



Synflorescence analysis in South American species of *Andropogon* section *Leptopogon* (Andropogoneae, Poaceae): a tool to identify different ploidy levels

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Abstract

In southern South America, *Andropogon* sect. *Leptopogon* is represented by both diploid and hexaploid species. In order to compare the synflorescence structures and floral arrays in relation to ploidy levels in species of *Andropogon*, the section *Leptopogon* was used as model. In this study, the synflorescence structure was typologically characterized. The structural analysis was based on the typology system developed by Troll and Weberling, which has proved useful in describing inflorescences. A comparative analysis of the variations observed in the structure of the synflorescence and a morphometric analysis using principal component analysis were carried out. These results revealed that diploid and hexaploid species present differences mainly in the following parameters: synflorescence length, number of internodes of the enrichment zone main axis, number of internodes and length of paracladia of the trophotagma, number of long paracladia per unit of inflorescence, length of hairs on articulated rachis internodes, pedicellate spikelet length, pedicellate spikelet width, pedicel width, length of hairs on pedicel, sessile spikelet length, awn length and floral system arrangements. This study provides a useful tool to distinguish between diploid and hexaploid species of *Andropogon* sect. *Leptopogon*. We propose naming the group of diploid species from Central and South America as the *Andropogon selloanus* complex.

Key words: grass inflorescence structure; multivariate analysis; taxonomy.

Introduction

Within the tribe Andropogoneae, one of the major sources of variation is the inflorescence (Clayton & Renvoize 1986, Clayton 1987, Vegetti 1994, 1999). Clayton (1987), in his revision of Andropogoneae, identified the need for a detailed exploration of the range of variation in the architecture of the compound panicle in the tribe. Since then, several studies have been performed on *Bothriochloa* Kuntze (1891: 762) (Vegetti 1994, 1999, Vega 2000), *Hyparrhenia* Andersson ex E. Fournier (1886: 51) (Vegetti 1994, 1999), *Schizachyrium* Nees (1829: 331) (Vegetti & Tivano 1991, Vegetti 1992, 1994, Peichoto & Vegetti 2007). In general, the typology-based system developed by Troll (1964, 1969) and Weberling (1989) has proved to be useful for describing inflorescences (Rua 1999).

Most genera in Andropogoneae have spikelets arranged in pairs, one sessile and the other pedicellate, the sessile being bisexual and the pedicellate male or barren (Clayton & Renvoize 1986); rarely, they are solitary as in *Dimeria ornithopoda* Trinius (1820: 167) or form triads as in the genus *Polytrias* Hackel (1887: 24) and in some species of *Lasiurus* Boissier (1859: 145) (Clayton & Renvoize 1986). Although in