

## A new species of *Achetaria* (Plantaginaceae) from south-eastern Brazil

VINICIUS CASTRO SOUZA\* and JULIANA DE PAULA-SOUZA

Herbarium ESA, Departamento de Ciências Biológicas, Escola Superior de Agricultura 'Luiz de Queiroz', Caixa Postal 9, 13418-900, Piracicaba, SP, Brazil

Received November 2003; accepted for publication November 2004

A new species, *Achetaria latifolia* V.C.Souza, is described and illustrated. It is characterized by its broadly ovate leaves, indument of stems and leaves of noncapitate hairs, and pubescent capsule. *Achetaria latifolia* is known only in the coastal dune-area of Cabo Frio region, Rio de Janeiro State, Brazil. © 2005 The Linnean Society of London, *Botanical Journal of the Linnean Society*, 2005, 148, 73–75.

ADDITIONAL KEYWORDS: dunes – Scrophulariaceae – systematics.

### INTRODUCTION

According to Souza (1996), *Achetaria* includes eight species, all of them occurring in Brazil. The species are concentrated in the eastern part of the Neotropical region, especially in South America, and have their centre of diversity in the coastal region between Bahia and Espírito Santo States in Brazil.

The genus *Achetaria* was described by Chamisso & Schlechtendal (1827), with a single species. One year later, these authors (Chamisso & Schlechtendal, 1828) described *Beyrichia*, also monotypic. The two genera were distinguished by the arrangement of flowers: axillary and solitary in *Achetaria* and spiked in *Beyrichia*. Bentham (1846) synonymized the two genera, but used the name *Beyrichia*, including it in the tribe Gratioleae of Scrophulariaceae. He described three species and recognized two sections in the genus: *Beyrichia* sect. *Achetaria*, with the dorsal stamens reduced to staminodes and septicidal capsule, and sect. *Dizygostemon*, with fertile dorsal stamens and loculicidal capsule with bifid valves.

von Wettstein (1891) used the name *Achetaria* for the genus instead of *Beyrichia* and erected the new combinations, and accepted *Beyrichia* sect. *Dizygostemon* as a distinct genus, *Dizygostemon*. von Wettstein (1891) kept *Achetaria* in the tribe Gratioleae, this being regarded as close to *Otacanthus*.

*Achetaria* has been traditionally treated as Scrophulariaceae. However, recent work using macromolecular data (Olmstead & Reeves, 1995; Reeves & Olmstead, 1998) indicated that this family as traditionally recognized is paraphyletic. The genera of tribe Gratioleae showed more affinities with the Plantaginaceae and have since been treated in this family by several authors (e.g. Judd *et al.*, 1999), which is the position accepted here.

