

NEW RECORDS OF *PETUNIA* (SOLANACEAE) FOR THE ARGENTINEAN FLORA

TOSHIO ANDO ¹, SILVINA SOTO ² & ENRIQUE SUÁREZ ²

¹ Faculty of Horticulture, Chiba University, 648 Matsudo, Matsudo City, Chiba Prefecture
271-8510 Japan. E-mail: andot@faculty.chiba-u.jp

² Instituto de Recursos Biológicos, INTA, Las Cabañas y Los Reseros, 1712 Castelar
Buenos Aires, Argentina. E-mail: ysidro@cirn.inta.gov.ar

ABSTRACT: Ando, T., Soto, S. & Suárez, E. 2005. New records of *Petunia* (Solanaceae) for the Argentinean flora. *Darwiniana* 43(1-4): 64-68.

Petunia interior and *P. guarapuavensis* are reported for the first time for the Argentinean flora, and their geographical distributions are updated.

Keywords: Misiones, *Petunia*, Solanaceae, Argentina, Brazil.

RESUMEN: Ando, T., Soto, S. & Suárez, E. 2005. Nuevas citas de *Petunia* (Solanaceae) para la Flora Argentina. *Darwiniana* 43(1-4): 64-68.

Petunia interior y *P. guarapuavensis* son citadas por primera vez para la Flora Argentina, con una actualización de su distribución geográfica.

Palabras clave: Misiones, *Petunia*, Solanaceae, Argentina, Brasil.

Based on the observation of live plants occurring in Misiones (27 November to 1 December, 1990; 8 to 10 November, 1995; 16 to 19 November, 2004) and the inspection of herbarium specimens deposited at BA, BAA, BAB, BAF, LP and SI, we report the following species of the genus *Petunia* (Solanaceae) as new records for the Argentinean flora.

Petunia interior T. Ando & Hashim., *Brittonia* 48 (2): 217. 1996. TYPE: Brazil. Santa Catarina. Mun. Chapecó, 15 km SW of Chapecó to Nonoai (Rio Grande do Sul), 21°13'26"S 52°40'08"W, alt. 600 m, 26-XI-1993, G. Hashimoto, T. Ando, N. Tanaka & T. Tsukamoto B569 [holotype, MBM; isotypes, BM, R, S, US, Centro de Pesquisas de História Natural (São Paulo), temporally collection of Toshio Ando].

Observations. *Petunia interior* is best characterized by the unique morphology of anthers: eviden-

tly channeled lobes of the dehisced anther (Fig. 1-C; see Figs. 2C, E, F in Ando & Hashimoto, 1996). The corolla is the smallest in the genus, (18) 20-25 (28) mm long including the lobes, along with that of *P. integrifolia* (Hook.) Schinz & Thell. subsp. *depauperata* R. E. Fr. (Atlantic coast of Santa Catarina and Rio Grande do Sul, Brazil). In the fruiting stage, the pedicel is strongly deflexed and the calyx lobes are strongly recurved (see Fig. 1 in Ando & Hashimoto, 1996). This character resembles that of *P. integrifolia* subsp. *integrifolia* (Entre Ríos, southern Corrientes, Uruguay, and central and southern Rio Grande do Sul) and *P. guarapuavensis* (see below), but not that of another species occurring in Misiones, *P. inflata* R. E. Fr. (southwestern Misiones, northern Corrientes, eastern Chaco, eastern Formosa, southeastern Paraguay, northwestern Rio Grande do Sul), whose pedicel is inflexed and its calyx lobes are straight in the fruiting stage. In *P. interior*, lateral stems developing from the base of the main stem are usually prostrate, unlike those of the other Argentinean species whose lateral stems are ascendant. The

Original recibido el 18 de enero de 2005; aceptado el 30 de junio de 2005.

