

---

# *Actinocephalus koernickeanus*, a New Species of Eriocaulaceae from Minas Gerais, Brazil

Marcelo Trovó

Laboratório de Sistemática Vegetal, Departamento de Botânica, Instituto de Biociências, Universidade de São Paulo, CEP 05508-900, São Paulo, Brazil. martrovo@gmail.com

Fabiane Nepomuceno Costa

Universidade Federal dos Vales do Jequitinhonha e Mucuri, Rua da Glória 187, 39100-000, Diamantina, Minas Gerais, Brazil. fncosta@hotmail.com

---

**ABSTRACT.** We describe and illustrate the new species *Actinocephalus koernickeanus* Trovó & F. N. Costa (Eriocaulaceae, Paepalanthoideae) from the Espinhaço Range in Minas Gerais, Brazil, and compare it with the morphologically similar species, *Paepalanthus actinocephalooides* Silveira and *P. barbiger* Silveira, both from Espinhaço Range.

**RESUMO.** Descrevemos e ilustramos a nova espécie *Actinocephalus koernickeanus* Trovó & F. N. Costa (Eriocaulaceae, Paepalanthoideae) ocorrente na Cadeia do Espinhaço, em Minas Gerais, Brasil, e a comparamos com as espécies de morfologia mais similar: *Paepalanthus actinocephalooides* Silveira e *P. barbiger* Silveira, ambas ocorrentes na Cadeia do Espinhaço.

**Key words:** *Actinocephalus*, Brazil, Eriocaulaceae, Espinhaço Range, IUCN Red list, Minas Gerais.

Eriocaulaceae are one of the most representative families from Brazilian rocky outcrops, comprising two subfamilies (Eriocauloideae and Paepalanthoideae) with 11 genera and approximately 1200 species. These species are mainly distributed in the mountains of the Espinhaço Range, with a secondary center of diversity in the mountains of Venezuela. In Brazil, the principal habitats occupied by these species occur in the montane rocky outcrops and montane grasslands from Minas Gerais and Bahia, but the taxa are also found in cerrado areas, especially in the states of Goiás, Mato Grosso, and São Paulo (Giulietti & Hensold, 1990; Hensold, 1991; Stützel, 1998).

In his treatment of the family for *Flora Brasiliensis*, Körnicke (1863) described *Paepalanthus* subgen. *Actinocephalus* Körnicke, comprising 21 species characterized by inflorescences with an umbellate arrangement of the capitula. Ruhland (1903) reduced this to sectional rank as *Paepalanthus* sect. *Actinocephalus* (Körnicke) Ruhland, adding to the original circum-

scription the possession of simple stigmas in the pistillate flowers. Finally, Sano (2004) elevated *Paepalanthus* sect. *Actinocephalus* to generic status as *Actinocephalus* (Körnicke) Sano. In his publication, the new genus was defined as possessing paraclades that bear inflorescences arranged as an umbel of capitula and by its simple stigmas in pistillate flowers, as well as by its karyotype. Ruhland (1903) and Sano (2004) each discussed the similarity of species in *Actinocephalus* to certain species within *Paepalanthus* subsect. *Aphorocaulon* Ruhland. As a result of revisionary studies in this group, Costa (2005) concluded that *Paepalanthus* subsect. *Aphorocaulon* should be merged in *Actinocephalus* and redefined the group as possessing paraclades and simple stigmas in the pistillate flowers.

***Actinocephalus koernickeanus* Trovó & F. N. Costa, sp. nov.** TYPE: Brazil. Minas Gerais: Serro, Estrada para Capivari, 6.8 km da bifurcação para Diamantina, 25 Apr. 2007, M. L. O. Trovó, M. T. C. Watanabe 372 (holotype, SPF; isotypes, B, MO). Figure 1.

Haec species a *Paepalantho actinocephaloide* Silveira foliorum apicibus barbatis et scapis paracladia aequantibus differt.

Perennial herbs, 25–30 cm tall; stems short, 1–2 cm. Leaves rosulate, flat, lanceolate, 2.5–4.5 × 0.3–0.6 cm, adaxial surface glabrescent, abaxial surface glabrous, apex acute, densely hairy, margins ciliate, base glabrescent. Paraclades 9–11 cm, ca. 1.5 mm diam., tomentose to glabrescent; paracladial bracts erect, lanceolate, 1.5–2 × 0.3–1.5 cm, both surfaces glabrous, apex acute, densely ciliate, margins with long trichomes, base semiamplexicaul, glabrous; spathes 1.5–3 cm, glabrous, apex acute; scapes 10 to 25 per paraclade, 9–12 cm, tomentose with simple trichomes; capitula 0.5–0.7 cm diam., hemispheric; involucrel bracts light brown, elliptic, ca. 0.4 cm,

