

BULLETIN
OF THE
TORREY BOTANICAL CLUB

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New Polygalas from Colombia

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Polygala diversa sp. nov.

Frutescent, sometimes flowering the first year, densely pubescent; leaves oval to elliptic, 1.5–4 cm. long, 7–14 mm. wide; racemes short, 12–15 mm. thick, short-peduncled; bracts deciduous; pedicels 1.5–2 mm. long; sepals ciliolate with glandular and eglandular hairs; wings suborbicular-obovate, 6.5–7 mm. long, 4.5–5.8 mm. wide, inequilateral, densely spreading-pubescent and ciliate; capsule quadrate-oval, 5 mm. long, ciliolate; seed 4 mm. long, silky-pilose.

Frutescent, up to 90 cm. high, much branched, but flowering also as a simple-stemmed annual only 18 cm. high; stem 5 mm. thick or less, terete, densely incurved-pubescent or ascending-pubescent, often with spreading hairs intermixed; leaves alternate; petioles 1–2 mm. long, pubescent like the stem; blades oval to elliptic or ovate-elliptic, 1.5–4 cm. long, 7–14 mm. wide, acute or acuminate to rounded, sometimes mucronulate, at base rounded to cuneate, papery, above evenly spreading- or ascending-puberulous, glabrescent except toward margin, beneath about equally green, spreading-pubescent, more densely so along the veins, these 3–5 pairs, prominulous beneath, the secondaries obscure; peduncles terminal and supra-axillary, 5 mm. long or less; racemes 12–25 mm. long, 12–15 mm. thick, obtuse or acute, slightly comose, pubescent like the stem, the axis becoming 4 cm. long or less; bracts subulate, 1.5 mm. long, hispid-pilose, deciduous; pedicels puberulous, 1.5–2 mm. long; flowers "pink or violet-pink"; upper sepal oblong-ovate, 3.5–3.8 mm. long, obtuse, densely ciliolate with eglandular hairs for its basal third, above bearing about 8 pairs of stipitate glands and a few eglandular hairs, on back spreading-puberulous; lower sepals united nearly to apex, obtuse, 2.8 mm. long, spreading-puberulous on back, bearing about 10 pairs of stipitate glands from base to apex, the eglandular hairs few; wings suborbicular-obovate, 6.5–7 mm. long, 4.5–5.8 mm. wide, strongly inequilateral, emarginate, at base unequal, cuneate on one side,

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obliquely rounded 1 mm. above base on other side, rather densely and evenly spreading-pubescent outside and ciliate, about 5-veined, the veins forked above and anastomosing toward the margin; upper petals 4.8 mm. long, pilose within to middle, the limb oblong-obovate, rounded, glabrous, about 7-nerved; keel 5 mm. long, ciliate at extreme base, not ciliate on the upper margin of the saccate portion, spreading-pubescent on the outer anterior face of the saccate portion; capsule quadrate-oval, 5 mm. long, 4.2-4.8 mm. wide, ciliolate, narrowly margined, emarginate, at base subcordate; seed 4 mm. long (including aril), oblong-oval, terete, densely appressed-silky-pilose; aril 1.3 mm. high, 1.8 mm. long, casque-shaped, white, subcorneous, sparsely pilose, 3-lobed from near the middle, the lobes equal, the dorsal the broadest.

COLOMBIA: On sandstone cliff at Honda, Dept. Tolima, 250-350 m., 3-4 Jan. 1918, *F. W. Pennell* 3602 (TYPE in herbarium of the N. Y. Botanical Garden; duplicate in U. S. National Herbarium). Open clayey loam, Melgar, Dept. Cundinamarca, 500-600 m., Dec. 1917, *Pennell* 2902. Open woodland, west of San Lorenzo, Dept. Tolima, 500-700 m., Dec. 1917, *Pennell* 3549. Open rocky slope, Honda, Dept. Tolima, 300-400 m., Jan. 1918, *Pennell* 3582.

Polygala diversa belongs in the subgenus *Hebeclada*, and may be distinguished readily by its densely pubescent wings. At maturity it is distinctly frutescent, but it also flowers as a seedling, as shown by *Pennell* 3549, which in all other characters is identical with the type of the species.

***P. Smithii* sp. nov.**

Suffrutescent, densely incurved-puberulous; leaves ovate, 5.5-8 cm. long; racemes 1.2-5 cm. long, 1-1.4 cm. thick; bracts deciduous; pedicels 1-2 mm. long; sepals densely ciliate with eglandular hairs; wings obliquely oval-obovate, 5-6 mm. long, 3.8-4.5 mm. wide, inequilateral, ciliolate; capsule quadrate-oval, 4-4.8 mm. long, shorter than the wings; seed 4.2 mm. long, subsericeous-pilose.

