostacillastrum hunzikeri Al-Shehbaz, Darwiniana xx: xxx. 2010. TYPE: Argentina, Catamarca, Dep. Capayán, Quebrada de San Jerónimo, unos 5 km al N.O. de Chubicha, 700–800 m, 24 Jan 1975, A. T. Hunziker 22720 (holotype, SI!; isotype, MO!).

Plants perennial herbs, glabrous throughout. **Stems** erect, 1–1.4 m, considerably branched above. **Basal leaves** not seen; middle cauline leaves sessile or short petiolate, linear or linear-lanceolate, 3–8 cm × 2–7 mm, entire or rarely dentate; uppermost leaves sessile, narrower, entire. **Racemes** corymbose, elongated considerably in fruit; rachis straight; fruiting pedicels slender, 7–15 mm, ascending to divaricate, straight, glabrous. **Sepals** ovate, 1.5–5 × 0.5–0.8 mm, ascending, glabrous; petals white, spatulate, 2.5–3 × 0.7–1 mm, obuse; claw much narrower than blade; filaments 1.5–2 mm long; anthers oblong, ca. 0.5 mm long; ovules 48–76 per ovary. **Fruits** terete, 1–2 cm × 0.7–1 mm, ascending to erect; valves not torulose, glabrous, with a prominent midvein; septum complete, veinless; style 0.3–0.8 mm long; stigma entire. **Seeds** ovoid, 0.5–0.6 × 0.4–0.5 mm.

Flowering Dec–Jan.

Elevation: 2200 m.

Distribution: endemic to Argentina (Catamarca, La Rioja).

Specimens examined: Argentina, La Rioja, Sierra de Velazco, cerca de la Mina, El Cantadero, *Hunziker 5185* (BAA, G).

Mostacillastrum leptocarpum (Hook. & Arn.) Al-Shehbaz, Darwiniana 44: 347. 2006. Basionym: *Sisymbrium leptocarpum* Hook. & Arn., Bot. Miscell. 3: 139. 1833. *Hesperis leptocarpa* (Hook. & Arn.) Kuntze, Rev. Gen. Pl. 2: 934. 1891. TYPE: Cordillera of Chile, *H. Cuming 315* (holotype, K!).

Sisymbrium gayanum Barn. in Gay, Fl. Chil. 1: 122. 1846. TYPE: Chile. Prov. Coquimbo: “entre las rocas del lugar llamando Malpaso, en la cordillera de Guanta,” *C. Gay 328* (holotype, P!).

Sisymbrium hastatum Phil., Anal. Univ. Chile 36: 160. 1870; *Sisymbrium andinum* Phil. var. *hastatum* (Phil.) O.E. Schulz, Notizbl. Bot. Gart. Berlin-Dahlem 11: 229. 1931. TYPE. Argentina. Mendoza, en la falda de los Andes, Jan. 1870, *E. Reed s.n.* (holotype, SGO 63184!).

Sisymbrium andinum Phil. var. *juncalense* O.E. Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 63. 1924. TYPE: Chile. Juncal, Uspallata Pass, 2300 m, 5 May 1903, *O. Buchtien s.n.* (holotype, B!; isotypes, GH!, M!, S!, SI!, UC!, US!).

Perennial herbs, sparsely to moderately pubescent, sometimes glabrous distally, with woody caudex. **Trichomes** simple and to 1 mm long or stalked, forked, 2–4-rayed, 0.2–0.6 mm. **Stems** erect, (1–)3–8.5(–10) dm, usually woody at base and to 1 cm in diam., glabrous or pilose at base, often glabrous apically, several branched above. **Basal leaves** petiolate, pinnatifid, dentate, with a terminal lobe larger than 2–4 lateral lobes on each side; middle cauline leaves with petioles 0.5–2 cm; blade lanceolate to ovate-lanceolate in outline, pinnately lobed or dentate, 2–8 × 0.6–3 cm, lateral lobes 1–4 on each side, dentate, glabrous or pubescent; uppermost leaves narrower and smaller. **Racemes** corymbose, 15–45-flowered, elongated considerably in fruit; rachis straight; fruiting pedicels 0.7–1.8 cm, divaricate to horizontal, straight or rarely curved upwards, glabrous or sparsely pubescent. **Sepals** oblong, 2.5–4.5 mm long, ascending, sparsely pubescent with branched trichomes or rarely glabrous; petals white, spatulate, 4–6 × 1–1.7 mm, obuse, attenuate to a slender claw; median filaments 2.5–4 mm; anthers oblong, ca. 1 mm; ovules 60–100 per ovary. **Fruits** terete, (4–)5–8 cm × 1–1.2 mm, erect to ascending, curved inwards or straight; valves not torulose, glabrous, with a prominent midvein and 2 distinct marginal veins; septum complete, often without a central band; style 0.3–1.5 mm; stigma entire. **Seeds** oblong, uniseriate, 1.2–1.5 × 0.5–0.7 mm.

Flowering: Nov–Feb.

Habitat:

Elevation: 1800–3200 m.

Distribution: Argentina (Mendoza), Chile (Región IV, V, Metropolitana de Santiago).