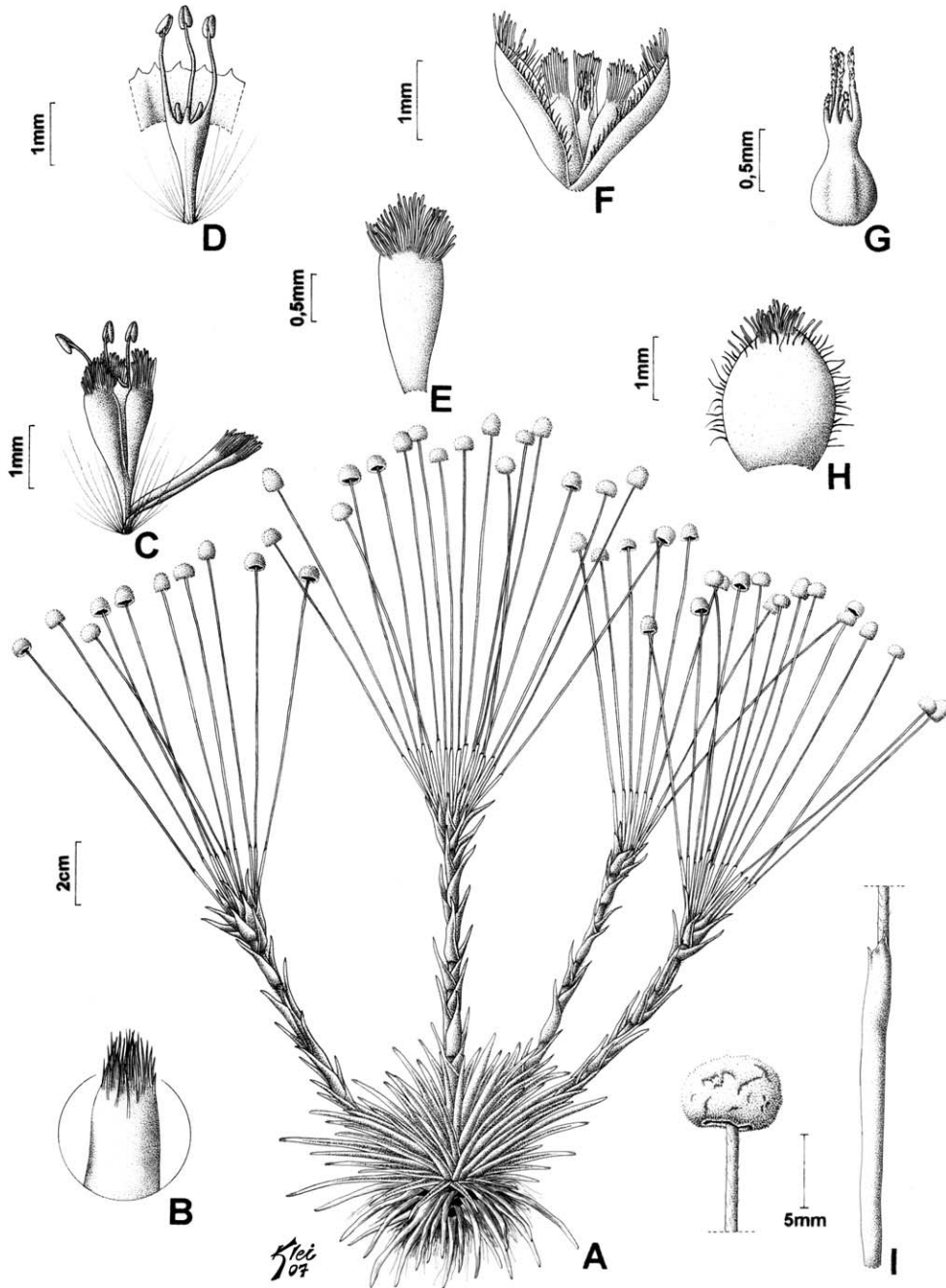


Figure 1. *Actinocephalus koernickeanus* Trovó & F. N. Costa. —A. Habit. —B. Leaf apex detail. —C. Staminate flower with floral bract. —D. Staminate flower with sepals removed. —E. Floral bract, adaxial surface. —F. Pistillate flower with one sepal removed. —G. Gynoecium detail. —H. Involucral bract, adaxial surface. —I. Spathe, scape, and capitulum detail. Drawn from the holotype *M. L. O. Trovó & M. T. C. Watanabe 372* (SPF).

apex obtuse, ciliate; receptacle hemispheric, pubescent. Flowers 3-merous, 80 to 90 per capitulum, ca. 3× more staminate flowers in relation to pistillate flowers; floral bracts obovate, ca. 0.3 cm, hairy on

dorsal surface, apex acute, ciliate; staminate flowers ca. 0.4 cm; pedicel ca. 0.1 cm, with long trichomes; sepals obovate, ca. 0.4 cm, hairy in dorsal surface, apex acute, ciliate; corolla tubular, membranous,

Table 1. Morphological differences between *Actinocephalus koernickei*, *Paepalanthus actinocephaloides*, and *P. barbiger*.\*