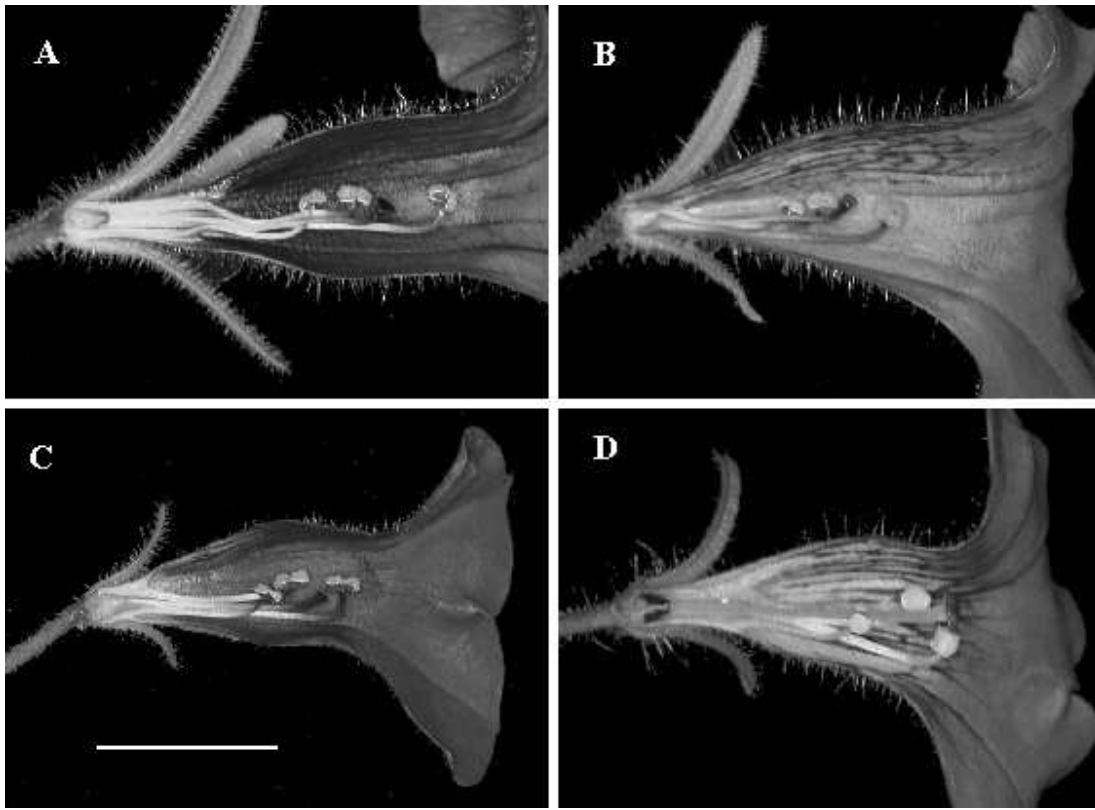


Fig. 1.- Longitudinal section of flowers of *Petunia*. A: *P. integrifolia*. B: *P. inflata*. C: *P. interior*. D: *P. guarapuavensis*. Two calyx-lobes and two stamens were removed. Scale bar = 10 mm.

Brazilian specimens of *P. interior* possess densely glandular-pilose stems, but Argentinean specimens have almost glabrous ones.

Geographical distribution. In Brazilian territory, distribution range of *Petunia interior* is restricted to western Santa Catarina and northwestern Rio Grande do Sul (see Fig. 4 in Ando & Hashimoto, 1996). It grows exclusively on the elevated gently hilly terrain with few grasses, above 500 m, surrounded by the steep slopes eroded by the Uruguay river and its tributary streams. In the Argentinean territory, this species seems to be exclusive to a similar habitat in the high-altitude portion of Misiones, Sierra de Misiones (Fig. 2). The populations of *P. interior* established in the dept. Oberá and Cainguás are close to the territory of *P. inflata*, but possible hybrid swarms between them were not found.

