



Physalis victoriana (Solanaceae) a new species from Northern Argentina

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Abstract

A new species of *Physalis* (Solanaceae, Solanoideae) endemic to northern Argentina is described as *Physalis victoriana*. It is an annual herb, with simple and antrorse trichomes, leaves obtuse at base, with undulate and sparsely toothed margins, yellow corolla without macules, and dark green to dark brown berries. Description, illustrations, field pictures, and a distribution map of the new species are included.

Resumen

Se describe una nueva especie de *Physalis* (Solanaceae, Solanoideae) endémica del norte de Argentina, con el nombre de *Physalis victoriana*. Se trata de hierbas anuales, con tricomas simples y antrorsos, hojas con base obtusa, bordes undulados y esparcidamente dentados, corola amarilla sin máculas y bayas verde oscuro a castaño oscuro. Se presenta la descripción, ilustraciones, fotografías de campo y un mapa de distribución de la nueva especie.

Introduction

Physalis Linnaeus (1753: 182) (Solanaceae, Solanoideae, Physalinae) (Olmstead et al. 2008) is an American genus of about 90 species (Martínez 1998). The highest species concentration occurs in Central America and Mexico, followed by the rest of North America and South America, while the only *Physalis* native to Europe is *P. alkekengi* Linnaeus (1753: 183), with some introductions from the Americas due to their edible fruits or as weeds. Mexico has close to 70 species, most of them endemic to that country; 13 species have been cited for almost all South American countries, inhabiting jungles, wet and rural regions (D'Arcy 1973, Waterfall 1958, 1967, Nee 1986, Martínez 1998, 2000, Hunziker 2001, Vargas Ponce et al. 2003). In Argentina, seven species and one subspecies have been cited, most of them from the northern provinces, in the biogeographic regions Paranaense, Yungas, and Chaco (Cabrera & Willink 1980). Other species grow in semiarid environments of the central and southern provinces of Argentina (Toledo & Barboza 2005). This contribution is a part of a larger study of *Physalis* from South America and the Flora of Argentine Project. The first known specimen of *Physalis victoriana* was collected by G. Barboza in Northern Argentina and deposited at CORD (Botanical Museum Herbarium of the National University of Córdoba). The species' description is based in this specimen and also in others collected by the author in the same area.

Physalis victoriana J. M. Toledo *sp. nov.* (Fig. 1, 2)

Similar to *Physalis pubescens* var. *hygrophila* (Martius 1841: 86) Dunal (1852: 446) in the length of calyx and corolla, triangular calyx lobes, and curved floral pedicels, but differing by being not sticky plants, with antrorse simple trichomes, yellow corolla without macules, and glabrous berries (vs. sticky plants with long glandular trichomes, corolla yellow with brown macules, and hairy berries in *P. pubescens* var. *hygrophylla*).

Type:—ARGENTINA. Jujuy. Departamento Santa Bárbara: Santa Clara, 10 km del Fuerte, 24°18'54" S, 64°35'25,5" W, 780 m, "a orilla del camino, escasa, de 80 cm alt., frutos comestibles", 21 April 2012, *J. M. Toledo 1675* (holotype CORD 00006789!, isotype CERNAR!).