	<i>A. koernickei</i>	<i>P. actinocephaloides</i>	<i>P. barbiger</i>
Leaf apex	hairy	glabrous	hairy
Paraclyde length (cm)	9–11	12–14	2–5
Scape length (cm)	9–12	7.5–8	12–36
Scape trichomes	simple	simple	T-shaped

\* The measurements for *Paepalanthus actinocephaloides* and *P. barbiger* are cited from Costa (2005: 71, 78).

hyaline, ca. 1.5 mm, 3-lobed; stamens ca. 0.2 cm; pistillodes 3, papillose; pistillate flowers ca. 0.3 cm, sessile; sepals obovate, ca. 0.3 cm, hairy on dorsal surface, apex acute, ciliate; petals obovate, ca. 0.2 cm, hairy on dorsal surface, apex acute, ciliate; gynoecium ca. 0.2 cm, stigmatic portions filiform, twice as long as nectariferous portion; staminodes 3, scalelike. Fruit a loculicidal capsule.

**Habitat and distribution.** *Actinocephalus koernickeanus* occurs in the Espinhaço Range, in the state of Minas Gerais, near the city of Serro, along the road to Capivari, at approximately 1800 m altitude. The vegetation at the type locality is predominantly montane grassland, and the soil of the region is rocky.

**IUCN Red List category.** The species is known only from a single collection from a single population, with individuals occurring relatively far from each other. According to IUCN Red List criteria (IUCN, 2001), the species should be considered Critically Endangered (CR B1a).

**Etymology.** The epithet *koernickeanus* honors the German botanist Friedrich August Körnicke (1828–1908), who developed the greater part of the basis for the modern study of *Paepalanthus* Martius and, consequently, *Actinocephalus*, in his brilliant Eriocaulaceae monograph for the *Flora Brasiliensis*.

**Discussion.** *Actinocephalus koernickeanus* is affined with species affiliated within *Paepalanthus* subsect. *Aphorocaulon*. However, this subsection should be merged in *Actinocephalus* (Costa, 2005). Thus, we describe this species within *Actinocephalus* due to its paraclydes bearing scapes and its simple stigmas. This genus now comprises 32 species occurring in Brazil.

Two species that are morphologically similar to *Actinocephalus koernickeanus* belong to *Paepalanthus* subsect. *Aphorocaulon*. *Paepalanthus actinocephaloides* is probably sympatric with *A. koernickeanus* but can be distinguished mainly by its scapes that are shorter than the paraclydes and its leaves with a

glabrous apex. Another similar species is *P. barbiger* Silveira, which is restricted to Morro do Breu (Serra do Cipó, Minas Gerais). It differs from *A. koernickeanus* mainly in the size of its paraclydes and scapes, and by the scapes with T-shaped trichomes. More detailed morphological comparisons of these three species are given in Table 1.

**Acknowledgments.** We thank Paulo Takeo Sano (USP) for help with the Latin diagnosis, Mauricio Watanabe (USP) for assistance during fieldwork, Klei Sousa for the illustrations, Thomas Stützel and Victoria C. Hollowell for editorial comments that improved the manuscript, and Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) and the International Association for Plant Taxonomy for financial support.

#### Literature Cited

- Costa, F. N. 2005. Recircunscrição de *Actinocephalus* (Körn.) Sano–Eriocaulaceae. Ph.D. Thesis, Instituto de Biociências, Universidade de São Paulo, São Paulo.
- Giulietti, A. M. & N. Hensold. 1990. Padrões de distribuição geográfica dos gêneros de Eriocaulaceae. *Acta Bot. Brasil.* 4(1): 133–159.
- Hensold, N. 1991. Revisionary studies in the Eriocaulaceae of Venezuela. *Ann. Missouri Bot. Gard.* 78: 424–440.
- IUCN. 2001. IUCN Red List Categories and Criteria, Version 3.1. Prepared by the IUCN Species Survival Commission. IUCN, Gland, Switzerland, and Cambridge, United Kingdom.
- Körnicke, F. 1863. Eriocaulaceae. Pp. 273–508 in C. F. P. Martius & A. W. Eichler (editors), *Flora Brasiliensis*, Vol. 3(1). Monachii, Typographia Regia, München.
- Ruhland, W. 1903. Eriocaulaceae. In A. Engler (editor), *Das Pflanzenreich* IV(30): 1–294, Wilhelm Engelmann, Leipzig.
- Sano, P. T. 2004. *Actinocephalus* (Körn.) Sano (*Paepalanthus* sect. *Actinocephalus*), a new genus of Eriocaulaceae, and other taxonomic and nomenclatural changes involving *Paepalanthus* Mart. *Taxon* 53(1): 99–107.
- Stützel, T. 1998. Eriocaulaceae. Pp. 197–207 in K. Kubitzki (editor), *The Families and Genera of Vascular Plants IV—Flowering Plants: Monocotyledons—Alismatanae and Comelinales* (except Graminae). Springer-Verlag, Berlin.