Examined Material

ARGENTINA. **Misiones.** *Dpto. Cainguás:* Ruta Nacional 14, 2.3 km SW of Campo Grande to Campo Viera, 27°14'22"S 54°58'46"W, 9-XI-1995, *T. Ando & T. Tsukamoto A114* (BAB). *Dpt. Gral. Belgrano:* Rt. Prov. 17, entrance of Rt. Nat. 14, 13 km SSW of Bernardo de Irigoyen to Pozo Azul, 26°17'32"S 53°43'59"W, 18-XI-2004, *T. Ando, S. Soto, S. Yamaguchi & E. Nishiyama A355* (BAB); Ruta Provincial 17, 5 km W of Bernardino de Irigoyen to Dos Hermanas, 26°16'26"S 53°41'14"W, 18-XI-2004, *T. Ando, S. Soto, S. Yamaguchi & E. Nishiyama A356* (BAB). *Dpto. Oberá:* Ruta Nacional 14, 1.5 km S of Campo Viera to Oberá, 27°19'15"S 55°03'28"W, 8-XI-1995, *T. Ando & T. Tsukamoto A112* (BAB). *Dpto. San Pedro:* Ruta Nacional 14, 3.1 km SW of San Pedro to San Vicente, 26°38'10"S 54°08'06"W, 9-XI-1995, *T. Ando & T. Tsukamoto A118* (BAB); Ruta Nacional 14, Piñarita, 8 km NE of Tobuna to Dos Hermanas, 26°25'35"S 53°50'28"W, 18-XI-2004, *T. Ando, S. Soto, S. Yamaguchi & E. Nishiyama A358* (BAB); Ruta Nacional 14, entrance of San Pedro, 26°37'19"S 54°07'13"W, 18-XI-2004, *T. Ando, S. Soto, S. Yamaguchi & E. Nishiyama A359* (BAB).