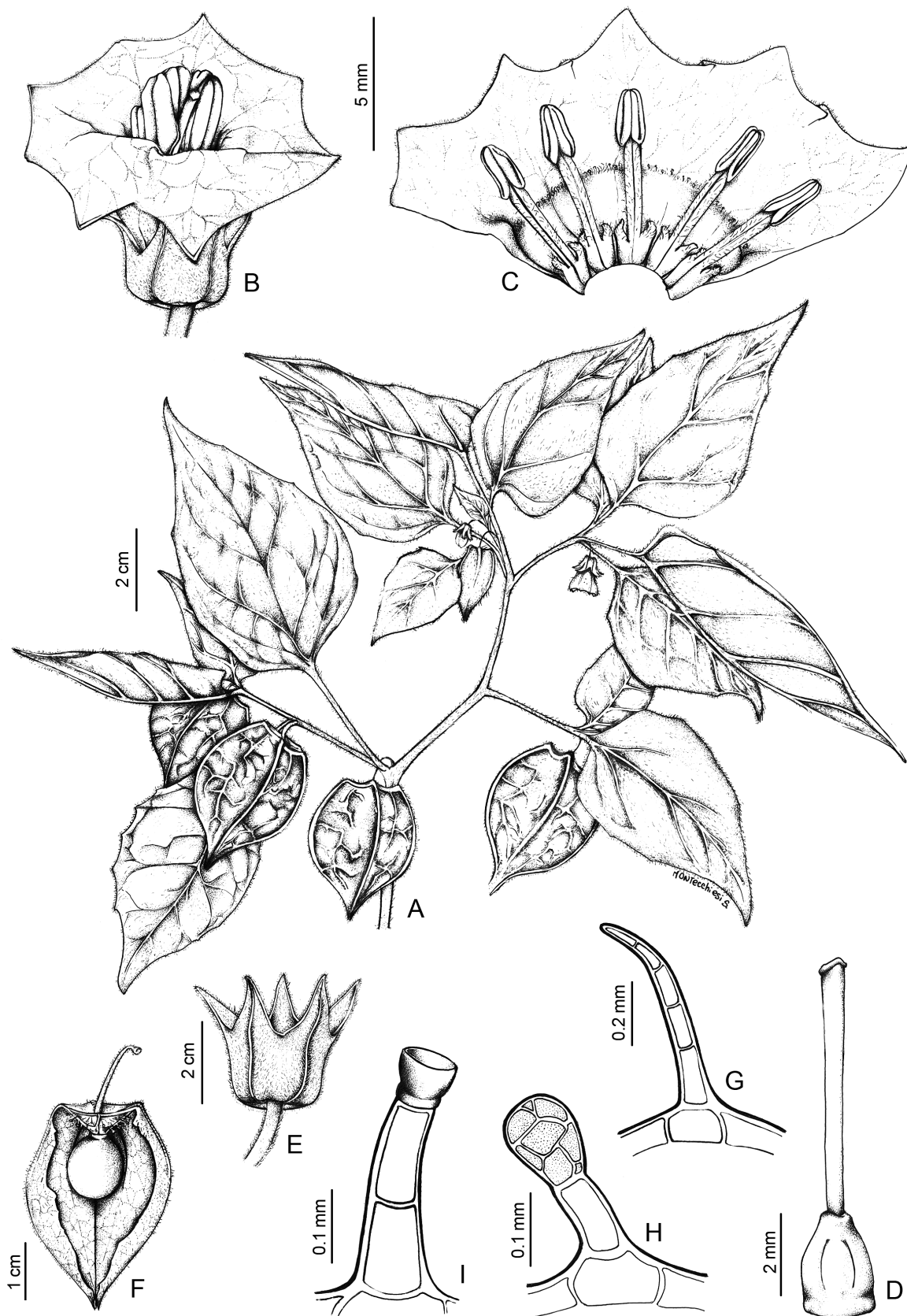


FIGURE 1. *Physalis victoriana*. **A.** Habit. **B.** Flower. **C.** Extended corolla. **D.** Gynoecium. **E.** Flowering calyx. **F.** Berry and open fruiting calyx. **G.** Simple, curved, antrorse trichome. **H.** Glandular short trichome. **I.** Glandular trichome of the inner face of the fruiting calyx. Drawn from *Toledo 1675* by S. Montecchiesi.

Annual erect herbs, 0.20–1 m tall, with abundant simple, curved, antrorse trichomes, 0.7 mm, and scarce glandular short trichomes, 0.4 mm. *Leaves* subtriangular, 3–15 cm × 1.5–10 cm, obtuse at base, apically acuminate, margin entire, undulate to slightly lobed, petioles 2–7 cm. *Pedicels* 5–10 mm. *Calyx* 3–5 mm, half the length of the corolla or shorter, lobes triangular 1–3 mm. *Corolla* 5–12 mm, pale yellow without macules, hairy throat with branched glandular trichomes. *Stamens* 4–8 mm, anthers bluish or greenish blue, 1.5–3 mm, gradually maturing, filaments hairy 2.5–5 mm, stamens hairy. *Gynoecium* 4–7 mm, ovary green 1.5–2 mm, nectary light green, conspicuous, style 2.5–5 mm, stigma slightly capitate. *Fruiting calyx* 5-angled, accrescent, 1.5–4.5 × 1.5–3.5 cm, with simple, curved and antrorse trichomes, 0.5 mm, on the outer surface, glandular trichomes 0.2 mm at the upper portion of the inner surface. *Berry* globose, pendent, glabrous, 7–15 mm in diameter, varying from dark green to dark brown, pericarp sweet without stone cells; fruiting pedicels 10–15 mm. *Seeds* reniform with reticulate epispERM, embryo curved.