Specimens examined: **ARGENTINA. Mendoza:** Dep. Capital, Quinta Agrenómica, *Paci 631* (GH, LIL). Dep. Las Heras, Puente del Inca, *Boelcke & Bacigalupo 9791* (BAA, G, MO, SI), *Wall 53* (A, S), *Sparre 1629* (S), *Paci 155* (GH, LIL); Río Blanco, *Sparre 1502* (S); camino de Uspallata a Puente del Inca, *Boelcke 8918* (BAA); Villaviceno, Los Caracoles, *Boelcke et al. 16659* (BACP, SI); Cuesta de la Mina del Toro, *Kurtz 9408* (SI); entre Los Hornillos y Cruz del Paramillo, *Leal 20155bis* (BAA); Polvaredas, *Wingenroth 123* (BAA, SI). Dep. San Rafael, Atuel Valley, Termas E Sosneado, *Böcher et al. 1197* (MO); 53 km W El sosneado, *Boelcke et al. 10260* (BAA); Sierra del Nevado, la Cienagueta, *Boelcke et al. 15931* (BAA, BACP, SI); Cuadro Benegas, crater del Volcán Diamante, 33 Dec 1982, *Ambrosetti & Del Vitto s.n.* (BACP). Dep. Tunuyán, El Guindo, Valle del Arroyo Manzano, *Covas 18567* (SI); Puesto Gendarmería Alférez Portinari, La Vieja, *Boelcke et al. 10113* (BAA, SI). **CHILE. Región IV:** Coquimbo, Cordillera de Illapel, Río Cenicero, *Jiles 4163* (M). **Región V:** Aconcagua, Portillo, *Sparre 1704* (S); Mono de Agua, near Juncal, *Zöllner 10191* (MO); Juncal, *Mahú 8094* (CONC); Uspallata Pas, Juncal, 2 May 1903,

Buchtien s.n. (E). Prov. Los Andes, Entre Caracoles de Portillo y Los Andes, Arroyo 81310 (CONC). **Región Metropolitana de Santiago:** Valle de Maipo, *Garaventa* 6282 (SI)

Mostacillastrum morrisonii (Al-Shehbaz) Al-Shehbaz, *Darwiniana* 44: 347. 2006. Basionym: *Sisymbrium morrisonii* Al-Shehbaz, *Ann. Missouri Bot. Gard.* 77: 219. 1990. TYPE: Peru. Arequipa: 8 km S Mollendo, 28 Sep 1938, C. R. Worth & J. L. Morrison 15729 (holotype, UC).

Plants suffruticose herbs, densely pubescent with minute simple 0.1–0.3 mm. **Stems** erect, woody below, densely pubescent throughout, 1–2.5 dm. **Basal leaves** not observed; middle cauline leaves with petioles 0.5–1.5 cm; blade lanceolate to ovate-lanceolate, 2–4 × 0.5–1.5 cm, flat, dentate; uppermost leaves narrower and smaller. **Racemes** corymbose, elongated considerably in fruit; fruiting pedicels slender, 8–13 mm, divaricate, straight, densely pubescent. **Sepals** oblong, 3.5–4 × ca. 1.5 mm, ascending, glabrous; petals white, spatulate, 5–5.5 × ca. 1.8 mm, obuse, attenuate to a slender claw; filaments 3.5–4 mm; anthers oblong, ca. 0.8 mm. **Fruits** terete, 5–6.8 cm × 1.4–1.6 mm, falcate, spreading; valves not torulose, glabrous, with a prominent midvein and often distinct marginal veins; septum complete, with a distinct central band with 2 or 3 longitudinal veins; style 1–2 mm; stigma entire. **Seeds** oblong, uniseriate, 1.4–1.6 × 0.9–1 mm; seed coat minutely reticulate, with 600–700 muri 0.01–0.03 mm on each side.

As indicated by Al-Shehbaz (1990c), *Mostacillastrum* (as *Sisymbrium*) *morrisonii* is most closely related to *M. gracile*, which it resembles in the veined septum, but it differs substantially by having larger seeds (1.4–1.6 × 0.9–1 vs. 0.8–1 × 0.4–0.6 mm), dentate (vs. pinnatifid or pinnatisect) cauline leaves, longer and wider fruits (5–6.8 cm × 1.4–1.6 mm vs. 2.5–4(–5) cm × 0.7–0.8(–1) mm), and densely pubescent fruiting pedicels.

Mostacillastrum oleraceum (O.E. Schulz) Al-Shehbaz, *Darwiniana* 44: 348. 2006. *Sisymbrium oleraceum* O.E. Schulz in Engler, *Pflanzenreich* IV. 105(Heft 86): 74. 1924. TYPE: Peru. Without locality, *Tafalla s.n.* (holotype, B!).

Plants suffruticose or perennial herbs, subglabrous or glabrous throughout. **Stems** erect, often woody below, glabrous, 3–15 dm. **Basal leaves** not observed; middle cauline leaves with petioles 0.5–2 cm; blade lanceolate to ovate, 3.5–7 × (0.6–)1–3 cm, dentate, glabrous; uppermost leaves narrower and smaller. **Racemes** corymbose, elongated considerably in fruit; fruiting pedicels slender, (1–)1.5–2.5 cm, divaricate to descending, straight or curved upwards, glabrous. **Sepals** oblong, 3–3.5 × 1–1.5 mm, ascending, glabrous; petals yellow or creamy white, sometimes fading pink, spatulate, 5–7 × 1.5–2 mm, obuse, attenuate to a slender claw; filaments 2–3 mm; anthers oblong, 0.7–1 mm; ovules 44–52 per ovary. **Fruits** terete, 3–5 cm × 1–1.5 mm, ascending to divaricate; valves not torulose, glabrous, with a prominent midvein and often distinct marginal veins; septum complete, with a distinct central band; style 0.2–1 mm; stigma entire. **Seeds** oblong, uniseriate, 1–1.5 × 0.7–0.9 mm; seed coat minutely reticulate, with 500–700 muri 0.01–0.03 mm on each side.

Fl. –Nov–Jun.

Alt. 600–3900 m

Habitat: open rocky bank, below hedge in cultivated area, dry scrub.

