

## NEW SPECIES OF THE GENUS *ALTENSTEINIA* (ORCHIDACEAE, SPIRANTHOIDEAE) FROM COLOMBIA

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**Abstract.** A new species of *Altensteinia* Kunth, probably endemic to the Colombian Andes, is described, illustrated and discussed, with notes on its habitat and altitude. A dichotomous key for determination of *Altensteinia* species in Colombia is provided.

**Key words:** *Aa*, Andes, *Myrosmodes*, new species, taxonomy

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### INTRODUCTION

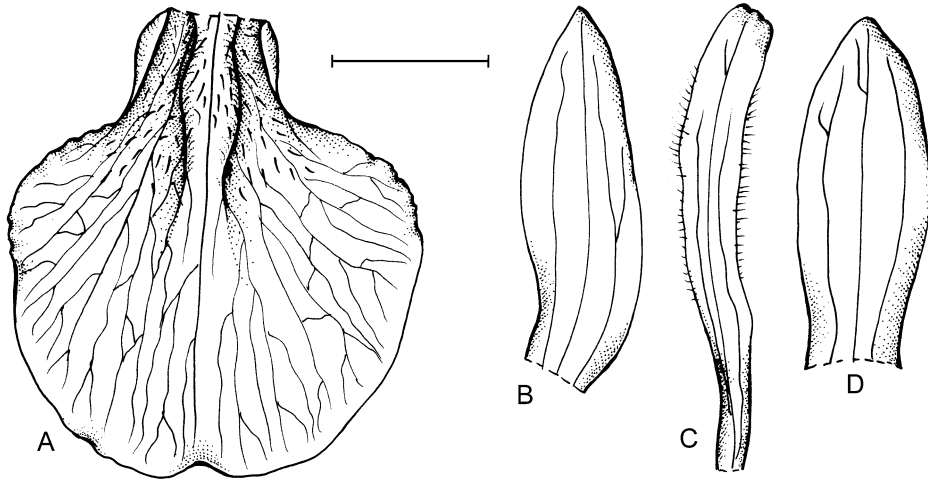
The orchid genus *Altensteinia* was described by Kunth in 1816. *Aa* Rchb. f. and *Myrosmodes* Rchb. f., were proposed by Reichenbach in 1854. Twenty-four years later, Reichenbach (1878) combined all three genera under the priority name *Altensteinia*. *Aa* was revalidated by Schlechter (1912). Later taxonomists classified the three genera differently. For example, Schweinfurth (1958) recognized only *Altensteinia* as a good genus but Garay (1978) kept all three genera separate. Molecular analyses by Álvarez-Molina and Cameron (2009) indicate that *Altensteinia* is closely related to both *Aa* and *Myrosmodes*; hence the unclear classification of those three genera, as well seen in Pridgeon *et al.* (2003) where *Altensteinia* is illustrated by *A. matthewsii* Rchb. f., a species possessing all characters of *Aa*. In this paper we follow the generic concept of the three taxa proposed by Garay (1978).

The species of *Altensteinia* are caespitose plants with clusters of long fibrous roots. The stem is erect, usually robust, and enclathed with herbaceous sheaths, the lower 1 or 2 of which are often leafy. The leaves are gathered in a conspicuous basal rosette; the blade is shortly petiolate to sessile, ovate to narrowly ligulate, with an acute to

acuminate apex. The inflorescence is terminal, erect and racemose, with many nonresupinate flowers. The rachis is glabrous or sometimes pubescent. The herbaceous floral bracts are prominent and as long as or shorter than the ovary. The flowers usually are greenish, yellowish, or intermediate between green and yellow. The sepals are dissimilar and free, spreading or reflexed, with a pubescent external surface. The petals are linear, free and reflexed, longer and distinctly narrower than the sepals. The lip is concave, flaring to galeate in shape, with a cuneate sessile or clawed base. The column part is obscure and footless. The anther is erect, oblong and dorsiventrally compressed, with two parallel chambers. The soft and powdery pollinia are two but bipartite, oblong to narrowly ovoid. Caudiculae are absent. A distinct dorsal clinandrium is formed by staminodes. The stigma is large, flat and three-lobed, confluent, and elliptic to oval. The rostellum is truncate or rounded, the viscidium single, detachable, cellular and multi-layered, and elliptic to crescent-like (Szlachetko & Rutkowski 2000).

*Altensteinia* is a geophyte genus with *ca* 10 species native to the Andes of South America. All species of the genus grow as terrestrials, generally on steep rocky and mossy slopes, grassy slopes, damp meadows, thickets and along roadsides,

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**Fig. 1.** *Altensteinia cundinamarcae* S. Nowak, Szlach. & Mytnik, *sp. nov.* A – lip, B – lateral sepal, C – petal, D – dorsal sepal. Drawn by J. Mytnik-Ejmont from holotype. Scale bar = 5 mm.

usually in full sun or semishade at higher altitudes above 1800 m a.s.l. (Pridgeon *et al.* 2003).

