

A NEW SPECIES OF *LESSINGIANTHUS* (ASTERACEAE: VERNONIEAE), FROM RIO GRANDE DO SUL STATE, BRAZIL¹

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ABSTRACT

Lessingianthus alegretensis (Asteraceae: Vernonieae) is described and illustrated from sandy grasslands in southwest of Rio Grande do Sul State, Brazil. Comments about geographic distribution, conservation and affinities are provided.

Key words: Asteraceae, Compositae, Conservation, *Lessingianthus*, Pampa Biome, Taxonomy.

RESUMO

[Uma nova espécie de *Lessingianthus* (Asteraceae: Vernonieae) do Estado do Rio Grande do Sul, Brasil].

Lessingianthus alegretensis (Asteraceae: Vernonieae) é descrita e ilustrada para os campos arenosos do sudoeste do estado de Rio Grande do Sul, Brasil. São fornecidos dados referentes à distribuição geográfica, afinidades e conservação.

Palavras-chave: Asteraceae, Bioma Pampa, Compositae, Conservação, *Lessingianthus*, Taxonomia.

INTRODUCTION

Lessingianthus Robinson (1988a: 929) comprises more than 120 species, widely distributed in South America, with important centers of diversity in southern and central Brazil, mainly on grasslands and stony grasslands (Bremer, 1994; Dematteis & Angulo, 2010). The genus can be characterized by a combination of following features: perennial herbs or shrubs, cymose inflorescence, medium to large-sized capitula, eglandular anthers appendices, lack of a basal style node, quadrate raphids on cypsela wall, and basic chromosome number $x = 16$, whereas the majority of South America Vernonieae Cassini (1819: 203) genera have $x = 17$, and the closely related genus *Chrysolaena* Robinson (1988b: 956) $x = 10$, and pollen grains, tricolporate, echinolophate, with

a discontinuous tectum, very long germinal furrows, that converge at the poles with lacunae disposed in a regular pattern, and lacking a polar lacunae (type B) (Keeley & Jones, 1979; Dematteis & Angulo, 2010).

Since the description of *Lessingianthus*, few additions were made to the genus, with descriptions of new species (Diaz-Piedrahita & Obando, 2002; Deble *et al.*, 2005; Dematteis, 2006; Borges & Dematteis, 2008) and the transfer of the *Lessingianthus* subgenus *Oligocephalus* Robinson (1988a: 949) to *Chrysolaena* (Dematteis, 2007). Most recently, thirteen new combinations and two new species were proposed to Brazil and neighbours areas (Dematteis & Angulo, 2010).

The number of species is uncertain to Rio Grande do Sul State; Matzenbacher & Mafioletti (1994b) treated 12 species under *Vernonia* Schreber (1791: 541). Then, with additions of new species and citations above 15 taxa occur in this State (Matielo-Lemos, 2011).

Along the survey of the Asteraceae Family from Rio Grande do Sul State (Brazil) made by first author and the anatomical studies in the complex of *Lessingianthus macrocephalus* (Lessing, 1929: 298; Robinson, 1988a: 944),

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realized by the second author, it was evidenced a new species, which appears endemic on sandy grasslands in southwest Rio Grande do Sul State.

RESULTS

Lessingianthus alegretensis Deble & R. Matiello, *sp. nov.* (Figure 1, 2)

A Lessingiantho macrocephalo similis sed habitu minoribus (25–70 cm vs. 60–120 cm altus), capitulis magnis (20–24 mm altis vs. 16–20 mm altis), phyllariis pluriseriatis (6–8-seriatis vs. 5–6-seriatis), indumentum adpressum (vs. non adpressum), nitudo-incanum (vs. grisaceum ad ochre-grisaceum), et pilis cum cellulis terminalibus paries angustatis (vs. non angustatis), productis bene differt.

Typus: BRAZIL. Rio Grande do Sul: Alegrete, Santo Antônio, sandy grasslands, shrubs 30–40 cm high, purplish flowers, 21 November 2006, *L. P. Deble & A. S. de Oliveira-Deble 8093* (*holotypus* SI! *isotypus* CTES!).