Specimens examined: **PERU. Cuzco:** Urubamba, road from Chinchero to Urubamba, M. & K. Weigend 2000/164 (M, MO, NY); Urubamba, Distr. Huayllabamba, between quebrada Huayocari, Lagunas de Yanococha and Kellococha, 13°21'S, 72°3'W, *Tupayachi* 976 (MO); below Perga Kachun, Kin et al. 314 (F); Sicuani, road from Sichani to Cuzco, between Quiquijana and Urcos, M. & K. Weigend 2000/144 (NY).. Prov. Calca, Huambutio, San Salvador, *Dueñas* 64 (MO); Huancalli, *Pennell* 13714 (F, GH, NY); 23 km SE Cuzco, *Niñez* 7479 (MO). **Arequipa:** Calloma, vicinity of Chivay, *van der Werff et al.* 20871 (MO).

Mostacillastrum oleraceum resembles *M. morrisonii* and both differ from *M. gracile* by having undivided (instead of pinnatifid or pinnatisect) leaves and larger (1.3–1.6 vs. 0.8–1 mm) seeds, but it differs from both by having yellow (vs. white) flowers and in being totally glabrous. It also differs from *M. morrisonii* by having shorter (3–4.5 vs. 5–6.5 cm) fruits.

Mostacillastrum orbignyanum (E. Fourn.) Al-Shehbaz, *Darwiniana* 44: 348. 2006. Basionym: *Sisymbrium orbignyanum* E. Fourn., *Recherch. Crucif.* 107. 1865; *Hesperis orbignyana* (E. Fourn.) Kuntze, *Rev. Gen. Pl.* 2: 935. 1891. TYPE: Bolivia, without locality, A. D'Orbigny 1349 (holotype, P!, fragments BAA!).

Mostacillastrum elongatum O.E. Schulz in Engler, *Pflanzenreich* IV. 105(Heft 86): 167. 1924; *Sisymbrium elongatum* (O.E. Schulz) Romanczuk, *Darwiniana* 24: 105. 1982. TYPE: Argentina. [La Rioja]: Sierra Famatina, Pié de la Cuesta, mas arriba del Vallerito, 15–20 Jan 1879, G. Hieronymous & G. Niederlein 715 (lectotype, here designated, B, fragments BAA!; isolectotype, G!).

Mostacillastrum elongatum var. *latisiliquum* O.E. Schulz in Engler, *Pflanzenreich* IV. 105(Heft 86): 167. 1924. TYPE: Argentina. Catamarca: Rio Cuesta de la Escabra, *Schickendantz* 106 (holotype, B!; fragment, BAA!).

Plants suffruticose or perennial herbs, glabrous throughout. **Stems** erect, often woody below, glabrous, 2–7 dm. **Basal leaves** lacking; middle cauline leaves sessile, linear or linear-lanceolate, rarely filiform, 5–10 cm × 1–4(–10) mm, entire or dentate, very rarely pinnately lobed; uppermost leaves linear to filiform, entire. **Racemes** corymbose, elongated considerably in fruit; rachis straight or slightly flexuous; fruiting pedicels slender, 6–15(–20) mm, strongly reflexed to divaricate or ascending, curved inward or downward to straight, glabrous. **Sepals** oblong, 2.5–4 mm, ascending, glabrous; petals white or rarely pink, spatulate, 4–5 × 1–1.2(–1.5) mm, obuse, attenuate to a slender claw; filaments 3–4 mm; anthers oblong, 0.7–1 mm; ovules 34–74 per ovary. **Fruits** terete, (3.5–)4–6(–7) cm × 1–1.5 mm, reflexed, divaricate to erect; valves not torulose, glabrous, with a prominent midvein and often distinct marginal veins; septum complete, veinless; style 0.7–1 mm; stigma entire. **Seeds** oblong, uniseriate, (1.1–)1.2–1.4 × 0.4–0.6 mm.

Fl. Oct–Mar.

Altitude: 700–4000 M

Habitat: steep, crumbly rocky hills, cliff slopes in bushlands, among rocks, semi-arid shrubland.