Suffrutescent, erect, about 1 meter high, simple or sparsely branched, the base not seen; stem subterete, 2-3 mm. thick, greenish, densely incurved-puberulous, a few longer straighter hairs sometimes present; leaves alternate; petioles pubescent like the stem, 2-4 mm. long; blades ovate, 5.5-8 cm. long, 2-4.2 cm. wide, acuminate (sometimes abruptly so), at base cuneate or rounded-cuneate, membranaceous, above deep green, evenly spreading-puberulous on surface (the hairs along the veins shorter and incurved), beneath sparsely spreading-puberulous on surface,

along the veins incurved-puberulous and sparsely spreading-pubescent, the veins 7-8 pairs, prominulous beneath, the secondaries obscure; peduncles terminal and supra-axillary, 4 mm. long or less; racemes loose or rather dense, 1.2-5 cm. long, obtuse to acute, slightly comose, 1-1.4 cm. thick, the axis becoming 10 cm. long or less, pubescent like the stem; bracts lance-subulate, 1.8 mm. long, attenuate, hispid-pilose, deciduous; pedicels glabrous, curved, 1-2 mm. long; flowers greenish; upper sepal oblong-ovate, 3 mm. long, obtuse, densely ciliate with eglandular hairs; lower sepals similar, 2.2 mm. long, united for four-fifths their length, obtuse; wings obliquely oval-obovate, 5-6 mm. long, 3.8-4.5 mm. wide, strongly emarginate, inequilateral, cuneate at base on one side, contracted 1.2 mm. above base on other, ciliolate except on narrowed basal portion, 4-nerved, the nerves branched and anastomosing toward margin; upper petals 3.5 mm. long, pilose within except on the expanded portion of limb, this oblong-ovate, rounded, erose, many-nerved; keel 4.2 mm. long, pilose-ciliate on the posterior upper margin of the saccate portion; capsule quadrate-oval, 4-4.8 mm. long, 4-4.7 mm. wide, distinctly shorter than the wings, margined, emarginate at apex, subcordate at base, not stipitate, glabrous; seed oval, terete, 4.2 mm. long (including aril), 1.8 mm. wide, rounded at apex, densely subsericeous-pilose with subappressed hairs; aril 1.8 mm. high and wide, sparsely pilose, rounded-quadrate, compressed, with much excavated sides, yellowish-white, not corneous, with three subequal rather short rounded lobes.

COLOMBIA: In dry forest near Agura Dulce, vicinity of Santa Marta, 8 June 1898-1899, *Herbert H. Smith 1309* (TYPE in herbarium of the N. Y. Botanical Garden; duplicate of this number in U. S. National Herbarium, no. 533,456, labeled October 1898-1901). Lower hills on the trail from Río Frío to San Andrés de la Sierra, State of Magdalena, 400 m., July 1906, *Pittier 1714*.

This species is a member of the section *Apopetala* of the subgenus *Hebeclada*, and is nearest *P. Vauthieri* Chod., which is described as having lanceolate or lance-oblong leaves and larger wings (up to 8 mm. long), these as wide as long. The type collection was distributed as *P. violacea* Vahl, but the original *P. violacea* Aubl., a still doubtful species, is described as having a crested keel.

***Polygala Fendleri heterothrix* var. nov.**

Leaves sometimes nearly all in (2-4) whorls; hairs of seed straight; otherwise as in *P. Fendleri*.

COLOMBIA: Dry grassy bank, Guayabotal, southeast of Quetame, Dept. Cundinamarca, 1300-1400 m., 5 Sept. 1917, *F. W. Pennell 1746* (TYPE in U. S. National Herbarium, no. 1,041,907; duplicate in herbarium of N. Y. Botanical Garden).

The group of the subgenus *Orthopolygala* known as the Series *Glochidiatae* is characterized principally by the uncinata hairs clothing the seed. In the variety above described, however, the hairs of the seed are straight, although the most careful comparison has failed to disclose any other constant difference from *P. Fendleri* Chod. in habit or structure. The occurrence of a very few hook-tipped hairs on some of the seeds, moreover, shows conclusively that the plant in question is merely an anomalous form of *P. Fendleri* and not a mimetic species of the group *Tenuis*, to which I was at first inclined to refer it.

Polygala Fendleri Chod. was based on *Fendler 238*, from Colonia Tovar, Venezuela. The following specimens agree with the type collection in every respect except in having the crest on each side composed of a lamella and a single linear lobe, while there are a lamella and two linear lobes in *P. Fendleri*. The seeds in the specimens of the type collection examined, kindly lent from the Gray Herbarium and the herbarium of the New York Botanical Garden, are obtusish at each end, not attenuate as described, and rather densely pubescent with somewhat spreading hairs which are as distinctly uncinata as they are in any of this group.