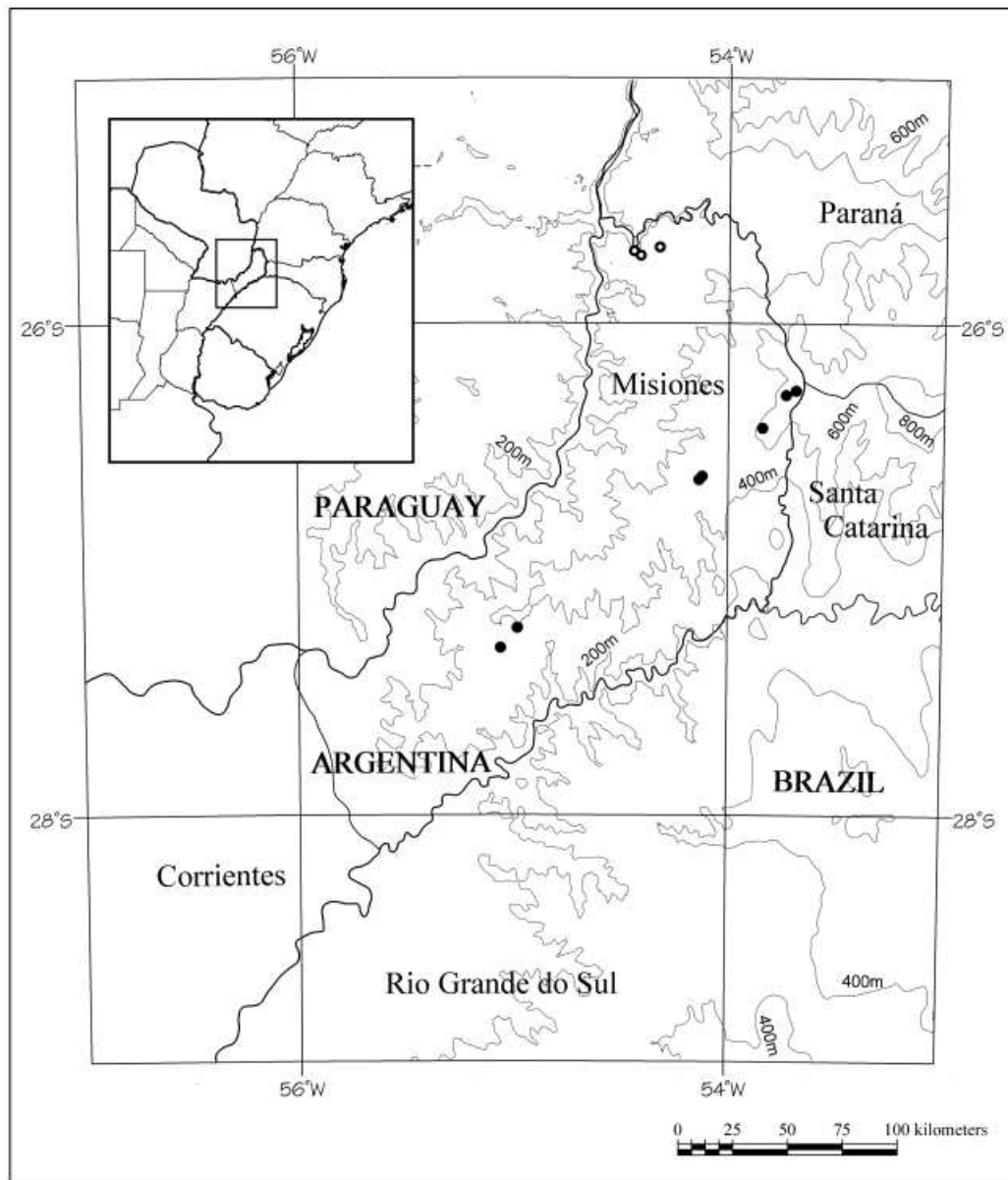


Fig. 2.- Geographical distribution of *P. interior* (solid circles) and *P. guarapuavensis* (open circles) in Argentina generated using our GPS data.

Petunia guarapuavensis T. Ando & Hashim. *Brittonia* 47 (3): 328. 1995. TYPE: Brazil. Paraná, Mun. Guarapuava, Rt. BR373, 30 km E of Guarapuava to Relógio, alt. 1260 m, 6-XII-1989, G. Hashimoto, T. Ando, H. Watanabe B65 [holotype, MBM; isotypes, BM, HBR, S, US, Centro de Pesquisas de História Natural (São Paulo), temporary collection of Toshio Ando].

Observations. Overall features in the morphology of *Petunia guarapuavensis* resemble those of *P. integrifolia*. When a fresh flower is available, however, this species is readily distinguishable from *P. integrifolia* and the other species occurring in Misiones. In *P. guarapuavensis*, the interior of the corolla tube is whitish and completely covered with a marked, deep purple reticulation (Fig. 1-D; see Figs. 2C, D in Ando & Hashimoto, 1995). In *P.*

integrifolia, as well as in *P. inflata* and *P. interior*, the interior of the corolla tube is light to dark purple, and the rather obscure reticulation is restricted to the upper part of the tube (Fig. 1-A, B, C). Another unique character of *P. guarapuavensis* is its whitish stigma remarkably at the mouth of the corolla tube (see Fig. 2A in Ando & Hashimoto, 1995). The typical flower of *Petunia* has two long, two medium and one short stamens. In *P. guarapuavensis*, paired anthers of long stamens beside the stigma are clearly separated from each other, allowing the stigma to be exposed in frontal view of the flower (see Fig. 2D in Ando & Hashimoto, 1995). In *P. integrifolia*, *P. inflata* and *P. interior*, however, the small stigma of darker color is situated behind the anthers of long stamens (Fig. 1-A, B, C; see Figs. 2E, 3A in Ando & Hashimoto, 1996). Since the anthers contact each other in front of the stigma (see Figs. 2F, 3B in Ando & Hashimoto, 1996), their stigma is not visible in frontal view of the flower. Unfortunately, these characters are not reliable for herbarium material.

Alternatively, the following character state differences are useful for identifying *P. guarapuavensis* from dried specimens. *Petunia guarapuavensis* has a large, evidently vertically bilabiate stigma located at a level similar to the anthers of long stamens (Fig. 1-D). In contrast, *P. integrifolia*, *P. inflata* and *P. interior* have a small, globose stigma located between the anthers of long and medium length stamens (Fig. 1-A, B, C; see Figs. 2F, 3B in Ando & Hashimoto, 1996).

The known habitat of *P. guarapuavensis* in Misiones is open roadsides within thick forest. Flowers of the plants grown in Misiones seem small in diameter when compared to those grown in

Paraná (see below), possibly influenced by the higher ambient temperature.