Specimens examined. **ARGENTINA. Catamarca:** Dep. Andalgalá, Las Minas, *Jörgensn 1694* (BAF, GH, MO, SI). Dep. Belén, Laguna Blanca, Cerro Pabellón, *Cabrera et al. 32501* (SI). **Córdoba:** Capilla del Monte, camino a Los Gemelas, *Nicora 6612, 6626* (BAA); Camono Taminga a Los Tuneles, *Nicora 7072* (BAA); Dep. Pocho, Sierra de Pocho, *Cabrera et al. 30170* (SI); Las Achiras, *Gillies s.n.* (E); Sierra de Pocho, *Burkart 20862* (SI); Cruz del Eje, *Isler 137* (G). **Jujuy:** Dep. Yavi, Yavi Chico, *Balsi-Werner 128, 130* (BAA); Abra de Yavi, *Cabrera et al. 15316* (BAA). Dep. Purmamarca, subida a Tascal, *Cabrera et al. 15101* (BAA, M). Dep. Tilcara, Tilcara, subida a la Abra de Remate, *Sleumer 4069* (SI); Quebrada del Chorro, *Cabrera 13185* (BAA); Alfarcito La Peña, Boelcke & Cara 85 (BAA); Quebrada de Huasamayo, *Cabrera et al. 31579* (SI); camino al Alfarcito, *Múlgura et al. 1241* (MO, SI). Dep. Humahuaca, Mina Aguilar, Espinazo del Diablo, *Ruthsatz 42/10* (BAA); ruta prov. 73, Palca a 27 km de Humahuaca camino a Palca de Aparso, 23°6'S, 65°9'W, *Morrone et al. 2520* (SI); Quebrada de Humahuaca, Caleta, *Burkart & Troncoso 11983* (SI). Dep. Sant Catalina, ruta prov. 5, de La Quiaca a Santa Catalina, 21 km de La Quiaca, 22°4'S, 65°45'W, *Zuloaga et al. 6115* (SI). **La Rioja:** Dep. Capital, Alrededor del Oldsenatorio del Cerro de La Cruz, *Biorrum & Pagliari 968* (SI). Dep. Chilecito, Cuesta de Guanchin, *Cabreara et al. 24595* (LP); Camino a La Mejicana, *Parodi 7943, 7969* (BAA); Cuesta de Miranda, *Parodi 7818* (BAA). Dep. Famatina, Mina San Juan, Sierra Famatina, *Kurtz 13654* (SI); Los Corrales, *Cabrera 27255* (BAA, SI); entre Los Corrales Y Cueva de Perez, Cantera de Ocre, *Cabrera et al. 27144* (SI); Mina El Oro, *Hieronymus & Niederlein 419* (G), *Calderón 1104* (BAA). Dep. Lamdrid, Los Molles, *Krapovickas & Hunziker 5576* (BAA). **Mendoza:** El Porlezuelo de la Casa de Piedra, *Gillies s.n.* (E). Dep. San Rafael, Sa. Del Nevado, Puesto Aqua del Blanca, 35°29'S, 68°34'W, *Boelcke et al. 15865* (BAA, SI); Valle Grande, *Cabrera 18757* (BAA); Valle Grande, Río Ateul, *Leal 21110* (BAA); Cuadro Benegas, Cerro Los Buitres, 34°55'S, 69°27'W, 10 Nov. 1891, Del Vitto s.n. (BACP); arroyo Chacay-copuesto Barroso, 35°44'S, 68°16'W, *Boelcke et al. 15878* (BAA, SI); Puesto Los Zainos, 35°41'S, 68°17'W, *Boelcke et al. 15580* (BAA, MO, SI); Las Heras, Uspallata, Quebrada de Santa Elena, *Roig 2953* (BAA, BACP); Quebrada de la Obligación, Ambrosetti 7140 (BACP); 14 km NE Spallata camino a Villavicencio, *Boelcke et al. 9900* (BAA); Uspallata, Qub. Del Telégrafo, Andrada et al. 315 (SI); A° Las Cuentas, *Leal 18688* (BAA); Las Heras, Cerro Alfalfa, *Roig 7670* (BAA); Uspallata, Qda del Telégrafo, *Andrada et al. 303* (SI); Las Heras, Polvaredas, *Wingenroth 123* (SI). Dep. malargüe, Sierras de Chachahuén, Agua del Tundueque, 37°4'S, 68°52'W, *Prina et al. 1250* (SI). **Salta:** Dep. Poma, Quebrada de Cobres, *Cabrera 8717* (GH); Malpaso, ca. 25 km E Súsques along rte 40, 23°26'S, 66°14'W, *Taylor et al. 11242* (MO, SI). Dep. Los Andes, Quebrada de Cobres, *Ruthsatz 186/9* (BAA, GH). Dep. Iruya, Río Iruya, 2–4 km al sur, *Novara et al. 8743* (G). **San Juan:** Dep. Angaco, Sierra de Pié de Palo, camino a Mogote de los Corralitos, *Kiesling 3110, 3139* (SI); Dep. Valle Fértil, Los Bretes, *Kiesling et al. 4978* (SI). **San Luis:** La Calera, camino al pie del Ceno, *Burkart 10696* (SI). **Santiago del Estero:** Dep. Guasayan, rd from Sta. Catalina to Lavalle, *Pedersen 12836* (NY, SI), *Rotman et al. 126* (SI). **Tucumán:** Dep. Tafí, Sierras Colchaqués, Peñas Azules, *Burkart 5299* (SI); Tafí del Valle, *Krapovickas & Cristóbal 24479* (SI), *Araque & Barkley 19Ar249* (K). **BOLIVIA.** Without locality, Bang 2503 (F, GH, MO, US). **La Paz:** La Paz, Buchtein 588 (GH, UPS); Prov. Murillo, Alto Irpavi, 16°32'S, 68°5'W, *Solomon 15235* (MO, NY); Murillo, La Paz 22 km, Mecapaca, *Beck 3555* (GH); La Florida, bridge across Río La Paz, 16°33'S, 68°6'W, *Solomon & Stein 11630* (GH, MO, NY); La Paz-Cota Cota, *Beck 11114* (MO); Obrajales, *Asplund 165* (UPS). **Oruro:** entre Challpata y Tolapalca, Ceballos et al. 233 (BACP). **Potosí:** Frias, on descent to Yocalla from Potosí, *Wood 11742* (K, MO); Sud Chichas, ca. 6 km S Tupiza on road to Cotagaita, *Wood 11967* (K, MO); Prov. Chichos, Quechisla, *Cárdenas 9* (GH, SI). Prov. Bustillos, Uncia, 41 km hacia Pocoata, *Beck 6159* (GH).

Mostacillastrum orbignyanum is easily distinguished from *M. gracile* by being totally glabrous and by having veinless septa, linear to filiform and entire or dentate middle cauline leaves, and larger seeds (1.1–)1.2–1.4 mm. By contrast, *M. gracile* is usually pubescent and with 2–4-veined septa, pinnatifid to pinnatisect middle cauline leaves, and smaller seeds 0.8–1 mm.

Schulz (1924) indicated that *Sisymbrium orbignyanum* might belong to *Phlebiophragmus*, but he did not transfer it to that genus nor maintained it in *Sisymbrium*. By contrast, Romanczuk (1982) did not mention this species and placed its plants

within her broadly circumscribed *S. elongatum*. A comparison of all the syntypes that Schulz cited under *Mostacillastrum elongatum* with the holotype of *S. orbignyana* reveals that the plants are indistinguishable in every aspect except for the orientation of fruiting pedicels. The type of *S. orbignyana* has reflexed fruits and fruiting pedicels, whereas the lectotype of *M. elongatum* has both reflexed and upcurved fruiting pedicels. In my opinion, the orientation of fruiting pedicels alone does not justify the recognition of two taxa especially when this character varies within a given population.

