

# ***LEPTOTES VELLOZICOLA*: A NEW SPECIES OF ORCHIDACEAE FROM BAHIA, BRAZIL**

C. VAN DEN BERG<sup>1</sup>, E. C. SMIDT<sup>1</sup> AND S. MARÇAL<sup>2</sup>

<sup>1</sup>Laboratório de Sistemática Molecular de Plantas, Universidade Estadual de Feira de Santana, BR 116, Km 3, 44031-460, Feira de Santana, Bahia, Brazil

<sup>2</sup>Rua Aníbal Bittencourt, 345, 45615-000, Buerarema, Bahia, Brazil

## **ABSTRACT**

A new species of *Leptotes* from Bahia, *Leptotes vellozicola* Van den Berg, E.C.Smidt & Marçal, is described and illustrated. It is known only from the Chapada Diamantina, Bahia, Brazil, growing epiphytically on *Vellozia* sp. (Velloziaceae).

The genus *Leptotes* was originally described by Lindley (1853), who coined the name from the greek *leptos*, meaning tender or narrow, based on the thin appearance of the floral parts and leaves. In the original concept the genus was characterized by epiphytic, small, caespitose plants, inconspicuous cylindrical rhizomes, unifoliate pseudobulbs smaller than the cylindrical, fleshy, canaliculate leaves. The inflorescence is a small 1-5-flowered raceme, with large flowers in relation to the plants, and narrow, similar petals and sepals, and a 3-lobed lip. The pollinaria is rather unique in Laeliinae, with 3 pairs of pollinia, being one large and two small. Such a pollinarium morphology is found only in the monotypic genus *Loefgrenianthus*, whose only species was originally described as a *Leptotes*. Molecular data (van den Berg et al. 2000) showed that *Loefgrenianthus* is sister to a group with all species of *Leptotes*, and could possibly be included in the latter, as originally described by Löfgren (1918). Bentham (1881) synonymized *Leptotes* under *Tetramicra*, despite the fact that the latter bears two pairs of pollinia. Cogniaux (1902) reestablished *Leptotes*, and listed then five species and three varieties. The first standalone revision

of the genus was published by Krackowizer (1954a,b), in which he listed eleven species, occurring from Espírito Santo to Rio Grande do Sul States in Brazil, and extending to eastern Paraguay. However, in the classic checklist of the Brazilian orchids included in Pabst & Dungs (1975), they accepted only three species, and four synonyms. Withner (1993) accepted five species, but omitted the other six validly published names in the genus, leaving unclear whether he considered them synonyms or obscure species. According to a molecular phylogenetic analysis based on data from ITS DNA sequences (van den Berg et al. 2000), *Leptotes* belongs to a basal clade in Laeliinae, which includes *Constantia*, *Isabelia*, and *Pseudolaelia*. This clade comprises several genera which are native to Eastern and Southern Brazil, and are generally small plants, mainly growing on Velloziaceae or rocks, or small trees, associated mainly with the “campos rupestres” vegetation. The new genus *Adamantinia* also belongs to this clade (van den Berg, unpublished molecular data). Unlike other members of this clade, *Leptotes* occurs mainly in wet areas in the Atlantic Forest domain.

Pabst & Dungs (1975) listed only *L. bicolor* Lindl. for Bahia State. Recently, two new species were described, *L. bonhkiana* Campacci (Campacci 2005) and *L. pohlitinocoi* V.P. Castro & Chiron (Castro Neto & Chiron 2004). Both new species occur in the Atlantic Rainforest near the shore in Southern Bahia. They present very similar floral morphology but striking size differences in vegetative and floral parts, being probably related to *L. unicolor* Barb.Rodr. In recent field work in the central portion of the State, we found another new species, that appears more related to *L. pauloensis* Hoehne than to the two new coastal species. It occurs in the Chapada Diamantina region, which is known for possessing a very particular and diverse flora, and which has been revealing many new species (e.g. Smidt & Toscano de Brito 2004) and even new genera, such as *Adamantina* (van den Berg & Gonçalves 2004).

***Leptotes vellozicola*** Van den Berg, E.C. Smidt & Marçal, **sp. nov.** Type BRAZIL. Bahia: Chapada Diamantina, 30 Oct 2005, E.C. Smidt, C. van den Berg, & S. Marçal 650 (Holotype: HUEFS!). Figs. 1, 2.