COLOMBIA: Open rocky ridges and grass lands above Jivacasaca, vicinity of Santa Marta, 915-1065 m., 27 Sept. 1898-1899, *Herbert H. Smith 1306* (U. S., N. Y. Bot. Gard.; distr. as *P. paniculata*). In open loam, El Convenio, west of San Lorenzo, Dept. Tolima, 1000-1200 m., Dec. 1917, *F. W. Pennell 3494* (N. Y. Bot. Gard.).

***Polygala Pennellii* sp. nov.**

Glabrous annual; lower leaves whorled, the others alternate, linear; racemes subcapitate or short-cylindric, acute; flowers white, pedicellate; bracts caducous; wings oval or obovate-oval, 1.8-2 mm. long, 1.2 mm. wide, rounded, short-clawed; crest of 2 pairs of 2-lobed or bifid segments; capsule oval, 1.7 mm. long, very short-stipitate, equaling the wings or one-fourth shorter; seed densely uncinata-pilose; aril obsolete.

Slender single-stemmed annual, freely branched, 12-33 cm. high; stem subterete, glabrous; lower leaves in about 5 whorls

of about 4, or sometimes opposite or ternate on the branches, the others alternate, linear, 4–9 mm. long, 0.3–0.6 mm. wide, cuspidate-acuminate, subsessile, revolute-margined, glabrous; peduncles terminal and axillary, 3–19 mm. long; racemes subcapitate or short-cylindric, rather dense, acute, not comose, 3–12 mm. long, 2.5–4.5 mm. thick, the axis becoming 14 cm. long or less; bracts ovate, acuminate, glabrous, 1-nerved, caducous, 0.7 mm. long; pedicels 0.5–0.8 mm. long; flowers white; upper sepal ovate-oval, 1 mm. long, obtuse, 1-nerved; lower sepals similar, oval, 0.8 mm. long; wings oval or obovate-oval, 1.8–2 mm. long, 1.2 mm. wide, rounded, at base rather abruptly short-clawed (claw 0.4 mm. long), 3-nerved, the lateral nerves extending to middle; upper petals 1.5 mm. long, the free portion oblong-ovate, obtuse, about 3-veined; keel 1.8 mm. long, the crest on each side of a 2-lobed lamella and a single lobe 2-fid to middle; capsule oval, 1.7 mm. long, 1.2 mm. wide, equaling the wings in fruit or about one-fourth shorter, emarginulate, at base cuneate-rounded and usually unequal, very short-stipitate; seed oval, 0.7 mm. long, obtuse at each end, densely uncinatopilose, the hairs about two-thirds as long as the diameter of the seed; aril obsolete.

COLOMBIA: On open foothill in the Cordillera Oriental, east of Neiva, Dept. Huila, 1000–1700 m., 1–8 August 1917, *H. H. Rusby & F. W. Pennell* 534 (TYPE in herbarium of the N. Y. Botanical Garden; photograph in U. S. National Herbarium). Fusagasugá, 3 Jan. 1853, *I. F. Holton* (N. Y. Bot. Gard.). Open clayey loam, Melgar, Dept. Cundinamarca, 500–600 m., Dec. 1917, *Pennell* 2890 (N. Y. Bot. Gard.).

This species is a close relative of *P. Fendleri* Chod. It seems distinct, however, in its smaller distinctly short-clawed wings and its oval capsule which is usually nearly or quite as long as the wings, while in the other species, *P. Fendleri*, the distinctly obovate capsule is much shorter than the wings.

***Polygala subsecunda* sp. nov.**

Incurved-puberulous annual; leaves alternate, linear; racemes cylindric, acutish; flowers rosy, pedicellate; bracts caducous; wings elliptic to obovate-elliptic, 2.3–3 mm. long, 1.1 mm. wide, rounded; capsule elliptic, 3.5 mm. long, about one-fourth longer than the wings; seed obconic, silky-comose, 2.7 mm. long; aril 0.4 mm. long.

Slender one-stemmed erect annual, simple or sparsely branched, 27–50 cm. high; stem subterete, sparsely and finely incurved-puberulous; leaves (except sometimes for a basal whorl of 4) alternate, linear or linear-acicular, 7–19 mm. long, 0.3–1 mm.