Two sheets of Stuckert 13355 exist at G, of which one is *Mostacillastrum stenophyllum* and the other is *M. orbignyana*. In very rare instances (e.g., *Burkart 10696*; *Martin 591-bis*, the leaves of *M. orbignyana* are somewhat pinnatifid, thus approaching *M. gracile*, but the other distinguishing characters above should help in the separation of the two species.

Mostacillastrum pectinifolium (Al-Shehbaz) Al-Shehbaz, Darwiniana 44: 348. 2006. Basionym: *Sisymbrium pectinifolium* Al-Shehbaz, Harvard Pap. Bot. 2: 14. 1990. TYPE: Peru. Arequipa: Morro Verde, 18 km above Yra by rail, 2820 m, 14 Nov 1963, R. M. Straw 2380 (holotype, US!; isotype, MO!).

Plants perennial or annual herbs, pubescent on leaves with simple and fewer 2-rayed trichomes 0.2–0.4 mm. **Stems** erect, often woody below, glabrous, 1.5–5 dm. **Basal leaves** not observed; middle cauline leaves with petioles to 1 cm; blade lanceolate to linear in outline, 1–4 cm, pectinate, often sulcate adaxially along midvein and lateral lobes; lateral lobes 2–5 on each side, linear; uppermost leaves narrower, usually undivided. **Racemes** corymbose, elongated considerably in fruit; fruiting pedicels slender, 0.4–1.5(–1.8) cm, divaricate to slightly descending, straight or curved upwards, glabrous. **Sepals** oblong, 1.8–2.5 × 1–1.2 mm, ascending, glabrous; petals white, spatulate, 2.5–3.5 × 1–1.5 mm, obuse, attenuate to a slender claw; filaments 1.8–2.5 mm; anthers oblong, 0.4–0.7 mm; ovules 18–44 per ovary. **Fruits** terete, (2.5–)3–5(–6) cm × 0.8–1 mm, ascending to divaricate or reflexed; valves not torulose, glabrous, with a prominent midvein; septum complete, with central band; style 0.1–1 mm; stigma entire. **Seeds** oblong, uniseriate, 0.8–1.1 × 0.5–0.7 mm.

Fl. Aug–Nov.

Alt.: 2300–3800 m.

Habitat: Roadsides in macchia type vegetation, semi desert areas.

Specimens examined: **CHILE. I: Tarapacá:** camino de Azapa a Chapiquiña, Episcacha, km 94, [18°23'S, 69°36'W], Ricardi & Marticorena 4757/1142 (CONC); Cerro Calvario, frente a Putre, 18°12'S, 69°32'W, Landero et al. 88 (CONC). Dep.

Arica, Camino Poconchile a Zapahuira, km 42, [18°26'S, 69°50'W], Ricardi et al. 74 (CONC, SI). Prov. Parinacota, camino entre Socoroma y Zapahuira, 18°17'S, 69°35'W, Arroyo 84-521 (CONC). **II:** Prov. El Loa, Alrededores de Toconce, 22°15'S, 68°10'W, Villagrán & Armesto 2273 (CONC). **PERU.** Below Pampa de Arrieros, *Rose 18950* (US). **Arequipa:** road from Arequipa to Chiguata, beyond Chiguat towards Juliaca, 16°23'S, 71°20'W, *M. & K. Weigend 2000/6* (M, MO, NY); Arequipa, Tres Cruces, *M. & K. Weigend 2000/496* (MO, NY); Arequipa-Yura road, 16°04'S, 71°40'W, *van der Werff 20544, 20518* (MO). **Tacna:** Prov. Tacna, Minas toquepala, *Vargas 13071* (US).

Mostacillastrum pectinifolium is readily distinguished from the closely related *M. gracile* by having pectinate, adaxially sulcate leaves (instead of pinnatifid or pinnatisect and flat leaves) often with some branched trichomes, and smaller sepals (1.8–2.5 instead of 3–4 mm) and petals (2.5–3.5 instead of 4–5 mm).

Mostacillastrum sagittatum (Hook. & Arn.) Al-Shehbaz, Darwiniana 44: 348. 2006. Basionym: *Sisymbrium sagittatum* Hook. & Arn., Bot. Misc. 3: 139. 1833. *Descurainia sagittata* (Hook. & Arn.) Gilg & Muschler, Bot. Jahrb. Syst. 42: 487. 1909; *Hesperis sagittata* (Hook. & Arn.) Kuntze, Rev. Gen. Pl. 2: 935. 1891; *Sophia sagittata* (Hook. & Arn.) Macloskie, Rep. Princeton Univ. Exp. Patagonia, Bot. 8: 449. 1905. TYPE: Chile. [Región V]: Valparaíso, *H. Cuming 429* (holotype, K!).

Sisymbrium volckmannii Phil., Anal. Univ. Chile 41: 669. 1872. TYPE: Chile. [Región IX]: Culpulhue, *D.G. Volckmann s.n.* (holotype, SGO 63182!).

Sisymbrium ciliatum Phil., Anal. Univ. Chile 81: 186. 1892; *Sisymbrium sagittatum* Hook. & Arn. var. *ciliatum* (Phil.) Speg., Anal. Mus. Nac. Hist. Nat. Buenos Aires 7: 216. 1902. TYPE: Chile. [Región III]: cerca del puerto de Caldera, en la Quebrada de los Leones, *G. Geisse s.n.* (lectotype, here designated, SGO 71694!).

Sisymbrium fruticosum Reiche, Anal. Univ. Chile 94: 622. 1896. TYPE: Chile. Liman, Sep. 1893, *F. Philippi s.n.* (holotype, SGO 63211!).