Erect shrubs, 25–70 cm high, with xylopodia. Stems 1–3, with few branches in the distal portion, and densely leafy in proximal portion, sparsely distally, and covered by shine white lanose indumentum, composed by adpressed trichomes, with 2–3 cells at the base, and a filiform terminal cell with narrowed wall, and 1.100–1.600 μm long. Leaves spirally alternate, ascending, sessile or shortly petiolate (petiole up to 8 mm), obovate to elliptic, 3.5–13 \times 2–4.5 cm; leaf blades coriaceous, camptodromous, strongly discoloured, olive-green or brownish-green, glabrous or pubescent above the veins adaxially and shine white, densely pubescent in abaxial surface, trichomes like those of stems. Bracts leafy, ovate to lanceolate, gradually smaller distally, 4–5.5 \times 1.3–2.5 cm, at the apex acute, base truncate to amplexicaul. Capitula sessile or pedunculate, in a laxe corymb, of 6–35 cm long, and bearing 2–6 capitula. Involucre broadly campanulate, 20–24 \times 25–35 mm. Phyllaries in 6–8-series, reddish-brown to dark-brown, frequently with a constriction in the distal

third or near at the apex; outermost densely pubescent, median sparsely pubescent, with a tufted of trichomes in the distal third, and innermost glabrescent, or with few trichomes at the apex. Outer phyllaries ovate, 3.5–6 \times 2.3–3.2 mm; median phyllaries lanceolate to elliptic-lanceolate, 7–12 \times 2.5–3.5 mm; inner phyllaries elliptic-lanceolate to linear-elliptic, 13–18 \times 1.8–3 mm. Flowers 70–160; corolla purple, glabrous, 19–23 mm long, at the apex with five lobes; tube 11–15 mm long, lobes linear 5.5–8 \times 0.6–0.9 mm. Style purple to light pink, 18.5–22 mm long; branches filiform, 3.5–6 mm long. Anthers 6.5–7.5 mm long, basally short caudate, apical appendage ovate ca. 0.5 mm long. Cypsela obconical, 4–5 mm long, ribbed, sericeous-pubescent; twin-trichomes 400–500 μm long; carpodium 0.3 mm. Pappus biseriate, yellowish, outer series composed by triangular scales, 1.5–3 mm long, inner series setaceous 10–12 mm long. Pollen grains spheroidal, echinolophate, 40–50 μm in diameter, tricolporate, regularly areolate, spiculate.

Distribution and habitat: *Lessingianthus alegretensis* grows on sandy grasslands and adjacent stony grasslands in Alegrete, Rosário do Sul, São Francisco de Assis and Manoel Viana cities, in southwest of Rio Grande do Sul State (Figure 2). Material with flowers and fruits are gathered between October–March.

Etymology: This species is named after the place of type collection.

Material examined (Paratypes): BRAZIL. Rio Grande do Sul: Alegrete, arroio Lajeado, 26 January 1986, *J. Mattos & N. Mattos 29735* (HAS!); sandy grassland, 60 cm, discolored leaves, lilac flowers, 14 January 2007, *L. P. Deble & A. S. Oliveira-Deble, 7105* (CTES!); road to Rosário do Sul, in sandy grassland and adjacent sandstone area, 7 March 2011, *L. P. Deble, A. S. Oliveira-Deble & R. Matiello, 12885* (CTES!). Manoel Viana, 7 December 1982, *J. Mattos & N. Mattos 23791* (HAS!). São Francisco de Assis, 9 December 1982, *J. Mattos & N. Mattos*

