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# *Sarcoglottis caudata* (Orchidaceae) and *Vellozia kolbekii* (Velloziaceae), Two New Species from Minas Gerais, Brazil

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**ABSTRACT.** During a vegetation survey of the São Jose mountain range in Minas Gerais, Brazil, the species *Sarcoglottis caudata* (Orchidaceae) and *Vellozia kolbekii* (Velloziaceae) were discovered; they are here described as new to science.

***Sarcoglottis caudata*** R. J. V. Alves, sp. nov.

TYPE: Brazil. Minas Gerais: Tiradentes, Serra de São Jose D'El Rei, summits of quartzite tabular mountains, 1,200 m, Oct. 1989, R. J. V. Alves 959 (holotype, RB). Figure 1.

Planta *S. rupestris* Barb. Rodr. var. *parviflorae* Cogn. aliquanto proxima sed apice labelli caudato, sepalo intermedio ad apicem inciso, petalis basi ad sepalum intermedium connatis differt.

Geophyte, 6–8 cm tall, green herb with 1 to 3 flowers, leafless when flowering (September). Leaves unknown. Bracts linearly lanceolate, 1 cm long, 3 mm wide at base, only at base of flowers. Flowers erect, 2 cm long, externally sparsely hairy, green. Lateral sepals 10 mm long, connate to about ¼ of basal length, basally continuous with the ovary, asymmetrically linear. Dorsal sepal 9 mm long, 3 mm wide, lanceolate, caudate with incise apex, basally adnate to petals; petals 6 mm long, 1 mm wide, linearly asymmetric, apex rounded; labellum white, base widely sagittate, apex long-caudate. Labellum basally rhombic, apically caudate, 7 mm long, 3 mm wide, with undivided venation consisting of 3 main veins, 2 pairs of thinner, lateral veins that form a loop with the lamina (apically connected, Fig. 1). Column ca. 2 mm long, sulcate. Anther cap membranous. Rostellum rhombic, 1 mm long.

**Habitat.** Grows in white quartzitic sand deposits on slopes and summits of tabular mountains, in areas where the accumulated rainwater upwells from a shallow layer of sand lying directly on the bedrock or hardpan. The substrate is alternately wet (summer) and dry (winter).

**Distribution.** Known only from the São Jose D'El Rei range, Tiradentes, Minas Gerais, Brazil.

The unique labellum shape indicates that *Sarcoglottis caudata* forms a new subgroup in the genus. It is similar to *S. rupestris* var. *parviflora*

in habit and habitat. Pabst & Dungs (1975, 1977) recognized 29 species of *Sarcoglottis* K. B. Presl from Brazil, of which *S. aphylla* (Ridley) Schltr., *S. cogniauxiana* (Barb. Rodr.) Schltr., *S. neuoptera* (Reichb. f. & Warming) Schltr. and *S. rupestris* Barb. Rodr. are from Minas Gerais. Somewhat earlier, Hoehne (1945) stated that the above species are so closely allied that they should be joined into one. According to the present data, *S. caudata* is known only from the São Jose range, while the type of *S. rupestris* var. *parviflora* was found in the vicinity of São João D'El Rei.

More new species of *Sarcoglottis* can be expected from the isolated campo rupestre ranges of Minas Gerais. Most of the described species are endemic to small ranges, and some are only known from type collections.

***Vellozia kolbekii*** R. J. V. Alves, sp. nov. TYPE:

Brazil. Minas Gerais: Tiradentes, Serra de São Jose D'El Rei, 1,200 m, 22 Oct. 1989, R. J. V. Alves 852 (holotype, SPF; phototype, NHB). Figures 2, 3.

*Velloziae brachypodae* Lyman B. Smith & Ayensu proxima sed caudice multo longiore, tepalis longioribus, ovario obscure trigonaliter que tereti, staminibus paucioribus, foliis capsulaque glabris differt.

Heliophyllous phanerophyte. Caudex sparingly branched, usually 150 cm tall (rarely over 300 cm), erect, 5–15 cm diam. including the golden-yellow, persistent leaf sheaths. Leaves ca. 8 to 10 produced in each season, ca. 12 live and 65 dry in each rosette, 33 cm long (without the sheaths), base 14 mm wide, blades parchmentlike, narrowly triangular, attenuate, glabrous except for the finely setose-serrulate margins; venation of lamina consists of median vein with 27 congruent secondary veins on either side; scapes subterminal, 3–8 per rosette, pedicel ca. 9 cm long, 3 mm diam., cylindric, curved so that the flowers are naturally in horizontal position, reaching about ¼ length of the leaves, glabrous at the base, slightly verrucose under the ovary (i.e., subapically). Ovary smooth, glabrous, in fresh flowers 7 mm diam., 12 mm long, cylindric to fusiform;