wide, cuspidate-acuminate, subsessile, obscurely papillose, slightly revolute-margined, 1-nerved, chiefly erect or ascending; peduncles terminal, rarely axillary, 3–10 mm. long; racemes slender-cylindric, acutish, loose, slightly comose at apex, secund or subsecund especially in fruit, 5–9 cm. long, 3–7 mm. thick, the axis becoming 19 cm. long or less; bracts obovate or oblong-obovate, 1.8 mm. long, abruptly attenuate above by the excurrent costa (this 0.4 mm. long), erose above, glabrous, caducous; pedicels glabrous, 0.8–1 mm. long; flowers "light rosy"; upper sepal ovate-oval, rounded, 1.2 mm. long, 1-nerved, glabrous, slightly glandular-thickened along the costa; lower sepals similar but narrower, oblong, 1.2 mm. long; wings elliptic, oval-elliptic, or slightly obovate-elliptic, 2.3–3 mm. long, 1.1 mm. wide, rounded, cuneate at base, glabrous, 3-nerved, the nerves simple, the lateral ones usually reaching nearly to apex; upper petals 2.5–3 mm. long, equaling wings, the free portion ovate, 4-veined, narrowed to an obtuse or truncate-rounded apex; keel 2.8–3.2 mm. long, slightly exceeding the wings and upper petals, the crest on each side of an ovate sometimes lobed lamella and two 2- to 4-parted lobes; upper stigmatic lobe slightly stipitate; capsules elliptic, 3.5 mm. long, 1.2 mm. wide, emarginulate, rounded at base, not gland-bearing, chiefly spreading in fruit, about one-fourth longer than the wings; seed obconic, silky-comose, 2.7 mm. long (including coma), short-rostrate at base; aril 0.4 mm. long, 2-lobed, appressed.

COLOMBIA: Open grass lands, near Escoleva de los Indios, vicinity of Santa Marta, 240 m., August 1898–1899, *Herbert H. Smith* 575 (TYPE in U. S. National Herbarium, no. 533,071; duplicate in herbarium of the N. Y. Botanical Garden).

A member of the Series *Trichospermae*, as nearly related to *P. variabilis* H. B. K. as to any other described species, but readily distinguished by its long, slender racemes and its eglandular capsule distinctly longer than the wings. The type collection was distributed as *P. paniculata* L., a species of a different series. The original label of the sheet in the New York Botanical Garden herbarium states that the species is fairly common in open grass lands between 150 and 750 meters elevation, flowering from July to October.

***Polygala apodanthera* sp. nov.**

Incurved-puberulous annual; leaves alternate, linear; racemes cylindric, acuminate; flowers pale pink, pedicellate; bracts caducous; wings elliptic, obtuse, 3–3.2 mm. long, 1.2 mm. wide; crest plurifid; capsule elliptic, 3.3–3.8 mm. long, not stipitate, distinctly exceeding the wings; seed short-rostrate, 2 mm. long, spreading-pilosulous; aril 2-lobed, 0.5–0.7 mm. long.

Slender erect annual, 23–38 cm. high, with few erect branches; stem below the inflorescence finely puberulous with incurved glanduliform hairs; leaves alternate except for one or two basal pairs, numerous, rather crowded, erect, linear, 1–2 cm. long, 0.5–1 mm. wide, acute, cuspidulate, very shortly petioled, 1-nerved; peduncles 3 to 8 mm. long, terminating stem and branches; racemes cylindric, dense above, loose below, acuminate to an obtusish somewhat comose apex, occasionally secund, 2–9.5 cm. long, 5–7 mm. thick, the axis becoming 15.5 cm. long or less, rather densely puberulous with longer hairs than those of the stem; pedicels glabrous, 0.6–1 mm. long, spreading or recurved at maturity; bracts oval, abruptly cuspidate-acuminate, erose above, caducous, 1.8 mm. long; flowers pale pink, the upper petals and keel apparently more purplish; upper sepal oval-ovate, obtuse, 1-nerved, 1.2 mm. long; lower sepals elliptic-oblong, obtuse, 1-nerved, 1.2 mm. long; wings elliptic, 3–3.2 mm. long, 1.2 mm. wide, equaling the keel, obtuse, cuneate but not clawed at base, 3-nerved, the nerves simple; keel 3.1 mm. long, the crest on each side of a 3-fid or 3-parted lamella and a 2-parted lobe; upper petals shorter than keel, the free portion obliquely ovate, obtuse, 3- or 4-nerved; anthers sessile or subsessile; capsule elliptic, 3.3–3.8 mm. long, 1.5 mm. wide, emarginulate, not stipitate, about one-fourth longer than the wings; seed subcylindric, short-rostrate, 2 mm. long, rather densely spreading-pilosulous; aril attached to the beak, 2-lobed, 0.5–0.7 mm. long, the lobes oblong, obtuse or sometimes acutish.

COLOMBIA: Rocky bank in prairie, Mariquita, Dept. Tolima, 250–300 m., 7 Jan. 1918, *F. W. Pennell* 3638 (TYPE in U. S. National Herbarium, no. 1,044,846; duplicate in herbarium of the New York Botanical Garden).

A species of the *Tenuis* group, nearest the Venezuelan *Polygala Funkii* Chod., in which, according to description, the stem and raceme axis are glabrous, the wings and sepals acute, the crest on each side composed of a lamella and a slender lobe (both entire), and the free portion of the filaments nearly as long as the anthers.