

Begonia pachypoda L. Kollmann & Peixoto (Begoniaceae), a new species from Brazil currently known in cultivation as Begonia leathermaniae O'Reilly & Kareg.

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Abstract

KOLLMANN, L. J. C. & A. L. PEIXOTO (2013). *Begonia pachypoda* L. Kollmann & Peixoto (Begoniaceae), a new species from Brazil currently known in cultivation as *Begonia leathermaniae* O'Reilly & Kareg. *Candollea* 68: 93-97. In English, English and French abstracts.

Begonia pachypoda L. Kollmann & Peixoto (*Begoniaceae*), a new species known only from Alegre in the Atlantic Forest of the state of Espírito Santo in Brazil, is described. We established that it is currently cultivated and misidentified under the name *Begonia leathermaniae* O'Reilly & Kareg. Description, illustration and comments about geographic distribution of this new species are provided. It is morphologically related to *Begonia aconitifolia* A. DC. and *Begonia platanifolia* Schott. The name *Begonia leathermaniae* must be used only for another species from Bolivia.

Key-words

BEGONIACEAE – *Begonia* – Brazil – Bolivia – Taxonomy

Résumé

KOLLMANN, L. J. C. & A. L. PEIXOTO (2013). *Begonia pachypoda* L. Kollmann & Peixoto (Begoniaceae), une nouvelle espèce du Brésil actuellement connue en culture comme *Begonia leathermaniae* O'Reilly & Kareg. *Candollea* 68: 93-97. En anglais, résumés anglais et français.

Begonia pachypoda L. Kollmann & Peixoto (*Begoniaceae*), une nouvelle espèce connue seulement de la municipalité d'Alegre, dans la Forêt Atlantique de l'Etat de l'Espírito Santo au Brésil, est décrite. Nous avons établi qu'elle est actuellement présente en culture et incorrectement identifiée sous le nom de *Begonia leathermaniae* O'Reilly & Kareg. La description, une illustration et des commentaires sur la distribution géographique de cette nouvelle espèce sont fournis. Elle est morphologiquement proche de *Begonia aconitifolia* A. DC. et *Begonia platanifolia* Schott. Le nom *Begonia leathermaniae* ne doit être utilisé que pour une autre espèce originaire de Bolivie.

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Begonia L. (*Begoniaceae*) is a pantropical genus of that includes approximately 1400 named species, divided among 63 sections. Approximately 215 species, distributed in 13 sections, occur in Brazil, mostly native to the Atlantic Forest. In Bolivia approximately 30 species, divided in 10 sections are registered (SMITH & al., 1986; DOORENBOS & al., 1998; GOLDING & WASSHAUSEN, 2002).

While undertaking fieldwork in the South of the Espírito Santo state, a striking species of *Begonia* was identified. We established that it was similar to material known in cultivation among growers in U.S.A. under the name *Begonia leathermaniae*. In 1954, seeds of a *Begonia* species had been sent by Oswaldo Handro from the Botanical Garden of São Paulo to Sylvia Leatherman, Los Angeles, California, USA. For several years it was thought that this plant was *B. platanifolia*. However, *B. platanifolia* does not have a ring of trichomes at the apex of the petiole. After examining the type of *B. platanifolia* var. *acuminatissima* at the New York Botanical Garden, from Cochabamba, Bolivia, Thelma O'Reilly and Carrie Karegeannes noted the ring of trichomes present at the apex of the petiole and concluded that this was the same as their plant and described it as a new species (O'REILLY & KAREGEANNES, 1983). Unaware of the provenance of Dr Handro's *Begonia* seeds, Thelma O'Reilly and Carrie Karegeannes wrote that the region of the type is not far from the border with Brazil was found. Analysis of material found in nature, in southern Espírito Santo and comparison with live and dried specimens in cultivation in Europe or in the USA and specimens collected in Bolivia led to the conclusion that the Brazilian material must be recognized as a new species, that is described here, and that the Bolivian specimens belongs to *B. leathermaniae*.