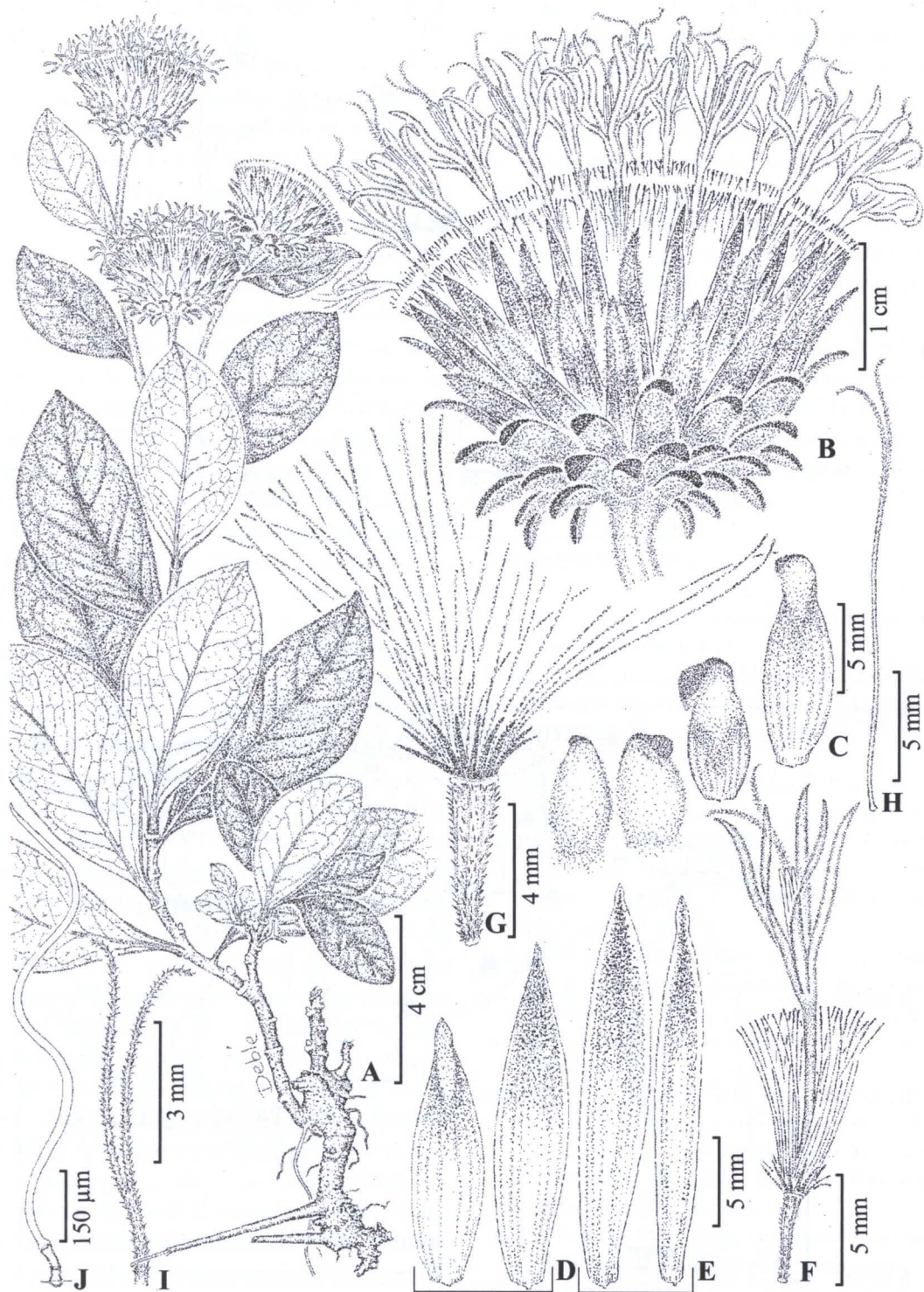


FIGURE 1 – *Lessingianthus alegretensis*. A. Habit. B. Capitulum. C. Outer phyllaries. D. Median phyllaries. E. Inner phyllaries. F. Flower. G. Cypsela and pappus. H. Style. I. Style apex. J. Trichome (leaf) (A-F, H-J Deble & Oliveira-Deble 8093, CTES!. G Deble et al. 12885, CTES!).