Perennial herbs, glaucous, glabrous or sparsely pubescent. Trichomes simple and/ or forked, Y-shaped 0.2–0.4 mm. **Stems** erect, (2–)4–12(–15) dm, sometimes with a woody base to 8 mm diam., branched above, glaucous, glabrous or sparsely with simple or forked trichomes. **Basal** and lowermost leaves petiolate, petiole 0.5–3.5 cm; blade oblanceolate to obovate or lanceolate, 2–7(–11) × 0.5–1.5(–2.5) cm, dentate to pinnately lobed, and to 15 cm, often soon withered, dentate to sinuate or pinnatifid, with petioles to 8 cm; middle cauline leaves sessile, auriculate to amplexicaul at base, oblong to lanceolate or linear, 2–7(–10) × 0.3–1.5(–2.5) cm, entire or dentate, glabrous or sparsely pubescent or ciliate with simple

trichomes. **Racemes** corymbose, elongated considerably in fruit, 25–56-flowered; rachis straight, glabrous; fruiting pedicels slender, 0.8–2(–2.5) cm, spreading to divaricate, straight or slightly curved, glabrous. **Sepals** oblong, 3–5 mm, ascending, glabrous; petals white or rose to purple, spatulate, 5.5–9 × 2–3 mm, obuse, attenuate to base; filaments 3–5 mm; anthers oblong, 1–1.5 mm; ovules (50–)70–164 per ovary. **Fruits** terete, (3.8–)5.5–10(–12.5) cm × 1–1.5 mm, spreading to divaricate, strongly arcuate or rarely straight, not tortuose; valves glabrous, prominently 3-veined; septum complete, with a distinct undulation between seeds; style 0.5–1.5 mm; stigma entire, as wide as style. **Seeds** oblong to ovoid, uniseriate, 0.9–1 × 5–0.6 mm, coarsely reticulate.

Flowering: Sep–Nov

Habitat: chaparral,

Elevation: 20–1500(–3500) m.

Distribution: Chile (Región II, III, IV, V, RM).

Specimens examined: **CHILE**. Los Valdés, Valle de Morales, *Garaventa 3514* (BACP, SI). Alfalfal, *Levi 710* (SGO). **II Región de Antofagasta**. Prov. Antofagasta, SE La chimba, *Johnston 3641* (GH); Quebrada La Chimba, *Torres 103* (SGO), *Cabrera 11349* (GH); Taltal, *Werdermann 858* (B, CAS, E, G, GH, M, MO, SI, UC, US); Quebrada Médano, N of Papuso, *Pisano & Bravo 382* (SGO); Quebrada Papuso, *Teillier 561* (MO, SGO); ca. 10 km E of Taltal, Quebrada de Taltal, *Worth & Morrison 15794* (DS, UC); El Rincon, N Papuso, *Johnston 5517* (GH); Aguada de Miguel Diaz, *Johnston 5389* (GH); Aguada Panulcito, trail to old Andacolla Mine, *Johnston 5463* (GH); Aguada Cachina, 6 km inland from Caleta Esmeralda, *Johnston 5698* (GH). **III Región de Atacama**. Prov. Copiapo, Caldera, El Morro, Oct 1922, *Gigoux s.n.* (GH, US). Prov. Chañaral, Puerto de Chañaral, back of El Barquito, *Johnston 4774* (GH). **IV Región de Coquimbo**. Los Vilos, *Montero 7245* (CONC); 2 km from Los Vilos, *Garaventa 4348* (BAA, CONC, F, NY, P, SI). Prov. Elqui (as La Serena), Cerros del Tofo, ca. 68 km N of La Serena, *Worth & Morrison 16302* (DS, G, MO, NA, SI, UC); La Serena, *Joseph 5182* (US), Quebrada Coquimbo, *Rosas 1146* (M). Prov. Choapa, Huentelauquén, *Jiles 2809* (M). Prov. Limarí, Fray Jorge, *Muñoz Pizarro 226, 245* (SGO), *Jiles 281* (SI); Lomas de Fray Jorge, *Wagenknecht 71* (SI); Zorrilla, *Jiles 817*(M). **V Región de Valparaíso**. Papudo, *Montero 3196* (GH). **Región Metropolitana de Santiago**. Santuario de la Naturaleza Yerba Loca, 4.5 km from Villa Paulina, *Sweeney 271* (MO)

The species is highly variable in shape, margin, and indumentum of cauline leaves, flower color, fruit length, and ovule number. The type locality of *Sisymbrium volckmannii* is rather disjunct from the rest of the range of *M. sagittatum*, and no other collections of the species from Región IX are known. It is quite possible that there was a mixup in the labels.

Mostacillastrum stenophyllum (Gillies ex Hooker & Arnott) O.E. Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 168.

1924. *Sisymbrium stenophyllum* Gillies ex Hooker & Arnott, Bot. Misc. 3: 139. 1833; *Hesperis stenophylla* (Gillies ex Hooker & Arnott) Kuntze, Rev. Gen. Pl. 2: 935. 1891. TYPE: Argentina. Córdoba, Las Achiras, 3000 ft, *Gillies s.n.* (lectotype, designated by Romanczuk (1982), K!; isolectotype, OXF).

Plants suffruticose herbs, glabrous throughout. **Stems** erect, often woody below, glabrous, 2–5(–6.5) dm. **Basal leaves** absent; middle cauline leaves sessile, filiform to linear or linear-lanceolate, 2–6(–8) cm × 1–3(–9) mm, entire or rarely dentate; uppermost leaves linear to filiform, narrower, entire. **Racemes** corymbose, elongated considerably in fruit; rachis straight; fruiting pedicels slender, 3–9(–18) mm, ascending to divaricate, straight or rarely slightly curved upward, glabrous. **Sepals** oblong, 3–5 × 1–1.5 mm, spreading, glabrous; petals white, oblong-spatulate to oblong, 4.5–7(–8) × 1.5–2.5 mm, obuse; claw nearly as broad as blade; filaments 2.5–4 mm; anthers oblong, 1–1.5 mm; ovules 24–46 per ovary. **Fruits** terete, (0.8–)1–2(–2.8) cm × 1–1.2 mm, ascending to erect; valves not torulose, glabrous, with a prominent midvein; septum complete, veinless; style 0.7–1.3 mm; stigma entire. **Seeds** oblong, 1–1.5 × 0.4–0.7 mm.