1. *Begonia pachypoda* L. Kollmann & Peixoto, *spec. nova* (Fig. 1).

Typus: BRAZIL. Espírito Santo: Alegre, Pedra Severina base, 300 m, 20°40'19"S 41°28'35"O, 16.VI.2009, fl., fr., L. Kollmann, E. Leme & D. Couto 11670 (holo-: MBML; iso-: RB, US, P).

Begonia pachypoda is closely related to *B. aconitifolia* and *B. platanifolia* in its swollen stem base, flower size (3.4-6.5 cm diam.), two placentae per locule and ovules on both sides of placentae, but can be distinguished by a ring of trichomes at the petiole apex, lamina deeply 4-5 lobed, each lobe usually further divided and cut.

Suffrutescent herbs 1.5-2 m tall, saxicolous to rupicolous, glands and simple trichomes. Stems swollen at base, 10-20 × 5-10 cm, brown, internodes 1.2-9(-20) cm long, green, brown when old. Stipules deciduous, 2.4-3.7 × 1-1.7 cm, greenish to reddish, translucent, asymmetrical, slightly falcate, lenticellate, apex mucronate, margins entire, abaxial face carinate, nerves brownish to reddish. Petioles 5-15.5 ×

0.8 cm, red, lenticellate, glabrous with a ring of white, dense, thick, trichomes ca. 1 cm long at the apex. Laminae 18-23.5 × 21-37 cm, asymmetrical, palmatifid, deeply 4-5 lobed, each lobe usually further divided and cut, transversely ovate, base cordate, apex acute, margins serrulate, ciliate, venation actinodromous, 4-6 veins at base, red, the midvein making an angle with the petiole, prominent abaxially, adaxial face setose, green, with shining silver-streak near the veins when in shade, abaxial face glabrous, with crystal-like glands, stomata solitary. Inflorescences with 2-3-dichotomous cymes, 4.5-6 cm long, red, glandular; bracts deciduous, 0.7-1.3 × 0.6-0.9 cm, greenish with red veins, translucent, ovate to obovate, apex acute, glabrous. Flowers fragrant, occasionally closed up at night. Staminate flowers with pedicels 2.5-3.6(-4.5) cm long, reddish, glabrous; sepals 2, 2.4-2.6(-3.2) × 2-2.3(-3.1) cm, white-pinkish with green margins at base, ovate, base rounded, apex acute to obtuse, margins serrulate; petals 2, 1.8-2(-2.7) × 0.6-0.65(-1.1) cm, white-pinkish, elliptical, base cuneate, apex obtuse, margins entire; stamens 49-52, yellow, filaments 2-2.5 mm long, anthers ca. 2 mm long, obovate, connective not projecting, rimose, apex obtuse to rounded. Pistillate flowers with pedicels 2-2.4 cm long, red, glabrous to glandular; sepals 2, 1.9-2.8 × 1.5-2 cm, white-pinkish, ovate, apex acute, margins serrulate; petals 3, 1.5-2.5 × 0.7-1.4 cm, white-pinkish, unequal, elliptic to obovate or falcate, apex acute, margins serrulate; ovary 3-locular, placentation axile, two placentae per locule, ovules on both sides of placentae; styles 3, ca. 3.7 mm long, yellow, united at base, each bifurcate, branches flattened, each kidney-shaped with a band of marginal stigmatic papillae. Capsules 1.65-2.5 × 0.9-1.5 cm, basally dehiscent, wings 3, rounded, larger one 2-3 × 2-2.5 cm, smaller two 1.9-3 × 0.5-0.7 cm. Seeds 0.3-0.4 × 0.25 mm, cylindrical, apex obtuse to rounded.