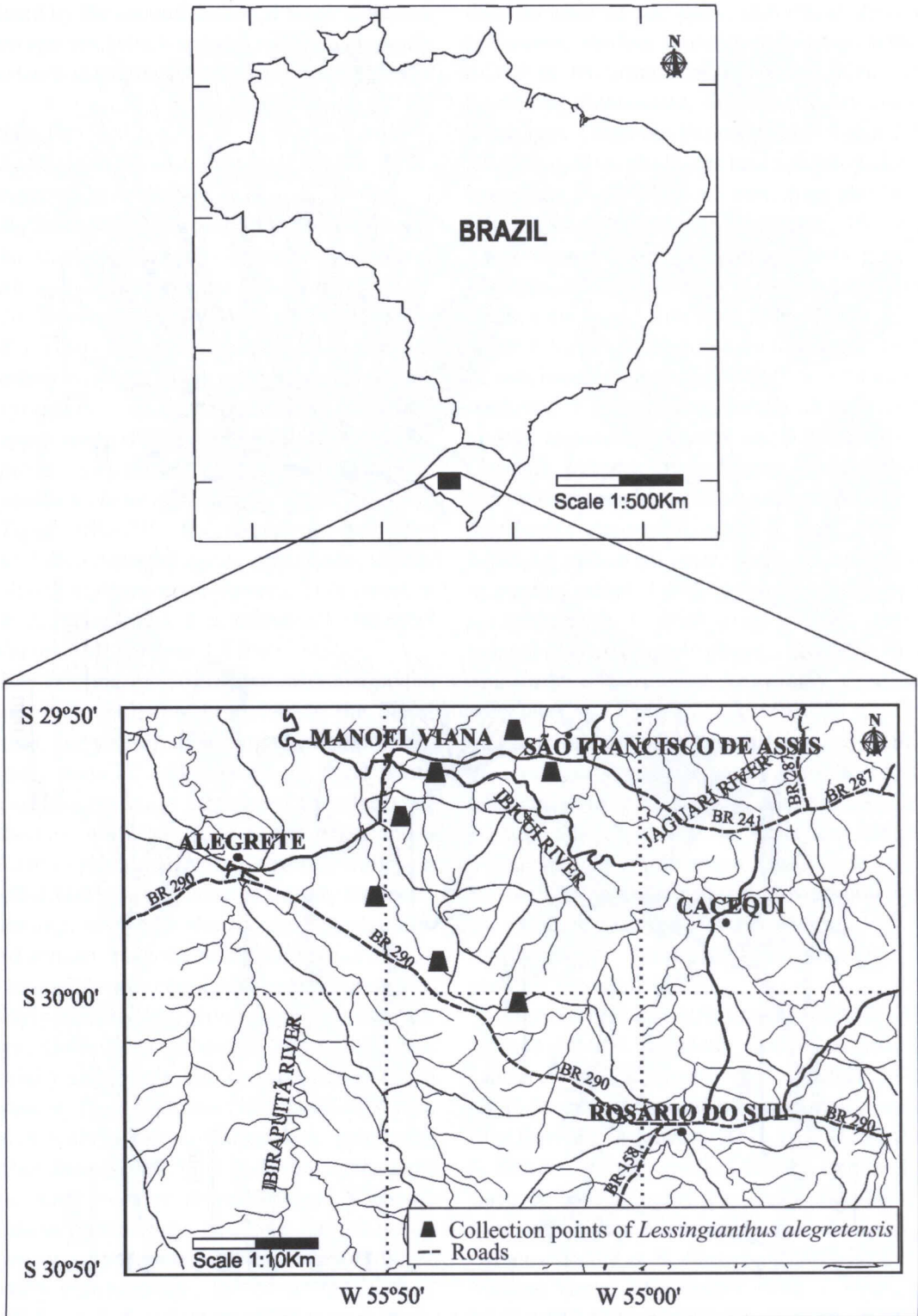


FIGURE 2 – Geographic distribution of *Lessingianthus alegretensis*.

23663 (HAS!); 23 October 1986, *J. Mattos & N. Mattos 30100* (HAS!).

Conservation Status: Evidence of the occurrence of *Lessingianthus alegretensis* was found in the Municipalities of Alegrete, Manoel Viana, Rosário do Sul and São Francisco de Assis with extent of occurrence estimated in less than 20,000 km², and area of occupancy estimated in less than 2,000 km². In addition, anthropogenic pressures such as agriculture, silviculture, and urban expansion affect directly this area. Due to the observed threats, it is prudent to include *L. alegretensis* in the Vulnerable category of the IUCN Red List of endangered plant species according to the following criteria (IUCN 2010): VU B1, B2a, b (iii) + C.

Relationships: *Lessingianthus alegretensis* by large-sized capitula, bigger coriaceous leaves and number of flowers per capitula is most closely related with both: *Lessingianthus macrocephalus* and *L. magnificus* Deble, Dematteis & Marchiori (2005:1). It differs of the first-one species by smaller habit (25–70 cm vs. 60–120 cm), larger capitula (20–24 mm high vs. 16–20 mm high), multiseriate phyllaries (6–8-series vs. 5–6-series), and principally by shiny white indumentum (vs. grayish to ochre-grayish), strongly adpressed at stems and leaves (not adpressed), with trichomes having terminal cell with narrowed wall (vs. all cells of trichomes with equal thickness of wall). From *Lessingianthus magnificus* can be separated by its smaller habit (25–70 cm vs. 80–160 cm), and its innermost phyllaries sparsely pubescent, at the apex acute (vs. densely pubescent, at the apex obtuse). Furthermore, *Lessingianthus alegretensis* display purplish flowers and occurs principally in sandy grasslands, while *L. macrocephalus* and *L. magnificus* show pale lilac flowers, and it are restrict in rocky places. The allopatric *L. correntinus* (Cabrera & Cristóbal, 1978:129) Dematt. in Dematteis & Angulo (2010: 236), which occurs in northeastern Argentina, is probably also related

to the new species, but easily differs by narrowly elliptic leaves. *L. constrictus* (Matzenbacher & Mafioletti 1994a: 19) Dematt. in Dematteis & Angulo (2010: 236), which grows in bogs near to coastline of Rio Grande do Sul, might also be allied with *L. alegretensis*, both species display innermost phyllaries with acute apices, and median and inner phyllaries with an apically (or in the distal third) constriction. However, *L. constrictus* has fewer indumentum above stems and leaves, and capitula with 14–16 mm high (vs. 20–24 mm high). Not fully developed specimens of *L. alegretensis* resemble *L. lorentzii* Hieronymus (1897: 674) Robinson (1988a: 944), but this species easy differs by smaller solitary capitula (rarely geminate), and leafy outermost phyllaries.

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