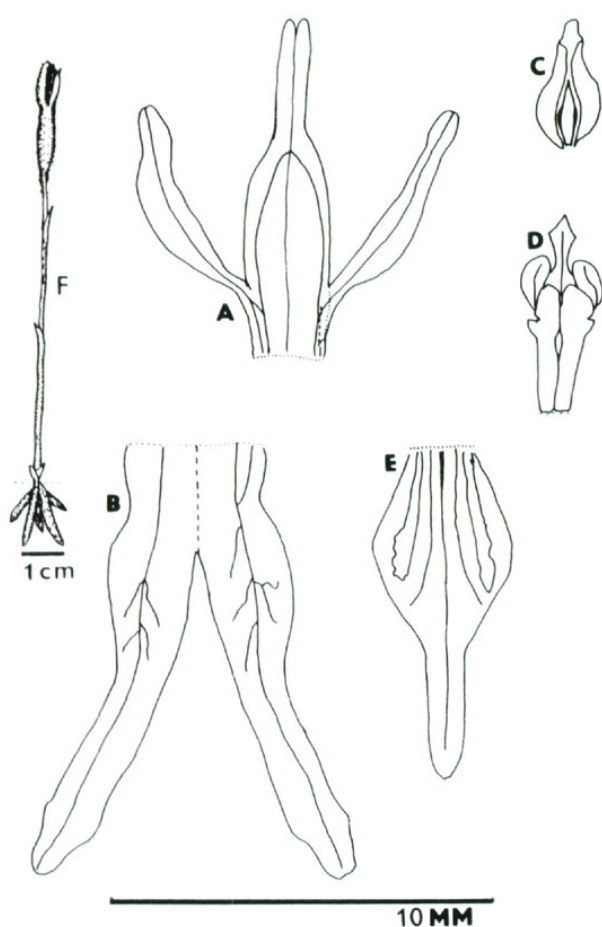


Figure 1. *Sarcoglottis caudata* R. J. V. Alves. —A. Dorsal sepal with attached petals. —B. Fused lateral sepals. —C. Anther cap. —D. Column with rostellum. —E. Labellum. —F. Habit.

capsule terete, bluntly trigonal with slightly sulcate facets when green, apically constricted with a broad crown and smooth when dry. Perigonium deep light purple, anthers and stigma sulphury yellow, ovary greenish to magenta, live parts covered with sticky substance. Only flowering specimen seen. Epigynous tube subcylindric, 4 mm high; tepals free except for a slight basal connation (1 to 2 mm), violet-blue, basally grading to white, 4 cm long, tepals of the inner whorl obovate-lanceolate with slightly constricted apex, 3 main undivided and 8 lateral veins; outer tepals broader, widely lanceolate, apical apicule less pronounced, 3 central and 5 lateral veins; stamens in groups of 5 to 6, bases of filaments connate in these groups, on base of tepals; stamens in observed specimen 32, slightly less than  $\frac{1}{2}$  the length of the tepals; anthers linear-cylindric, 1 mm diam., 19 mm long; filaments 10 mm long, less than  $\frac{1}{2}$  diam. of anthers, white; style 24 mm long, 1 mm diam., stigma 3-lobed, lobes suborbicular to reniform. Dorsiventral transverse section of lamina (data from boiled herbarium specimen): no hairs observed,