Habitat, distribution and phenology. – *Begonia pachypoda* grows in leaf litter and humus on rocks in dry forests of the Atlantic Forest (seasonally semideciduous forests) at ca. 250 m. It is also found on open rocky outcrops. It is presently known only from the type locality in Alegre County in the state of Espírito Santo, Brazil. The type locality is very disturbed by anthropic activities from cattle farming. Flowers were observed from December to June; fruits from June to September.

Etymology. – The specific epithet derives from the latin «pachy» (thick) and «poda» (foot) in reference to the swollen stem base.

Conservation status. – Due to the apparent endemic distribution of *B. pachypoda*, with extent of occurrence estimated to be less than 10 km², it would seem prudent to include this species on the Critically Endangered (CR) (B2ab(iii)) list according to the IUCN (2001).

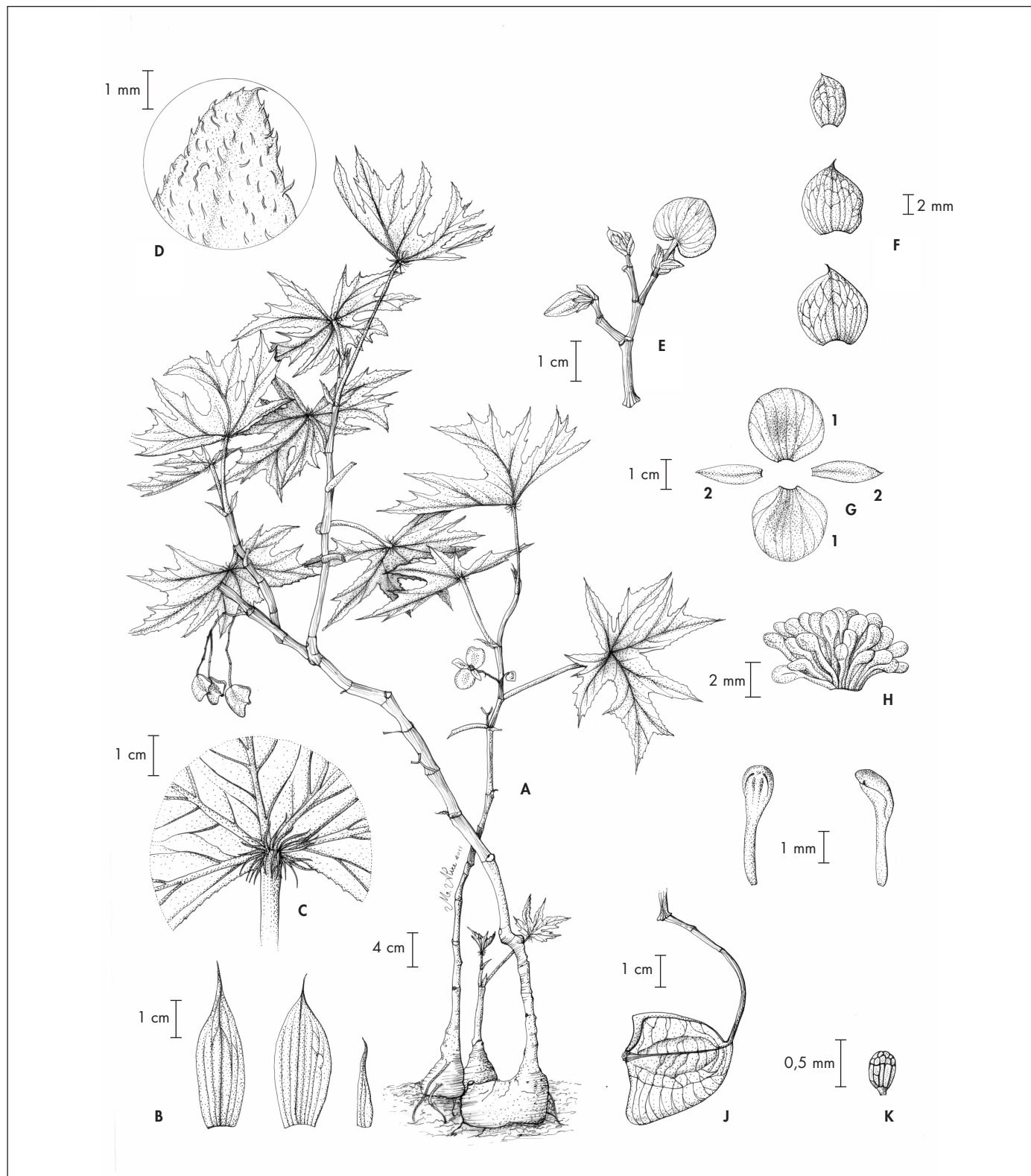


Fig. 1. – *Begonia pachypoda* L. Kollmann & Peixoto. **A.** Habit; **B.** Stipule flattened; **C.** Details of the tricomes ring; **D.** Apex of the leaf; **E.** Inflorescence; **F.** Bracts flattened; **G.** Staminate flower, 1 sepals, 2 petals; **H.** Stamens; **I.** Stamen, front view (left); lateral view (right); **J.** Fruit; **K.** Seed.

[L. Kollmann & al. 11670, MBML] [Drawn by M. A. Rezende]

Paratypes. – **BRAZIL. Espírito Santo:** Alegre, São João do Norte, base da Pedra Severina, 26.VI.2008, fr., *L. Kollmann 11069* (MBML); Alegre, São João do Norte, base da Pedra Severina, 10.VI.2009, fl., *V. C. Manhães & al. 230* (MBML).

Additional material examined. – **Cultivated material:** plant grown from seed sent from Brazil by Dr. Handro and received by Sylvia Leatherman in 1957, cult. Marge Lee, San Diego, *O'Reilly 22* (private herbarium of Kolz Begonia Research Center, duplicate US 2953909 and US 2953910, not seen).

Taxonomical notes. – *Begonia pachypoda* is part of sect. *Knesbeckia* (Klotzsch) A. DC. characterized by their two placentae per locule and ovules on both sides of placentae, anthers obovate and shorter than or rarely about as long as the filaments.

