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Two new species of *Orthophytum* (Bromeliaceae: Bromelioideae) from Minas Gerais, Brazil

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Abstract

The author describes and illustrates two new outlier species in Bromeliaceae, *Orthophytum roseolilacinum* and *O. vasconcelosianum*, from Minas Gerais state, Brazil, which are members of the "Cryptanthoid complex". The morphological affinities and discordant features in relation to the conceptual boundaries of the genus are also discussed.

Key words: Bromelioideae, Cryptanthoid complex, morphology, *Orthophytum*, taxonomy

Introduction

In Bromeliaceae, the "Cryptanthoid complex" of Bromelioideae genera was first recognized by Leme *et al.* (2013), on the basis of shared ecological, geographical and morphological characteristics such as endemic occurrence in southeastern and northeastern Brazil, terrestrial/rupiculous habit, leaf rosettes without water-holding capacity, flowers arranged in subsessile fascicles and fruits without mucilaginous substance. This complex of genera is headed by *Cryptanthus* Otto & Dietrich (1836: 298), currently assembling 76 species, followed by *Orthophytum* Beer (1854: 347) comprising 68 species, and *Lapanthus* Louzada & Versieux (2010: 497) with three known species. The recent stablishment of *Lapanthus* based on species originally assigned to *Cryptanthus* and *Orthophytum* and the revalidation of the genus *Sincoraea* Ule (1908: 191) proposed by Louzada (2008, 2012) in his revision of *Orthophytum* exemplify the need of reevaluation of the conceptual boundaries of the genera of the "Cryptanthoid Complex".

The Cryptanthoid Complex forms a distinct clade in molecular investigations with special focus in Bromelioideae, despite based on few sampled species (Schulte & Zizka 2008, Schulte *et al.* 2009), typical *Cryptanthus* being sister to the remaining groups, i.e. *Cryptanthus* subg. *Hoplocryptanthus* Mez (1891: 202), *Lapanthus* and *Orthophytum* s.l. (Silvestro *et al.* 2013). However, in a phylogenetic analysis based on molecular data focused on the relationship of *Orthophytum* using 54 species, *Sincoraea* (i.e., *Orthophytum* of the sessile inflorescence group) appeared in sister position to the remaining cryptanthoid group (Louzada *et al.* 2014).

The discovering of two new outlier species proposed below is the result of a long-term investigation on the "Cryptanthoid Complex" (e.g. Leme 1990, 1995, 2000, 2004a, 2007, 2008) with the purpose to improve the understanding of the morphological boundaries of their species.

Material & Methods

The studied species were collected randomly in pre-selected sites during field activities with the specific purpose of biodiversity discovery in Bromeliaceae. The descriptions and illustrations are based on careful examination of living, fertile material, including the use of a stereomicroscope, prior to voucher specimen preparation. Descriptive terminology follows Smith & Downs (1974, 1977, 1979), with adaptations following Scharf & Gouda (2008). Voucher specimens were pressed and dried following conventional methods and deposited in HB and RB (acronyms following Thiers [continuously updated]). Living specimens were grown at the Refúgio dos Gravatás, in Teresópolis, Rio de Janeiro following the guidelines recommended by the Convention on Biological Diversity for *ex situ* conservation.

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