

A MONOGRAPH OF *Alcantarea* (TILLANDSIOIDEAE), THE GIANT BROMELIADS FROM BRAZIL

Leonardo M. Versieux^{1*}, Maria das Graças L. Wanderley².

¹Universidade Federal do Rio Grande do Norte, ²Instituto de Botânica. *Lversieux@yahoo.com.br

Introduction

Alcantarea is a genus segregated from *Vriesea* by the presence of linear, long, spiralescent and ephemeral petals, by the bicomose seeds, and by the semi-inferior ovary. *Alcantarea* is endemic to eastern Brazil, occurring on gneiss-granitic inselbergs from Atlantic rainforest domain or, more rarely, on quartzite outcrops in the campo rupestre (rocky fields) vegetation along the Espinhaço mountain range [1,2]. All the 35 species accepted here are obligatory rupicolous and many of them stand out by their great dimensions and high capacity to hold water in their phytotelma, thus being called giant bromeliads in Brazil [1,3]. Several *Alcantarea* species are cultivated in gardens and collected world wide. In Brazil, some taxa are threatened of extinction by the destruction of habitat by fires and mining and also due to over collection, introduction of alien grasses or overall impoverishment of surrounding vegetation compromising pollinators.

Methodology

This revision was based on field, herbarium, and library studies. Maps, morphological descriptions, a key, and IUCN conservation status for each taxon are provided. Several expeditions to the field were conducted and plants were also cultivated. An analysis of the pollen morphology was conducted using electron scanning microscopy. Vouchers were deposited in SP, SPF, RB, UFRN, SEL, and US.

Results and discussion

Alcantarea has an inconstant taxonomical history, and not all the authors used to accept the generic rank proposed for the group. However, recent analyses indicate that *Alcantarea* is well supported as monophyletic and sister to the Brazilian species of *Vriesea* [1]. In the present monograph we increased the morphological and biogeographical knowledge of the genus. New reported features include: the detailed characterization of pollen grains ornamentation, seeds, stigma, inflorescence second order branching pattern (previously unknown for the genus), vegetative propagation, and new hypotheses in floral biology, relating stamens position to pollinators shifts. Seven species were described by the authors during the execution of the revision and three additional new species and one subspecies are described in the present monograph. One neotype is designated for *A. imperialis*, and three new synonyms and two new statuses are proposed. Species previously considered restricted had their ranges expanded (e.g., *A. regina*, *A. farneyi*, *A. hatschbachii*). Two taxa are considered EN and six VU.



Figure. Habitat and floral morphology. (a–b) Inselbergs inside the Atlantic rainforest domain. (a) *A. geniculata* (b) *A. patriae* (c–d) Quartzite rocky outcrops along the Espinhaço range. (c) *A. turgida*. (d) *A. duarteana*. (e–i) Morphology of the stamens. (e and f) Spreading. (g–i) Presented in a bundle. (e) *A. burle-marxii*. (f) *A. imperialis*. (g) *A. patriae*. (h) *A. heloisae*. (i) *A. tortuosa*.

Conclusions

Alcantarea is a well defined genus based in morphological features. Collecting such large specimens is essential to increase the knowledge of their distribution and to assess their conservation, since high quality specimens are seldom seen in herbaria due to difficulties in herborizing and also by the hardness in reaching their habitat while collecting during the rainy season (flowering season).

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Bibliography

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