



## *Paspalum chilense* (Poaceae, Paspaleae): A new species from southern South America

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### Abstract

*Paspalum chilense*, a new species from Chile belonging to the informal Notata group, is described and illustrated on the basis of morphological, cytological and molecular evidence. Our evidence supports its affinity with *P. barretoii* and *P. nummularium*, from Brazil, from which it probably diverged by vicariant speciation. The limited available material of the new species was previously identified as *P. pumilum* or *P. minus*. A new key to the species of the core Notata group is provided.

**Key words:** Notata group, *Paspalum chilense*, South America

### Resumen

*Paspalum chilense*, una nueva especie de Chile perteneciente al grupo informal Notata, es descrita e ilustrada en base a evidencia morfológica, citológica y molecular. Esta evidencia apoya su afinidad con *P. barretoii* y *P. nummularium* de Brasil, de las cuales probablemente ha divergido por especiación vicariante. El escaso material disponible de la nueva especie había sido previamente identificado como *P. pumilum* o *P. minus*. Se incluye una nueva clave para las especies del grupo core Notata.

**Palabras clave:** grupo Notata, *Paspalum chilense*, Sudamérica.

### Introduction

With about 350 species, *Paspalum* Linnaeus (1759: 855) is the largest genus in the Panicoideae. Its species are mostly distributed in natural grasslands in warm and temperate regions of the Americas. The genus is highly diverse in tropical regions but only a few species reach or exceed 40 degrees north and south in latitude.

The informal Notata group was first proposed by Chase (1929) to accommodate five perennial species with compressed culms, basal leaves, inflorescence of two conjugate racemes, and solitary spikelets. It included: *P. notatum* Flügge (1810: 106), after which the group was named, *P. serpentinum* Hochst. ex Steudel (1853: 22), *P. minus* Fournier (1886: 6), *P. pumilum* Nees (1829: 52) and *P. subciliatum* Chase (1929: 69). Barreto (1974) and Canto Dorow *et al.* (1996) expanded the original group and accepted nine species. Zuloaga *et al.* (2004) adopted a broadened concept by merging the group Linearia into Notata, and recognized 21 species. Recent phylogenetic analyses showed the Notata group *sensu lato* to be polyphyletic, but a core Notata clade is recovered in some analyses (Souza-Chies *et al.* 2006, Rua *et al.* 2010). This core Notata group should also include, on the basis of morphology, some other species not sampled in those phylogenies. Under such a concept, the core Notata group comprises the following species: *P. notatum*, *P. minus*, *P. pumilum*, *P. subciliatum*, *P. conduplicatum* Canto-Dorow, Valls & Longhi-Wagner (1995: 333),

**Additional specimens examined:**—CHILE. Región de la Araucanía: provincia de Cautín, Villarrica, 1897, *F.W. Neger s.n.* (M). Región del Biobío: provincia Concepción, Concepción, 1893–96, *F.W. Neger s.n.* (M). Región de los Ríos: provincia del Ranco, Lago Ranco, río Calcurrupe, 19 December 1944, *O. Boelcke 324* (BAA, SI).

### Key to the species of *Paspalum*, core Notata group

1. Spikelets (2.8–)3–4 mm long; plants creeping ..... *P. notatum*
- Spikelets up to 2.8 mm long; plants caespitose ..... 2
2. Spikelets pilose, at least on the upper glume ..... 3
- Spikelets glabrous ..... 4
3. Spikelets 2.4–2.7 mm long, ovate ..... *P. subciliatum*
- Spikelets ca. 2 mm long, broadly ovate ..... *P. strigosum*
4. Proximal leaf sheaths keeled, conduplicate; spikelets ca. 2 mm wide ..... *P. conduplicatum*
- Proximal leaf sheaths not keeled, convolute; spikelets usually up to 1.9 mm wide (occasionally up to 2 mm in *P. barretoii*). ..... 5
5. Spikelets more than 2.2 mm long and 1.5 mm width ..... 6
- Spikelets generally up to 2.1 mm long, width 1–1.7 mm (up to 2.4 mm long in *P. pumilum*, but then less than 1.5 mm width) ... 7
6. Racemes ascending at maturity, conjugate to approximate, the internode between them rarely reaching 5 mm long; spikelets acute ..... *P. minus*
- Racemes reflexed at maturity, subconjugate, separated by an internode more than 5 mm long; spikelets shortly apiculate ..... *P. barretoii*
7. Spikelets elliptical to ovate, length/width ratio greater than or equal to 1.4. .... 8
- Spikelets broadly ovate to orbicular, length/width ratio up to 1.4 ..... 9
8. Leaf blades conspicuously bifid at apex ..... *P. bifidifolium*
- Leaf blades not bifid at apex ..... *P. pumilum*
9. Spikelets obtuse, length/width ratio up to 1.2; ligule 0.2–0.4 mm long. .... *P. nummularium*
9. Spikelets apiculate, length/width ratio greater than 1.2; ligule ca. 1.4 mm long. .... *P. chilense*

### Acknowledgments

We are indebted to the following persons and institutions: Eduardo Piel-Bohmwald for his invaluable assistance in field work, Natalia Gomiz for her excellent illustrations, Sandra Aliscioni for help on the anatomical description, Máximo Gauto Acosta for revision of the Latin diagnose, Jeffery M. Saarela and two anonymous reviewers, and CONICET (‘Consejo Nacional de Investigaciones Científicas y Técnicas’), ANPCyT (‘Agencia Nacional de Promoción Científica y Tecnológica’) and Universidad de Buenos Aires (Argentina) for financial support.

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## Appendix 1.

### Specimens analyzed for spikelet allometry and geographical distribution.

***Paspalum barretoii*:** Boldrini & Eggers 1345 (ICN), Longhi-Wagner *et al.* 2290 (ICN), Rua & Córdova 731, 736 (BAA), Zanin *et al.* 917 (ICN). ***P. chilense*:** Neger *s.n.* (M), Neger *s.n.* (M), Boelcke 324 (BAA, SI), Rua *et al.* 918 (BAA). ***P. conduplicatum*:** Valls 1912, Valls *et al.* 6913, 14838 (CEN). ***P. minus*:** Buchtien 86 (BAA), Ciuffi 4 (BAA), Hitchcock *s.n.* (BAA), Killeen 1521 (SI), 1584 (SI), Zuloaga *et al.* 9569 (SI), Norrmann *et al.* 169 (BAA), Hitchcock *s.n.* (Amer. Gr. Nat. Herb. 915, BAA), Hassler 12546 (BAA), Bourgeau *s.n.* (P, photograph), Davidse 5378 (MO, photograph), Valls *et al.* 7652 (CEN), 15229 (BAA), Vázquez & Rojas 22691 (SI). ***P. nummularium*:** Chase 8436, 9326 (US), Rua & Córdova 737 (BAA), Silva 331, 1003 (BAA). ***P. pumilum*:** Black 54–18159 (BAA), Hatschbach 3009, 3713 (BAA), Hitchcock 10350 (BAA), Parodi 12210 (BAA), Rambo 55070 (BAA), Ramirez 413 (BAA), Rojas 14528 (BAA), Rosengurtt B1696, PE–4622, B5092, 11292 (BAA), Rua *et al.* 592, 716, 749 (BAA), Rua & Córdova 735, 738, Sacco 106 (BAA), Sarmiento 142 (BAA), Silva & Correo 234 (BAA), Tourn *s.n.* (BAA 23015), without collector 163, 295, 1242 (BAA).