During an examination of herbarium materials of spirantheid orchids housed in Colombian herbaria (COL, FMB; acronyms of herbaria follow Thiers 2014) we came across materials of *Altensteinia* which did not fit the descriptions of any species known so far. Here we describe it as a new species. We examined specimens (including types) of other species of *Altensteinia* occurring in Colombia in the Royal Botanic Gardens, Kew (K), Naturhistorisches Museum Wien (W), Muséum National d'Histoire Naturelle in Paris (P), Real Jardín Botánico in Madrid (MA), Missouri Botanical Garden (MO), and Biozentrum Klein-Flottbek in Hamburg (HBG).

#### DESCRIPTION OF THE NEW SPECIES

*Altensteinia cundinamarcae* S. Nowak, Szlach. & Mytnik, *sp. nov.* Fig. 1

*Altensteinia cundinamarcae* is unusual among all other species of the genus in having a suborbicular-quadrate lip with entire margins. Unlike the closely related *A. virescens* Lindl., the new entity has linear-falcate, truncate petals, and floral bracts with glandular margins.

TYPE: COLOMBIA, Cundinamarca, Bogota, Loc. 5, Usme, sector del Embalse de Chisaca, Vereda El Hato, alt. 3000–3200 m, 4°20'N, 74°15'W, 18 Aug. 2005, Y. Figueroa C. & L. Pinzon 656 (HOLOTYPE: COL; ISOTYPE: FMB).

Plants 30–42 cm tall, erect, stout, almost glabrous, below and within inflorescence sparsely glandular. Leaves 6, 5 lower gathered in basal rosette, the upper one cauline; up to 18 cm long and 2.5 cm wide, oblong-lanceolate to linear-lanceolate, acute. Above the uppermost leaf 4 cauline bracts. Inflorescence 10–12 cm long, loosely several-flowered. Flowers medium-sized, non-resupinate. Floral bracts 13–15 mm long, ovate, acute, glandular-ciliate along margins only. Ovary 10–12 mm long, sessile, densely glandular. Sepals densely glandular on outer surface exteriorly. Dorsal sepal 10–12 mm long, 4.0–4.5 mm wide, ligulate to oblong-lanceolate, obtuse, slightly concave in center, 3-nerved. Petals *ca* 15 mm long, 2 mm wide, linear-ligulate, truncate at apex, sigmoid, margins densely ciliate above base and below apex, nerves 3. Lateral sepals 12–14 mm long, 4.5 mm wide, oblong-lanceolate to ligulate-lanceolate, falcate above base, subobtusate, 3-nerved. Lip 15–17 mm long in total, slightly thickened in center; claw 3 mm long and wide, densely pubescent on inner surface, with no auricles; lamina up to 13 mm long

and 17 mm wide, quadrate-suborbicular, concave in center, margins entire, apex slightly incised. Gynostemium up to 6 mm long, typical for the genus.

**ETYMOLOGY.** In reference to the place of origin of the original material, Cundinamarca Department in Colombia.

**DISTRIBUTION.** Known only from the type locality.

**NOTES.** *Altensteinia cundinamarcae* undoubtedly is related to *A. virescens* Lindl., from which it differs by several features, the most striking of which is lip morphology. Unlike all other members of *Altensteinia*, in *A. cundinamarcae* and *A. virescens* the lip margins are not fimbriate, making them easily separable. The lip margin of the new entity is entire, whereas in *A. virescens* it is finely erose. Additionally, the lip of *A. cundinamarcae* is quadrate-suborbicular, densely pubescent on the inner surface, and without any basal auricles. The lip of *A. virescens* is spatulate, glabrous on the inner surface, and with prominent auricles at the base of the claw. The petals of *A. cundinamarcae* are apically truncate and the floral bracts are glandular along the margins. The petals of *A. virescens* are acute and the floral bracts are glabrous.

The newly proposed species was collected in Colombia near the Bogota suburbs, a few kilometers north of Sumapaz National Park. The small population of plants representing the new species grows at high altitude above the tree line in the Sumapaz Páramo region, which is famous for having the most diverse flora of the Eastern Cordillera; it is also the world's largest páramo ecosystem, with a substantial number of endemic taxa (Cleef 1981; Davis *et al.* 1997), designated, along with the Andes mountains, as a tropical Andes biodiversity hotspot (Myers 1988; Myers *et al.* 2000; Mittermeier *et al.* 2004). The tropical Andes and the Sumapaz Páramo region are seriously endangered by logging, unsustainable agriculture, burning and cattle-grazing on the páramo (Davis *et al.* 1997; Mittermeier *et al.* 2004).

#### KEY TO THE COLOMBIAN SPECIES OF *ALTENSTEINIA*

1. Lip margin fimbriate . . . . . 2
- 1\* Lip margin erose or entire. . . . . 3
  2. Petals obtuse, with ciliolate margins; floral bracts pubescent . . . . . *A. fimbriata* Kunth
  - 2\* Petals truncate, with denticulate margins; floral bracts sparsely glandular . . . . . *A. sceptrum* Rchb. f.
3. Petals acute; floral bracts glabrous . . . . . *A. virescens* Lindl.
- 3\* Petals truncate; floral bracts glandular along margins . . . . . *A. cundinamarcae* S. Nowak, Szlach. & Mytnik

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