



## A new species of *Paspalum*, Notata group (Poaceae, Paspaleae), from the Cerrado biome, Brazil: description, chromosome number, and leaf blade anatomy

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### Abstract

*Paspalum cerradoense* R.C. Oliveira & Valls, a new species from the “Chapada dos Veadeiros” region, in the Cerrado biome, Brazil, is here described and illustrated. It is included in the informal Notata group of *Paspalum*, because of the inflorescences with two distal conjugated racemes. The new species has a chromosome number of  $2n=20$ , which is in agreement with the basic chromosome number of other species of the Notata group. As there are similarities between *Paspalum cerradoense*, *P. cromyrorhizon*, and *P. ionanthum*, morphological and anatomical characters of these three species are compared. There are at least 30 differences between these species, which corroborate the consistency of their circumscriptions.

**Key words:** Chapada dos Veadeiros, cytogenetics, Gramineae, Neotropics, Serra do Tombador, Taxonomy

### Resumo

*Paspalum cerradoense* R.C. Oliveira & Valls, uma nova espécie da região da “Chapada dos Veadeiros”, no bioma Cerrado, Brasil, é aqui descrita e ilustrada. Ela se enquadra no grupo informal Notata, devido às inflorescências com dois racemos distais e conjugados. A nova espécie tem número cromossômico  $2n=20$ , o que está de acordo com o número básico das outras espécies do grupo Notata. Como há semelhanças entre *Paspalum cerradoense*, *P. cromyrorhizon* e *P. ionanthum*, caracteres morfológicos e anatômicos das três espécies são comparados. Há pelo menos 30 diferenças entre essas espécies, o que corrobora a consistência de suas circunscrições.

**Palavras-chave:** Chapada dos Veadeiros, citogenética, Gramineae, Neotrópicos, Serra do Tombador, Taxonomia

### Introduction

*Paspalum* Linnaeus (1759: 846) includes about 350 species (Zuloaga & Morrone 2005), of which 209 occur in Brazil (Valls & Oliveira 2014). Centers of highest diversity of the genus have been recognized in the Brazilian Cerrado and the Campos of Argentina, Uruguay, and Southern Brazil (Rua *et al.* 2010).

Informal groups of *Paspalum* were originally proposed by Chase (1929), based on morphological similarities of assorted taxa to a set of well recognized species, and are widely accepted. The Notata group includes caespitose or shortly rhizomatous perennial species, with erect flowering culms, lanceolate to filiform leaf-blades, inflorescences with two conjugate racemes (occasionally one or three racemes, rarely more), and solitary spikelets with the lower glume usually absent (Zuloaga *et al.* 2004). These species resemble the well-known *P. notatum* Flügge (1810: 106). As presently circumscribed, the Notata group comprises 22 species, ranging from the U.S.A. to Argentina and Chile, including the most recently described Brazilian endemic *P. giuliettiae* Pimenta, G.H. Rua & R.P. Oliveira in Pimenta *et al.* (2013: 264). The basic chromosome number in species of the Notata group is  $x=10$  (Zuloaga *et al.* 2004).

example, Quarín *et al.* (1982) demonstrated that a tetraploid cytotype ( $2n=40$ ) of *P. cromyrorhizon* was a facultative apomictic, and a diploid cytotype ( $2n=20$ ) of the same species has some potential for apomixis, although it commonly reproduces sexually.

*Paspalum ionanthum* and *P. durifolium* Mez (1917: 67) are the only species in the genus *Paspalum* described as sexual, self-incompatible tetraploids ( $2n=40$ ) (Quarín 1994, Pozzobon *et al.* 2000). However, they differ in their apomictic counterpart, which is octoploid ( $2n=80$ ) in *P. ionanthum* and hexaploid ( $2n=60$ ) in *P. durifolium* (Quarín 1994, Pozzobon *et al.* 2000).

The typus and paratypus of *P. cerradoense* have a chromosome number of  $2n=20$ , and given the knowledge of the genus discussed above, we hypothesise that natural populations are sexual. There may be apomictic tetraploids of this species that have not yet been recorded.

Several studies described the leaf anatomical characters in species of *Paspalum* (Türpe 1967, Morrone *et al.* 1995, Aliscioni & Arriaga 1998, Aliscioni 2000, Zuloaga *et al.* 2004, Aliscioni & Denham 2009). The most remarkable is the one of Türpe (1967), which described in detail the leaf anatomy of 69 species of this genus for Argentina. There are at least 30 differences between *P. cerradoense*, *P. cromyrorhizon* and *P. ionanthum* (Tables 1, 2), which corroborate the consistency of their circumscriptions. The presence of parenchyma tissue in the adaxial region makes the midrib very conspicuous in *Paspalum cerradoense* (it can be seen with the naked eye), while this tissue is absent in the blade of the other species (Fig. 4 A, D, G).

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