*Haec species L. tenui et praesertim L. pauloensi similis propter labelli cum lobis latis et lobo terminali bilobato fimbriis brevissimis instructo, sed ab ambobus speciebus labello cum lamellis latis basalibus et callo conspicuo in apicem differt.*

Epiphytic, caespitose **herb**, 2-3 cm high. **Rhizome** rather short, inconspicuous. **Pseudobulbs** cylindrical, 3-5 × 3-4 mm, 1-leaved, vinaceous, covered by papery sheaths. **Leaf** cylindrical, 15-20 × c. 4 mm, fleshy, canaliculate, vinaceous, leaf surface verrucose, apex acuminate. **Inflorescence** a 1-flowered raceme, c. 2 cm long. **Flowers** light lavender to white, lip with pinkish

dash in the mid portion between the lateral lobes, and apex with a yellow callus, sepals lanceolate, c. 9 × 4 mm, lateral sepal free, slightly falciform, petals linear-lanceolate, c. 8 × 3 mm, lip trilobed, c. 7 × 7 mm, lateral lobes triangular, obtuse, c. 7 mm diam., midlobe lanceolate-ovate, c. 5 mm diam., disk 2-lamellate in the base, lamellae lanceolate, c. 4 mm., white, basally thickened, convergent, apex acute; apical callus linear, c. 1.5 mm long, yellow, column c. 2 mm long; stigma broad, entire. **Fruit** purplish vinaceous, lanceolate, c. 3 cm long.

**ETYMOLOGY:** Named in reference to *Vellozia* sp., on which this species grows in the natural habitat.

**PARATYPES:** BRAZIL, Bahia: Chapada Diamantina, 30 OCT 2005 (in fruit). E.C. Smidt, C. van den Berg & S. Marçal 652 (HUEFS).

**DISTRIBUTION:** Known only from a single location in the Chapada Diamantina.

**HABITAT:** Epiphyte on shaded positions on *Vellozia* sp. stems, in a rather open scrubland on rocky outcrops.

**COMMENTS:** *Leptotes vellozicola* grows exclusively on Velloziaceae, in the "campos rupestres" vegetation, at ca. 900 m above sea level. Flower morphology is similar to *L. tenuis* Rchb.f. and *L. pauloensis*, considering the shape of the lip with broad lateral lobes, and a terminal lobe bilobed with a shortly fimbriate apex. However, it can be differentiated from both by the two basal lamellae and a callus in the lip apex. *Leptotes pauloensis* has pink flowers, and lateral lobes narrower than the midlobe, narrow basal lamellae and does not bear a callus in the lip apex, whereas *L. tenuis* bears whitish-cream flower with a purple zone near the base, short, narrow lamellae and callus absent. This species is the only in the genus known to grow on *Vellozia* sp., which in itself is a very interesting link, considering that this pattern is very similar to that of *Constantia*