FIGURE 2. *Physalis victoriana*. A. Habit. B. Flower and immature fruiting calyx. C. Fruiting branch. D. Mature berry. (by J. M. Toledo)

Vernacular name:—"Tomatillo".

Distribution and habitat:—Endemic to the Tucumano-Oranense ("Yungas") rainforest in northern Argentine (Jujuy Province). It grows near road borders and edges of crop fields, in wet soils few exposed, at 800–900 m elevation (Fig. 3).

Conservation status:—According to IUCN Red list category (IUCN 2010), the new species should be considered Endangered (EN subcriteria D1—very small or restricted population) since its known, up to the moment, from a single population in a specialized habitat.

Phenology:—Flowering and fruiting specimens have been collected during February and April.

Etymology:—The specific epithet is in honor of the author's father, Arnaldo Victoriano Toledo, plants lover, and brother, Victor Hugo Toledo, physician and enthusiastic partner during the collection trips of *Physalis*.

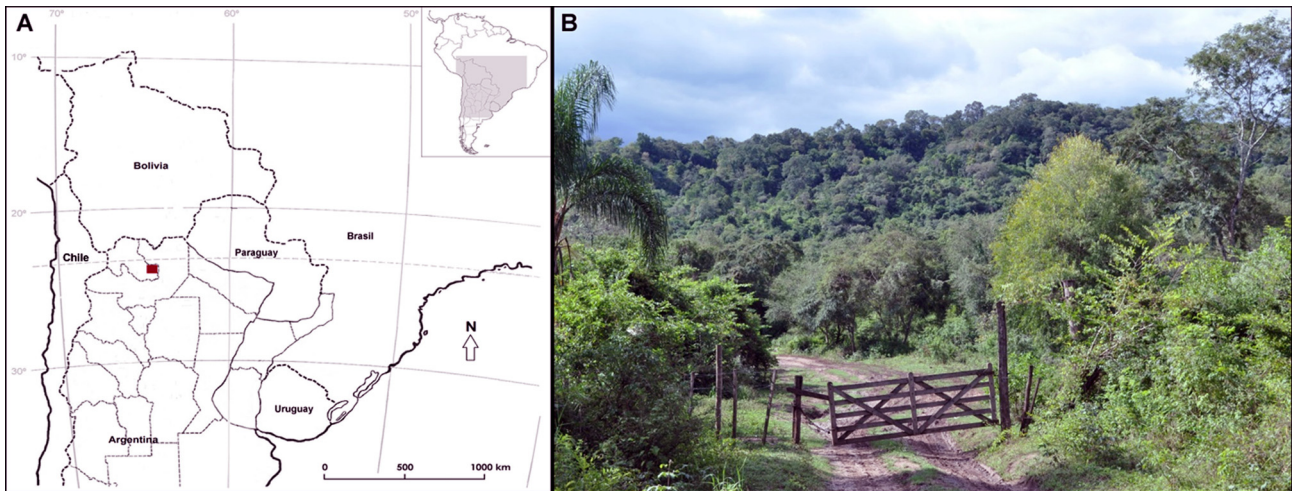


FIGURE 3. *Physalis victoriana*. A. Distribution map. B. Habitat in northwestern Argentina (by J. M. Toledo).

Note:—From herbarium specimens, *Physalis victoriana* can be confused with *P. pruinosa* var. *argentina* J.M.Toledo & Barboza (2005), due to their similar length of fruiting calyx, 5-angled, and green berry.

Additional specimens examined (paratypes):—ARGENTINA. Jujuy. Dpto. Santa Bárbara: camino al Fuerte, a la orilla del camino, en zona boscosa, 24°19'00.3"S, 64°33'09.0"W, 847 m, 15 February 2011, *G. Barboza 3518* (CORD); Santa Clara, a 10 Km del Fuerte, 24°18'54"S, 64°35'25.5" W, 21 April 2012, *J. Toledo 1673* (CORD); 24°18'55.6"S, 64°35'16.3" W, 21 April 2012, *J. Toledo 1674* (CERNAR); 24°18'55.6"S, 64°33'42.5"W, 21 April 2012, *J. Toledo 1677* (CERNAR).