Begonia pachypoda resembles *B. aconitifolia* A. DC. and *B. platanifolia* Schott. in its swollen stem base, flower size (3.4–6.5 cm diam.), two placentae per locule with ovules on both sides of the placentae. Nevertheless, it can be distinguished from *B. platanifolia* by the new growth sprouting on the caudex (vs. growth sprouting beside the base of the caudex), lamina with 4–5 deeply divided lobes, each lobe usually further divided and cut (lobes note deeply 4–5 divided with each lobe usually further divided and cut) and with a ring of trichomes at the petiole apex (petiole without a ring of trichomes). It can be distinguished from *B. aconitifolia* by the staminate flower with 2 petals (vs. without petals) and a ring of trichomes on the petiole apex (vs. petiole without a ring of trichomes) (Table 1).

Begonia pachypoda resembles *B. leathermaniae* O'Reilly & Kareg. by its palmate leaves, ring of trichomes at the petiole apex, and flower size, but it can be distinguished by its suffrutescent habit (vs. rhizomatous), swollen stem base (vs. non-swollen stem base), leaves straight (vs. oblique), shorter inflorescences (4.5–6 vs. 40–50 cm long), and larger capsule wing (2 × 1.4 vs. 0.8–1.6 × 2.9–3.3 cm) (Table 1).

Begonia pachypoda is a very singular species that can be distinguished by the caudex at the base of the stem, which can be large, ca. 20 × 10 cm, with new growth generally sprouting on it. *B. aconitifolia* and *B. platanifolia* have a swollen stem base, 4–6 cm diam., and growth sprouting beside the stem base, forming a new swollen stem base every year. The leaves of *B. pachypoda* are green with a shiny silvery white streak along the nerves due to muricate cells where the upper side of the upper epidermis is flattened, reflecting light and causing shiny-streaked areas. When the plant is in a sunlit place the leaf is green, and when it is in a shady place the leaves have the silvery white streak.