### MATERIAL AND METHODS

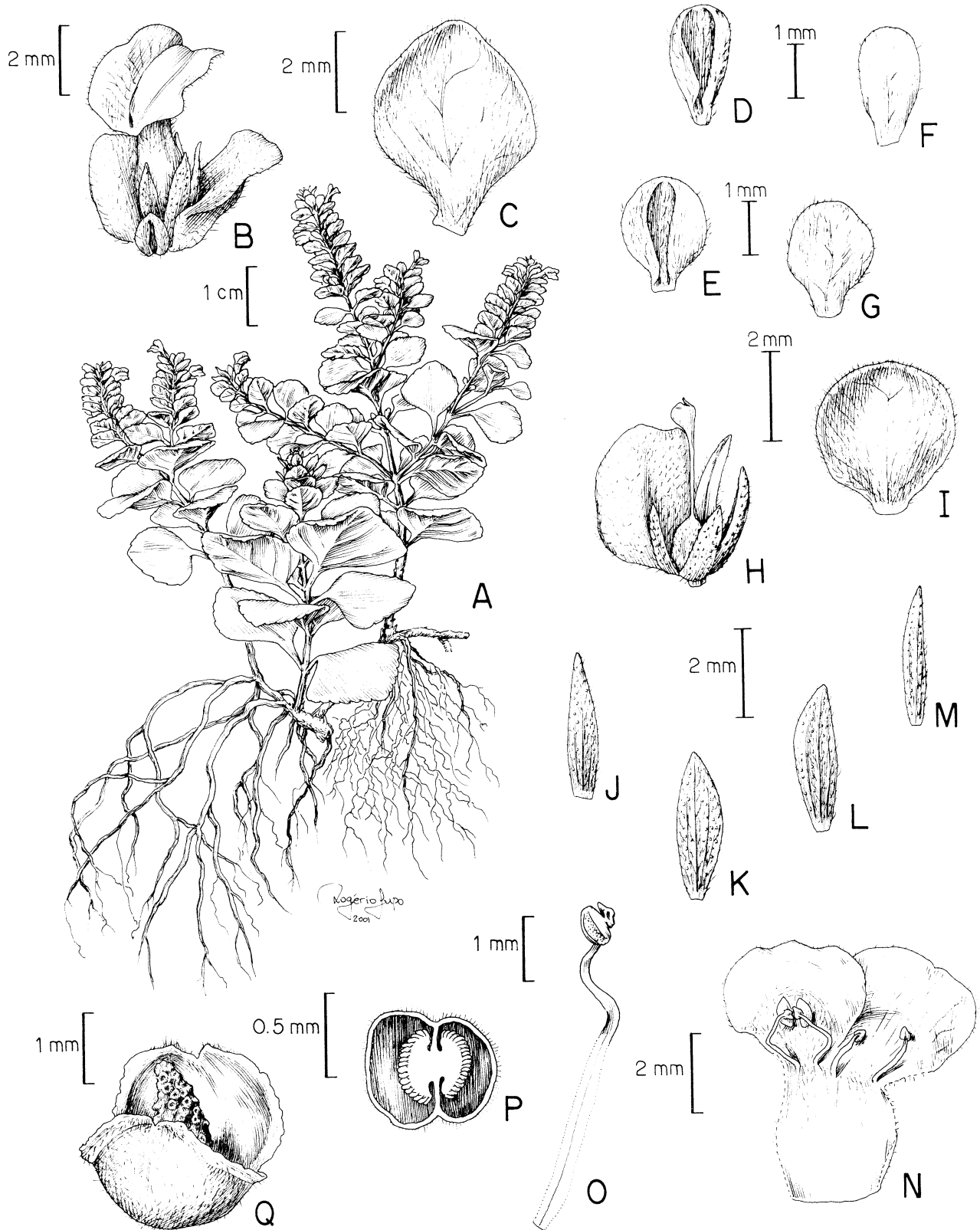
This study was based on literature, field observations of living specimens, and consultation of the main Brazilian and European herbaria (ALCB, BHCB, BM, BOTU, BR, CEN, CEPEC, CESJ, COR, CPAP, EAC, EAN, ESA, ESAL, FUEL, G, HB, HBR, HRB, HRCB, HUCS, HUEFS, HUFU, HURG, IAN, ICN, INPA, IPA, JPB, K, LINN, M, MBM, MBML, MG, OUPR, OXF, P, PACA, PAMPUC, PEL, PEUFR, R, RB, SMDB, SP, SPF, TEPB, UB, UEC, UPCB, URG, VIC, VIES).

### DESCRIPTION OF THE NEW SPECIES

***ACHETARIA LATIFOLIA* V.C. SOUZA SP. NOV. (FIG. 1)**

*Diagnosis:* Affinis *Achetariae ocymoidi* (Cham. & Schltdl.) Wettst., sed foliis latis, pilis indumenti ramorum et foliorum ecapitatis et capsula pubescenti differt.

\*Corresponding author. E-mail: vcsouza@esalq.usp.br



**Figure 1.** *Achetaria latifolia* V.C. Souza. A, habit. B, flower. C, bract; D–G, bracteoles (D–E, ventral view; F–G, dorsal view). H, calyx and gynoecium. I–M, sepals. N, corolla and androecium. O, stamen. P, ovary (transverse section). Q, capsule (all drawn from *Fontella-Pereira et al.* 2270, type).

KEY TO *ACHETARIA LATIFOLIA* AND RELATED SPECIES

1. Flowers arranged in well-defined terminal spikes, sometimes combined with axillary flowers.
  2. Leaves almost as broad as long; stems with indument exclusively of noncapitate hairs; capsule pubescent. . . . . *A. latifolia*
  - 2'. Leaves c. twice longer than wide; stems with indument of capitate hairs, frequently intercalated with noncapitate hairs; capsule glabrous or subglabrous. . . . . *A. ocymoides*
- 1'. Flowers axillary to leaves, frequently condensed at the apex of the stems.
  3. Plants usually prostrate; stems pubescent, hairs 0.5–1 mm long. . . . . *A. scutellarioides*
  - 3'. Plants erect; stems tomentose-pubescent, hairs 1.5–2 mm long. . . . . *A. erecta*

*Type:* BRAZIL, Rio de Janeiro, Cabo Frio. Ao lado da estrada Cabo Frio – Arraial do Cabo, a 28 km da Praia da Iguaba e a 3 km do trevo de Cabo Frio, 05.ii.1986, *J. Fontella-Pereira 2270, N. Marquete, D. Araújo & M.C. Valente* (Holo: RB!).