Key to the species of *Physalis* from Northern Argentina related with *P. victoriana*

- 1. Plants glabrous, with hollow stems, corolla with purple macules, fruiting calyx 10-angled *P. angulata* Linnaeus (1753: 183)
- Plants hairy, stems solid, corolla without macules or with brown or green macules, fruiting calyx 5-angled 2
- 2. Calyx and corolla of similar length; calyx lobes lacinate, (2.5)3.5–5.5 mm; corolla white or yellowish with green macules; pedicels geniculate (6)13–25(30) mm, fruiting pedicels 15–33 mm *P. pruinosa* var. *argentina*
- Calyx ½ length of the corolla; calyx lobes triangular (0.75)1–3.5 mm; corolla yellow without macules or with brown macules; pedicels curved 5–12(18) mm, fruiting pedicels 8–15 mm 3
- 3. Plants densely pubescent with long glandular hairs; corolla yellow with brown macules; berries with short hairs *P. pubescens* var. *hygrophilla*
- Plants pubescent with short, antrorse and curved hairs; corolla yellow without macules; berries glabrous *P. victoriana*

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References

Cabrera, A.L. & Willink, A. (1980) *Biogeografía de América Latina*. O.E.A. Serie Monográfica N° 4. Washington D.C. 122 pp.
 D'Arcy, W.G. (1973) Flora of Panamá. Part IX. Solanaceae. *Annals of the Missouri Botanical Garden* 60: 573–780.
<http://dx.doi.org/10.2307/2395139>

- Dunal, M.F. (1852) Solanaceae. In: De Candolle, A.P. (Ed), *Prodromus Systematis Naturalis Regni Vegetabilis*. Victoris Masson, Paris. Vol. 13(1) : 1–690.
- Hunziker, A.T. (2001) *Genera Solanacearum. The genera of Solanaceae illustrated, arranged according to a new system*. A.R.G. Gantner Verlag K-G., Ruggell. 500 pp.
- IUCN (2010) The IUCN red list of threatened species, version 2010.4. IUCN Red List Unit, Cambridge U.K. Available at: <http://www.iucnredlist.org/> (accessed: 20 Jan 2012).
- Linnaeus, C. (1753) *Species plantarum*. Impresis Laurentii Salvii, Holmiae. 1200 pp.
- Martínez, M. (1998) Revision of *Physalis* section *Epeteiorhiza* (Solanaceae). *Anales del instituto de Biología de la Universidad Nacional de México, serie Botánica* 69: 71–117.
- Martínez, M. (2000) Infrageneric Taxonomy of *Physalis*. In: Nee, M., Symon, D.E., Lester, R.N & Jessop, J.P. (Eds.): *Solanaceae IV: Advances in Biology and Utilization*. 275–283 pp. Royal Botanic Gardens, Kew.
- Martius, C.F.P. (1841) Inest: de Martius, Herbarium Florae brasiliensis (Continuatio). *Flora* 24(2, Beibl.): 1–112.
- Nee, M. (1986) Solanaceae I [*Physalis*]. In Gómez-Pompa, A. (ed.), *Flora de Veracruz* 49: 138–170. Instituto Nacional de Investigaciones sobre Recursos Bióticos, Xalapa.
- Olmstead, R.G., Bohs, L., Migid, H.A., Valentin, E.S., Garcia V.F. & Collier S.M. (2008) A molecular phylogeny of the Solanaceae. *Taxon* 57: 1159–1181
- Toledo, J.M. & Barboza, G. E. (2005) Novedades en *Physalis* (Solanaceae). *Kurtziana* 31: 69–85.
- Vargas Ponce, O., Martínez y Díaz, M. & Dávila Aranda, P. (2003) *La familia Solanaceae en Jalisco. El género Physalis*. Universidad de Guadalajara, Jalisco. 127 pp.
- Waterfall, U.T. (1958) A taxonomic study of *Physalis* in North America North of Mexico. *Rhodora* 60: 107–114; 128–142; 152–173.
- Waterfall, U.T. (1967) *Physalis* in Mexico, Central America and the West Indies. *Rhodora* 69: 82–120.