Fl. Aug–Jan.

Alt. 360–1200 m

Specimens examined: **ARGENTINA**. Prov.?: Cerro Blanco bei Cerro Moro, 3 Ja. 1892, *Kuntze s.n.* (NY) **Córdoba**: camino dique Los Malinos, *Boelcke 7646, 7651* (BAA); 55 km S Córdoba, camino Dique Los Malinos, *Boelcke 7621* (BAA); Dique La Viña, *Cabrera 19236* (BAA); 40 km W Taninga, Los Tuneles, *Boelcke 7734* (BAA); Cerritos de Malagueño, *Hunziker 7558* (BAA); Alta Gracia, *Parodi 7431* (BAA); Altos del Pueblo Nuevo, *Kurtz 2588* (BAA, NY); Cruz del Eje, *Stuckert 13355* (G); Altos, *Stuckert 606, 4811* (G); Quinta, *Stuckert 15953* (G); Dique de los Molinos, *Tirel 281* (G, P); Cruz Grande, *Burkart 20427* (SI); Ultra Gracia, Millín 609 (SI); La Reducción, *Burkart 7190* (GH, SI). Dep. Pumilla, Lago San Roque, *Hunziker 6338* (G). Dep. Capital, Altos Sud de la Ciudad de Córdoba, *Stuckert 5105* (G). Dep. Las Minas, Cerro de Orcosu, 20 Feb 1876, *Hieronymus s.n.* (B). Dep. Pocho, Sierra de Pocho, *Cabrera et al. 29645* (F, SI). Dep. Calamuchita, Embalse de río 3rd, *Krapovickas 6452* (BAA, SI). Dep. Colón, Siera Chica, Casabamba, *Kurtz 10301* (SI); La Calera, *Stuckert 3883* (G); Calera, 14 Aug 1949, *Fuchs s.n.* (SI); Lomas de San Pedro, 2 km E de La Calera, *Novara & Bruno 10499* (SI). **La Rioja**: Dep. Ischilín, Los Coquitos, *Petersen 9928* (BAA). **San Luis**: Dep. Pederuca, Ea El quebrochal, *Anderson 1578* (SI); Nueva Escocia, *Burkart 10809, 10831* (SI). Dep. Pedernera, Estancia Los Cisnes, potrero Padre Marcos, *Anderson & Vera 1881* (SI). Dep. Capital, Cerro El Lince, *Cano 4420* (BAB). **Santiago del Estero**: Dep. Ojo de Agua, Sierra de Sumampa, *Piccinini*

& Hilfer 3838 (BAB); La Primavera, Moreau & Petetin 3710 (BAB). **Tucumán:** Valle de Taffí, Bruch 10403 (BAA, GH, NY). Dep. Chicligasta, Ea Las Pavas, Venturi 6973 (US); Ea Sant Rosa, Venturi 9229 (US).

The typification of *Sisymbrium stenophyllum* poses some challenges and problems, and no solution is absolutely satisfactory. One of the problems is that Gillies (see Hooker & Anrott, 1833) cited two collections (one each from Córdoba and Mendoza); wrote both localities on the sheets at E, K, and OXF; and had two plants on each these sheets but without indicating which plant was collected from where. What complicates the matter further, the plants on the E sheet represent one species (with very slender claws and fruits to 4 cm), while those at K and OXF represent another (with claws as broad as the blade and fruits to 2 cm). The sheet at E carries the name *S. stenophyllum*, but no altitudes were given for the two localities. By contrast, the sheet at K carries the name *S. angustifolium* and carries altitudes of both localities (see above). After examining the sheet at K, Schulz (1924) defined *S. stenophyllum* to be based on that sheet, and Romanczuk (1982) lectotypified the species based on Schulz's circumscription. The E plants represent a species that Schulz (1924) described as *Mostacillastrum elongatum*, but as shown above, the species is indistinguishable from *M. orbignyanum*. Gillies's description of *S. stenophyllum* is so broad that it also applies perfectly well to *M. elongatum*. Therefore, to put the problem to rest, I am accepting Romanczuk (1982) lectotypification of the species by designated Gillies's Córdoba specimen at K as the lectotype.

Mostacillastrum subscandens (Speg.) Al-Shehbaz, Darwiniana 44: 349. 2006. Basionym: *Sisymbrium subscandens* Speg., Anal. Soc. Ci. Argent. 47: 169. 1899. *Sophia subscandens* (Speg.) Macloskie, Rep. Princeton Univ. Exp. Patagonia, Bot. 8: 450. 1905; *Descurainia subscandens* (Speg.) Gilg & Muschl., Bot. Jahrb. Syst. 42: 487. 1909. TYPE: Argentina. Río Negro: "In dumetis secus Río Negro, propoe Carmen de Patogones," Feb 1898, C. Spegazzini s.n. (holotype, LP!). *Erucastrum obtusangulum* Hiernon., Bol. Acad. Nac. Ci. Cordoba 3(4): 7. 1880, non Rchb., Fl. Germ. Excurs. 2: 693. 1932. TYPE: Argentina. "Patagonia mesta," 18 Sep 1874, C. Berg 17 (holotype, B!; isotype, CORD !).