Geographical distribution. Distribution range of *P. guarapuavensis* in Argentina is probably restricted to the northern lowlands of Misiones (Fig. 2). In Brazil, it grows abundantly on the third high-plateau (Terceiro Planalto or Guarapuava High Plateau; after Maack, 1968) of Paraná, and adjacent Santa Catarina (see Fig. 3 in Ando & Hashimoto, 1995). The elevation of the third high-plateau gradually decreases towards the west, and the frequency of *P. guarapuavensis* decreases proportionally. In Brazil, the westernmost population recorded for this species is in the municipality of Cascavel, Paraná (unpublished data), ca. 80 km northeast from the population in Misiones. The populations in Misiones, Argentina seem to be at the actual western margin of the species' distributional range.

Examined Material

ARGENTINA. **Misiones.** Dpto. Iguazú: Cataratas, ruta 101, 8-X-1949, V. R. Perrone s. n. (BA); Río Uruguay medio, Barrero Palacio, date unknown, collector unknown, 54942 (BA); Parque Nacional Iguazú, camino a Yacuy, 18-XII-1980, L. Cusato 445 (BAA); Parque Nacional Iguazú, 25°42'21"S 54°26'24"W, 10-XI-1995, T. Ando & T. Tsukamoto A120 (photograph, BAB); Ruta Nacional 101, 6 km E of entrance of the airport to Deseado, 25°43'25"S 54°24'30"W, 17-XI-2004, T. Ando, S. Soto, S. Yamaguchi & E. Nishiyama A353 (photograph, BAB); Ruta Nacional 101, 16 km E of entrance of the airport to Deseado, 25°41'24"S 54°19'16"W, 17-XI-2004, T. Ando, S. Soto, S. Yamaguchi & E. Nishiyama A354 (photograph, BAB).

Key to Argentinean taxa of the genus Petunia

- 1. Corolla-limb white 2
- 1'. Corolla-limb colored 4
- 2(1). Stamens 2-long, 2-medium and 2-short condition 3
- 2'. Stamens 4-long and 1-short condition, corolla-tube long, corolla-limb medium *P. axillaris* subsp. *parodii*
- 3(2). Corolla-tube short, corolla-limb large *P. axillaris* subsp. *axillaris*
- 3'. Corolla-tube long, corolla-limb medium *P. axillaris* subsp. *subandina*
- 4(1'). Pedicel in fruiting stage inflexed 5
- 4'. Pedicel in fruiting stage deflexed 6
- 5(4). Corolla-limb small (ca. 20 mm in diameter), base of corolla-tube cylindrical, stigma vertically bilabiate, capsule long ovoid, north-western Argentina (Jujuy, Salta) *P. occidentalis*

- 5'. Corolla-limb medium (30-40 mm in diameter), corolla-tube funnel-shaped, stigma knuckle-shaped, capsule short ovoid, north-eastern Argentina (Formosa, Chaco, Corrientes, Misiones) *P. inflata*
- 6(4'). Interior corolla-tube whitish & completely covered with marked reticulation, stigma vertically bilabiate & situated beside anthers of long stamen *P. guarapuavensis*
- 6'. Interior corolla-tube pale to dark purple & partially covered with obscure reticulation, stigma knuckle-shaped & situated between anthers of long and medium stamens 7
- 7(6'). Interior corolla-tube dark purple, lobe of dehisced anther flat, lateral stem ascendant, densely glandular-pilose *P. integrifolia*
- 7'. Interior corolla-tube pale purple, lobe of dehisced anther channeled, lateral stem prostrate, almost glabrous *P. interior*

BIBLIOGRAFÍA

- Ando, T. & Hashimoto, G. 1995. *Petunia guarapuavensis* (Solanaceae): A new species from planalto of Paraná and Santa Catarina, Brazil. *Brittonia* 47: 328-334.
- & —. 1996. A new Brazilian species of *Petunia* (Solanaceae) from interior Santa Catarina and Rio Grande do Sul, Brazil. *Brittonia* 48: 217-223.
- Maack, R. 1968. As zonas das paisagens naturais, pp. 85-88, in R. Maack (ed.), *Geografia física do estado do Paraná*. Banco de Desenvolvimento do Paraná, Curitiba.