



Taxonomic survey of *Paepalanthus* section *Diphyomene* (Eriocaulaceae)

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Abstract

Paepalanthus is the largest genus in Eriocaulaceae, comprising about 400 species distributed mainly throughout the Neotropics. Through phylogenetic studies it has been demonstrated that the genus is polyphyletic, although many of its infrageneric categories are monophyletic. In an attempt to clarify the nomenclature and classification of *Paepalanthus*, we present a taxonomic survey of *Paepalanthus* section *Diphyomene*. This group consists of 10 species restricted to South America and is defined by inflorescences being arranged in the form of a tribotryum with terminal dibotryum, a terminal basic unit and pherophylls subtending the lateral dibotrya. Further important distinguishing characteristics are dimerous flowers, pistillate flowers with dolabriform sepals, bifid stigmatic branches and absent staminodes, and staminate flowers with an elongated anthophore. We hereby propose 19 new synonyms, six lectotypifications, one new status, one neotypification and one epitypification.

Key words: *Paepalanthoideae*, pipewort, taxonomy, typification, nomenclature

Introduction

Paepalanthus Martius (1834: 28), *nom. cons.* is the largest genus in the Eriocaulaceae. Its nearly 400 species are distributed throughout the Neotropics, with some exceptions, one species occurring disjunct on the coast of South America and Africa, and two species are restricted to Madagascar (Giulietti & Hensold 1990, Stützel 1998). Traditionally the genus is divided into several infrageneric categories (Koernicke 1863, Ruhland 1903). Studies in morphological and molecular phylogeny (Giulietti *et al.* 2000, Unwin 2004, Andrade 2007, Andrade *et al.* 2010, Trovó 2010) indicate that the genus is polyphyletic, although many infrageneric categories were found to be monophyletic. Sano (2004) initiated the taxonomic changes necessary to establish coherence between classification and phylogeny in the family, thereby raising *Paepalanthus* sect. *Actinocephalus* (Koernicke 1863: 321) Ruhland (1903: 189) to generic status.

When contemplated within the context of morphological phylogeny, *Paepalanthus* sect. *Diphyomene* Ruhland (1903: 184) is monophyletic (Giulietti *et al.* 2000), but paraphyletic in molecular phylogenies (Unwin 2004, Andrade 2007, Andrade *et al.* 2010, Trovó 2010). The branching pattern and the anatomy of inflorescences suggest a further division in two distinct lineages (Trovó *et al.* 2010). The lineage corresponding to the species in group A (*sensu* Trovó *et al.* 2010) emerges as monophyletic and relates to the species of *Actinocephalus* (Koernicke 1863: 321) Sano (2004: 99). The inflorescence structure in this lineage is considered to be unique in the family. Extensive fieldwork and herbarium studies have led to the conclusion that these species form a natural group in *Paepalanthus*. We present a taxonomic survey of *P.* section *Diphyomene*, excluding species in group B (*sensu* Trovó *et al.* 2010).