The plant is dormant during the dry season, in winter, and sheds its leaves. The inflorescence is short with few, large, white flowers. The flowers have the fragrance of «sweet violet» (*Viola odorata* L.) and occasionally close at night, which is rare in begonia flowers.

2. *Begonia leathermaniae* O'Reilly & Kareg. in *Begonian* 50: 146. 1983.

Typus: BOLIVIA. Santa Rosa: 2000 m, 1-4.IV.1892, *O. Kuntze s.n.* (holo-: NY [118642]; iso-: B [20884]) = *Begonia platanifolia* var. *acuminatissima* Kuntze, *Revis. Gen. Pl.* 3(2): 106. 1898.

Additional specimens examined. – **BOLIVIA. Santa Cruz:** Florida prov., 7 km (by air) NE of Mairana, cloud forest along southern limit of expanded Parque Nacional Ambaró, entering from Mairana, 2200 m, 2.VI.1991, *M. Nee 40641* (US); prov. Caballero, along road from Cochabamba to Comarapa, 3 km E of turnoff to Karahuasi. Humid montane cloud forest, 2250 m, 16.IV.2002, *M. Nee & al. 52161* (US). **Cochabamba:** prov. Carrasco, 28 km al noroeste de Camarapa por el camino entre Santa Cruz y Cochabamba (20 km en línea recta al noroeste de Camarapa), bosque nuboso com Weinmannia, Solanum y helechos arboreas, 10.II.1987, *J. C. Solomon & M. Nee 15998* (US).

Table 1. – Morphological comparison of *Begonia pachypoda* L. Kollmann & Peixoto and its closest relatives: *B. leathermaniae* O'Reilly & Kareg., *B. platanifolia* Schott. and *B. aconitifolia* A. DC.

| | <i>B. pachypoda</i> | <i>B. leathermaniae</i> | <i>B. platanifolia</i> | <i>B. aconitifolia</i> |
|--|---------------------|-------------------------|------------------------|------------------------|
| Habit | suffrutescent | rhizomatous | suffrutescent | suffrutescent |
| Stem base | swollen | non-swollen | swollen | swollen |
| Ring of trichomes at the petiole apex | present | present | absent | absent |
| Leaves | oblique | straight | oblique | oblique |
| Inflorescence [cm] | 4.5–6 | 40–50 | 8–15 | 5–15 |
| Staminate flower petals | 2 | 2 | 2 | 0 |
| Capsule wing [cm] | 2 × 1.4 | 0.8–1.6 × 2.9–3.3 | 1.5–2 × 0.7–1.5 | 1.7–2.3 × 0.9–2 |
| Country | Brazil | Bolivia | Brazil | Brazil |

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References

- DOORENBOS, J., M. S. M. SOSEF & J. J. F. E. DE WILDE (1998). The sections of *Begonia* including descriptions, keys and species lists. Studies in Begoniaceae VI. *Wageningen Agric. Univ. Pap.* 98(2).
- GOLDING, J. & D. C. WASSHAUSEN (2002). Begoniaceae, Edition 2. Part I: Annotated Species List. Part II Illustrated Key, Abridgment and Supplement. *Contr. U.S. Natl. Herb.* 43.
- IUCN (2001). *IUCN Red List Categories and Criteria: Version 3.1. IUCN Species Survival Commission*. IUCN, Gland, Switzerland, and Cambridge, United Kingdom.
- O'REILLY, T. & C. KAREGEANNES (1983). *Begonia leathermaniae* a new Bolivian species. *Begonian* 50: 144-146.
- SMITH, L. B., D. C. WASSHAUSEN, J. GOLDING & C. E. KAREGEANNES (1986). Begoniaceae. Part I: Illustrated key. Part II: Annotated Species List. *Smithsonian Contr. Bot.* 60: 1-5.