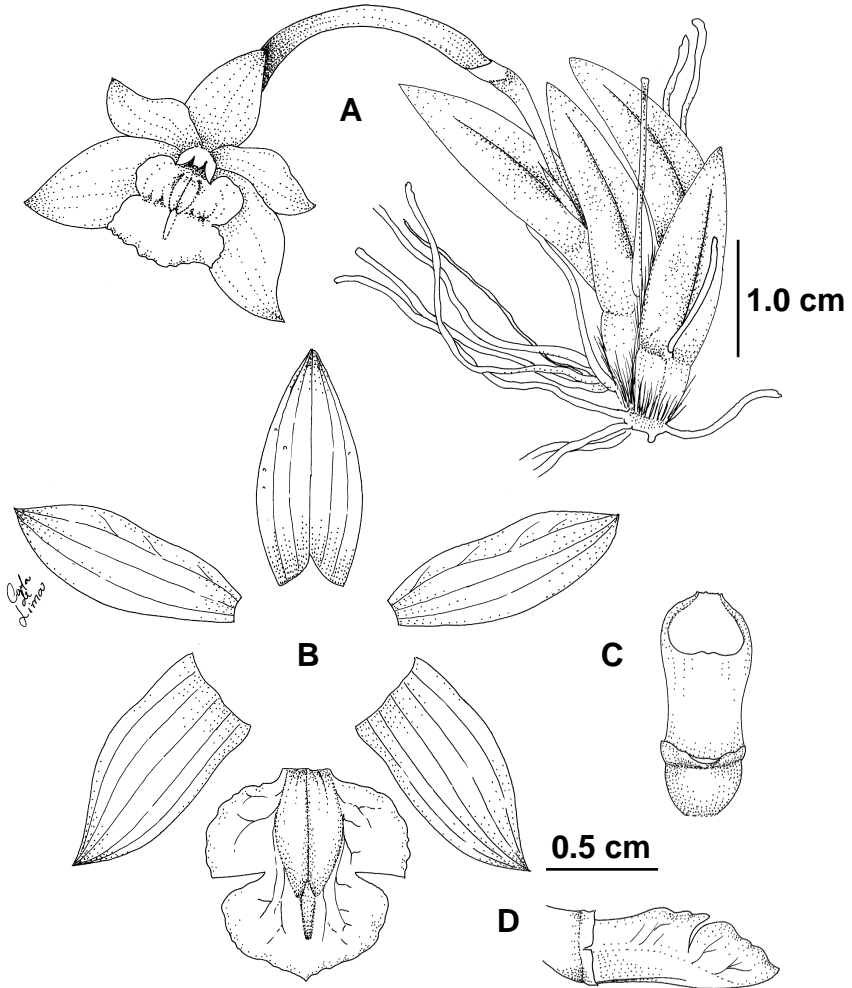


Fig. 1. *Leptotes vellozicola* Van den Berg, E.C.Smidt & Marçal. A. Plant in flower. B. Floral analysis. C. Column, adaxial view. D. Lip, lateral view. (Illustration voucher: *Smidt et al. 650*, holotype). Drawn by C. de Lima.



Fig 2. *Leptotes vellozicola* Van den Berg, E.C.Smids & Marçal. **A.** Plant growing epiphytically on *Vellozia* sp. **B.** Flower. **C.** Flower close-up.

and *Pseudolaelia*. This might suggest that this species is a rather relictual, basal species in the genus, in addition to *L. blancheamesiae* Loefgr. The fimbriate bilobed lip also suggests a relationship among the latter, the new species, *L. pauloensis* and *L. tenuis*. The species phylogeny within *Leptotes* needs to be reevaluated to examine in detail these hypotheses. The exact locality is not revealed for protecting the species from illegal collection, since the only population known is not in a protected area.

CONSERVATION STATUS: Vulnerable (IUCN criterion Vu D2). *Leptotes vellozicola* has been found so far in the Southern portion of the Chapada Diamantina, in a restricted area that justifies the criterion D2 of the IUCN. The area is subject to frequent fires, at the same time that the destruction of the species of *Vellozia* in which this species grow are a clear threat to the only population known.

## LITERATURE CITED

- Bentham, G. 1881. Notes on orchideae. *Journal of the Linnaean Society, Botany* 18:281-360.
- Campacci, M. 2005. *Leptotes bohnkiana* Campacci. *Boletim CAOB* 53:18-20.
- Castro Neto, V.P. & Chiron, G.R. 2004. Contribution à la connaissance des orchidées du Brésil. I. Une nouvelle espèce de *Maxillaria* de Espirito Santo. II. Une nouvelle espèce de *Leptotes* de Bahia. *Richardiana* 4:73-82.
- Cogniaux, A. 1902. *Leptotes*. In: Martius, C.F. Flora Brasiliensis 3 (5):254-259.
- Krackowizer, F.J. 1954. Monografia do gênero *Leptotes*. Parte I. *Revista do Circulo Paulista de Orquidófilos* 11:43-53.
- Krackowizer, F.J. 1954. Monografia do gênero *Leptotes*. Parte II. *Revista do Circulo Paulista de Orquidófilos* 11:64-72.
- Lindley, J. 1853. *Folia Orchidaceae: Leptotes*. 3rd. Ed. Bradbury & Evans, London.
- Löfgren, A. 1918. Contribuições para a flora Orchidacea. *Archivos do Jardim Botânico do Rio de Janeiro* 2:49-62.
- Pabst, G.F.J. & Dungs, F. 1975. *Orchidaceae Brasiliensis Vol. I*. Brücke-Verlag Kurt Schmiersow, Hildesheim, Germany.
- Smidt, E.C. & Toscano de Brito, A.L.V. 2004. A new species of *Sarcoglottis* (Orchidaceae - Spiranthinae), from the Chapada Diamantina, Bahia, Brazil. *Kew Bulletin* 59:4-7
- Van den Berg, C. & Gonçalves, C.N. 2004. *Adamantina*, a showy new genus of Laeliinae from Eastern Brazil. *Orchid Digest* 68:230-232.
- Van den Berg, C.; Higgins, W.E.; Dressler, R.L.; Whitten, W.M.; Soto Arenas, M.A.; Culham, A.; Chase, M.W. 2000. A phylogenetic analysis of Laeliinae (Orchidaceae) based on sequence data from Internal Transcribed Spacers (ITS) of nuclear ribosomal DNA. *Lindleyana* 15:96-114.
- Whithner, C.L. 1993. *The Cattleyas and their Relatives. Vol.III*. Timber Press, Portland, Oregon.

ISSN 1809-5348