*Description:* HERBS, perennial, erect, 7–20 cm high, stem simple or branched, quadrangular, densely tomentose at apex with noncapitate hairs, glabrescent. LEAVES opposite, with indument similar to the stems on both surfaces, sessile to shortly petiolate, blade base decurrent into the petiole, broadly ovate, 0.9–1.8 cm long, 1–2 cm wide, apex obtuse to rounded, base obtuse to truncate, margin entire or slightly crenate. Internodes 0.4–3.4 cm long. FLOWERS arranged in terminal spikes very condensed during simultaneous blooming and fructification; BRACTS ovate-rhombic, 5–5.5 mm long, 4 mm wide, apex obtuse to rounded, with indument similar to the stems; bracteoles two, suborbicular to elliptic, margin strongly revolute, pubescent; CALYX pubescent, dorsal sepal orbicular, c. 3 mm diam., lateral sepals lanceolate, ventral sepals elliptic-lanceolate, acute at apex, c. 3 mm long, c. 1 mm wide; COROLLA purple or lilac, the tube sparsely pubescent externally, 4–5 mm long, dorsal and ventral lips c. 1 mm long; STAMENS and staminodes inserted in the distal part of the corolla tube; OVARY pubescent; style glabrous, stigma swollen. CAPSULE pubescent, opaque, ovate-globose, 2–4 mm long, obtuse at apex, valves slightly bifid.

*Notes:* *Achetaria latifolia* is morphologically most similar to *Achetaria ocymoides* (Cham. & Schltld.) Wettst., from which it differs by its broader leaves, indument of stems and leaves with noncapitate hairs, and pubescent capsule. The new species can be distinguished from other species of the genus that resemble it by the following key.

*Geographical distribution and habitat:* *Achetaria latifolia* is known only in the coastal dune-area of Cabo Frio, Rio de Janeiro State, Brazil.

*Additional specimens studied:* BRAZIL, Rio de Janeiro, Cabo Frio. 12.ix.1984, *D. Araújo & R.F. Oliveira 6390* (GUA, K); 15.viii.1966, *D. Sucre 1002* (R, RB); 24.iv.1953, *F.S. Vianna 1319* (R); ii–iii.1951, *F.S. Vianna 4159* (R); ii–iii.1951, *F.S. Vianna 4170* (R); 16.iv.1952, *L.B. Smith 6672 et al.* (R); iii.1965, *L.E. Mello-Filho 1133*. (R).

## ACKNOWLEDGEMENTS

The authors thank Dr Ana Maria Giuliatti for assistance during this work and Mr Rogério Lupo for preparing the illustration. We also thank the keepers of the consulted herbaria for making their collections available.

## REFERENCES

- Bentham G. 1846.** Scrophularinae. In: De Candolle A. *Prodromus Systematis Naturalis Regni Vegetabilis* **10**: 186–586.
- Chamisso LA, Schlechtendal DFL. 1827.** De plantis expeditione speculatoria Romanzoffiana observatis disserere pergunt: Scrophularinae. *Linnaea* **2**: 555–609.
- Chamisso LA, Schlechtendal DFL. 1828.** De plantis expeditione speculatoria Romanzoffiana observatis disserere pergunt: Scrophularinae (continuatio). *Linnaea* **3**: 1–24.
- Judd WS, Campbell CS, Kellogg EA, Stevens PF. 1999.** *Plant systematics: a phylogenetic approach*. Sunderland, MA: Sinauer Associates, Inc.
- Olmstead RG, Reeves PA. 1995.** Evidence for the polyphyly of the Scrophulariaceae based on chloroplast *rbcL* and *ndhF* sequences. *Annals of the Missouri Botanical Garden*. **82**: 176–193.
- Reeves PA, Olmstead RG. 1998.** Evolution of novel morphological and reproductive traits in a clade containing *Antirrhinum majus* (Scrophulariaceae). *American Journal of Botany*. **85**(8)L: 1047–1056.
- Souza VC. 1996.** Levantamento das espécies de Scrophulariaceae nativas do Brasil. Unpublished PhD Thesis, Brazil: Department of Biosciences, University of São Paulo.
- von Wettstein R. 1891.** Scrophulariaceae. In: Engler A, Prantl K. *Pflanzenfamilien* **4** (3b): 39–107.