Perennial herbs, glabrous or sparsely pubescent near base, glabrous distally. **Trichomes** Y-shaped, 0.2–0.5 mm long. **Stems** erect, 3–10 dm, woody at base and to 5 mm in diam., glabrous or pilose at base, several branched above. **Leaves** cauline, petiolate, pinnatifid, lower ones with petioles 0.5–2.5 cm; blade 3–15 × 1–4 cm, with 2–7 lobes on each side, lobes dentate, terminal lobe larger than lateral ones; uppermost leaves smaller, less divided. **Racemes** corymbose, 10–46-flowered, elongated considerably in fruit; rachis straight; fruiting pedicels 1–2.2 cm, divaricate to horizontal, straight or curved upwards, glabrous. **Sepals** oblong, 2.5–3.5 mm long, ascending, glabrous; petals white, obovate, 4–6 × 1.5–2 mm, obuse; claw 2.5–3.5 mm long, slender, sparsely pubescent at base; median filaments 3.5–4.5 mm, sparsely pubescent at base; anthers oblong, 1–1.2 mm; ovules 50–80 per ovary. **Fruits** terete, 3.5–7.2 cm × 1.5–2 mm, erect to divaricate, straight or curved inwards; valves not torulose, glabrous, with a prominent midvein and 2 distinct marginal veins; septum complete, without a central band; style 0.5–1.5 mm; stigma entire, much narrower than style. **Seeds** oblong, uniseriate, 1.5–2.1 × 0.6–0.8 mm. Flowering: Oct–Nov.

Distribution: Argentina (La Pampa, Neuquén, Río Negro).

Specimens examined: **ARGENTINA. La Pampa.** Dep. Lihuel Calel, cerro de la Ruta, 15 Oct 1979, De Azkue et al. s.n. (BAB, BACP, NA); Sierra de Lahuel-Calel, 7 Nov 1972, Del Perto & Marchesi s.n. (BAA, BACP), Boelcke 16008 (BAB, NA). **Neuquén.** Sierra Auca Mahuida, Fabris 864 (BAA).

Mostacillastrum ventanense (Boelcke) Al-Shehbaz, Darwiniana 44 : 349. 2006. Basionym: *Sisymbrium ventanense* Boelcke in Cabrera, Fl. Prov. Buenos Aires 4(3): 355. 1967. Based on *S. perenne* Speg., Contr. Estud. Fl. Sierra de la Ventana 14. 1896, non Steudel, Nomencl. Ed. 2, 2: 594. 1841. TYPE: Argentina. Buenos Aires: Pdo. Tornquist, Sierra de la Ventana, Cerro Tres Picos, Nov. 1895, C. Spegazzini s.n. (holotype, LP).

Perennial herbs, glabrous throughout except for filament bases and petal claws. **Trichomes** simple. **Stems** erect, to 5 dm, woody at base and to 5 mm in diam., glabrous, several branched above. **Leaves** cauline, petiolate, lower ones with petioles 1–3 cm; blade ovate to oblanceolate, fleshy, 5–13 × 1.5–3 cm, dentate or slightly lobed; uppermost leaves much smaller, less divided, shorter petioled, entire or dentate. **Racemes** corymbose, forming a panicle, 10–20-flowered, hardly elongated and remaining corymbose in fruit; rachis straight; fruiting pedicels 4–10 cm, divaricate to ascending, straight, glabrous. **Sepals** oblong, ca. 3 mm long, ascending, glabrous; petals white, obovate, ca. 5 × 1.5 mm, obuse, claw slender, ca. 1.5 mm long, pilose with simple trichomes; median filaments 2.5–3 mm, pilose at least near base with simple trichomes; anthers oblong, ca. 1 mm; ovules 40–60 per ovary. **Fruits** terete, 3.5–6.5 cm × 1.2–1.5 mm, erect to ascending, straight; valves not torulose, glabrous, with a prominent midvein and inconspicuous lateral veins; septum complete, without a central band; style 0.7–1.5 mm; stigma entire, much narrower than style. **Seeds** oblong, uniseriate, 1.5–1.8 × 0.7–0.8 mm.

Flowering: Dec–Jan.

Elevation: ca. 500 m.

Distribution: Argentina (Buenos Aires).

Specimens examined: **ARGENTINA. Buenos Aires.** Partido Saavdra, Sierra Cura Malal, 18 Dec 1899, *Spegazzini s.n.* (BAB, SI); Jan–Mar 1884, Holmberg s.n. (CORD).

This very distinctive species is known only from old collections made over a century ago, and nothing is known about its ecology and biology. It is most closely related from *Mostacillastrum subscandens*

Mostacillastrum weberbaueri (O.E. Schulz) Al-Shehbaz, *Darwiniana* 44: 349. 2006. Basionym: *Sisymbrium weberbaueri* O.E. Schulz, *Publ. Field Mus. Nat. Hist. Bot. Ser.* 8: 80. 1930. TYPE: Peru. Moquegua: Mts between Moquegua and Torata, rocky areas, 21 March 19125, 1900 m, *A. Weberbauer 7425* (holotype, F!).

Plants suffruticose herbs, sparsely pubescent proximally with simple trichomes to 0.4 mm. **Stems** erect, woody below, sparsely pubescent basally, glabrous above middle, ca. 3 dm. **Basal leaves** not observed; middle cauline leaves with sparsely pubescent petioles to 1 cm; blade lanceolate in outline, strongly auriculate, to 4.5 × 2 cm, pinnatifid into flat, oblong to linear lateral lobes 3 or 4 on each side; uppermost leaves subentire, smaller, auriculate, glabrous. **Racemes** corymbose, elongated in fruit; flowering pedicels slender, 5–7 mm, divaricate, straight, glabrous. **Sepals** oblong, ca. 4.5 × 1.5 mm, suberect, glabrous; petals white, spatulate, ca. 8 × 3 mm, obuse, attenuate claw; filaments ca. 4 mm; anthers oblong, ca. 2 mm; ovules number per ovary unknown. **Fruits** and seeds not seen.

The species is known only from the holotype.