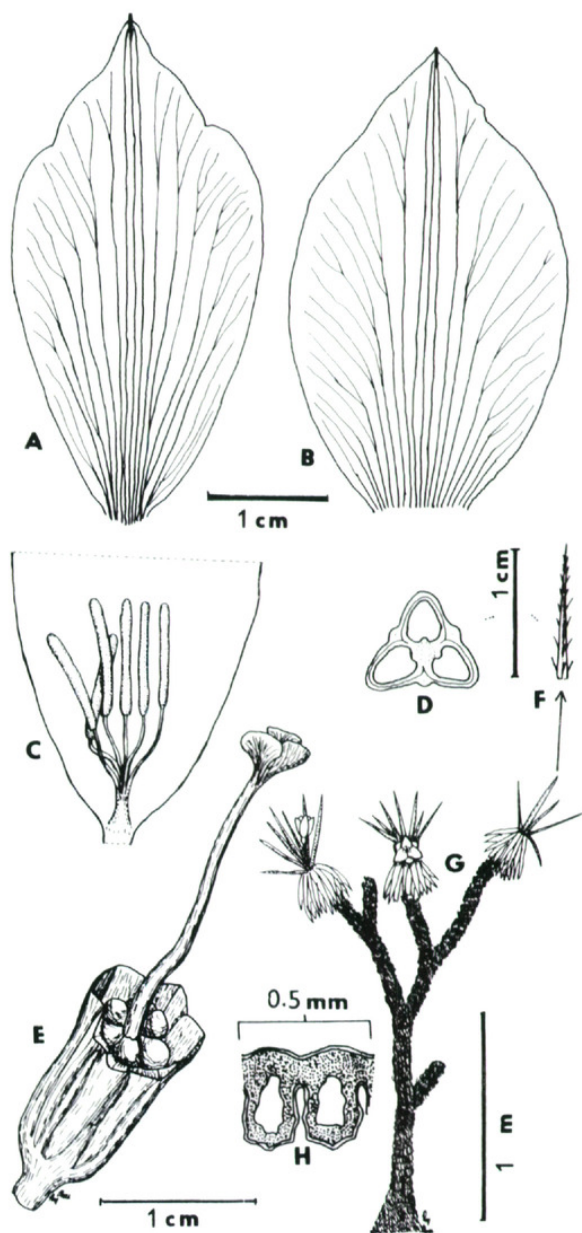


Figure 2. *Vellozia kolbekii* R. J. V. Alves. —A. Tepal of inner whorl. —B. Tepal of outer whorl. —C. Insertion of stamens. —D. Transversal section of ovary. —E. Ovary with style. —F. Leaf apex with marginal setae. —G. Habit. —H. Transverse section of lamina.

adaxial surface smooth and slightly undulate; abaxial surface furrowed to  $\frac{3}{4}$  of blade (Fig. 2H).

*Habitat.* On exposed quartzite outcrops and scree with little or no soil, sometimes forming closed thickets.

Dedicated to Jiri Kolbek, who took part in the field research.

*Distribution.* Presently known only from the São Jose D'El Rei range near Tiradentes, Minas Gerais, Brazil.

*Vellozia kolbekii* was confirmed as new by Lyman B. Smith (pers. comm.). It differs from *V.*

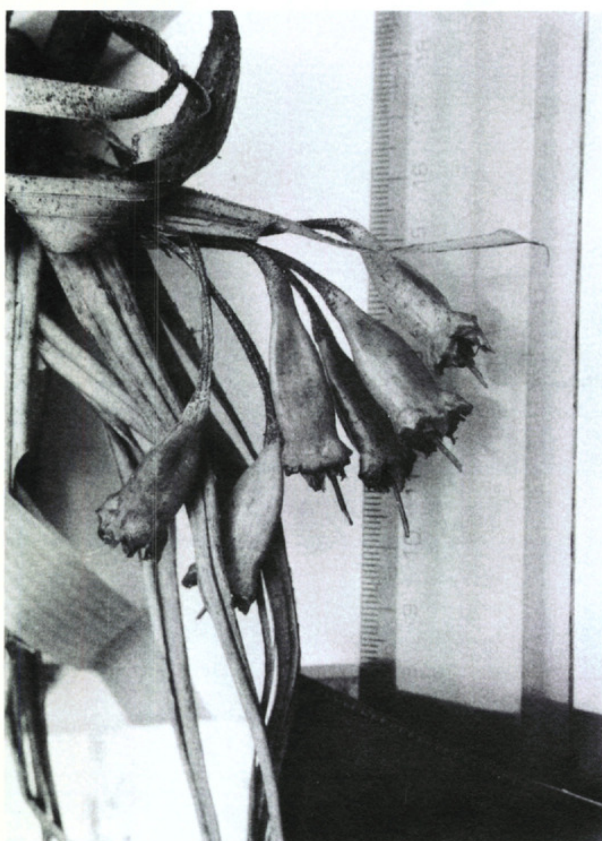


Figure 3. *Vellozia kolbekii* R. J. V. Alves. Holotype, detail of scapes and capsules.

*brachypoda* mainly by a longer caudex, longer tepals, a more angular ovary with the apex broadened into a crown (Fig. 3), leaves with more linear setae on margins, and deeper furrows on the abaxial surface. It further differs from *V. variabilis* Martius ex Schultes f. by a glabrous ovary, from *V. tomeana* Lyman B. Smith & Ayensu by partly connivent staminal filaments, a glabrous ovary and glabrous leaves. The fact that *V. kolbekii* has a glabrous ovary and that part of its scape is slightly vestite may indicate a possible relationship with *V. subsca-bra* Mikan (*V. scabra* Sprengel), listed under "Ex-

cluded and Doubtful Taxa" by Smith & Ayensu (1976); however, genus *Vellozia* Vand. needs to be studied further before this can be proved. In the diagnosis of *V. tomeana*, Smith & Ayensu (1976: 82) declared the leaves glabrous, and subsequently discriminated large hair tufts on both surfaces.

*Additional habitat observations.* Both newly described species were discovered in the São Jose mountain range north of Tiradentes, Minas Gerais, Brazil. This range rises from 900 to 1,430 m, being situated between 21°03–07'S and 44°06–13'W. It consists of quartzite outcrops with irregularly eroded surfaces, and sand deposits originated by erosion of this bedrock. Both substrates bear sparse stands of herbaceous vegetation with an open shrub layer. The local climate consists of cool, dry winters and hot, rainy summers that culminate in January. Absolute temperatures range from 1.0° to 36.2°C and mean values of 9.9° (July) to 25.9° (January). Annual precipitation averages to 1,467 mm (8.6 mm in July, 299.6 mm in January). *Vellozia kolbekii* grows on quartzite outcrops, forming dense stands, while *Sarcoglottis caudata* is restricted to the sand deposits on summits and in lower-situated valleys, where it thrives in moist spots that are flooded for many days after each rainstorm.

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