



The circumscription of problematic species of *Ophioglossum* (Ophioglossaceae) from Southern South America: a palynological approach

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Abstract

The genus *Ophioglossum* has around 25 species with a nearly cosmopolitan distribution. It has historically posed a number of taxonomic problems due to the lack of morphological characters upon which to base species delimitations. In order to address this, we analyzed the sculpture patterns of spores from ten critical taxa from southern South America. Palynological data was compared with the morphology of the sporophyte. The sculpturing pattern was the most valuable and consistent taxonomic character upon which to base species delimitation in *Ophioglossum*. Nomenclatural types of studied species were examined. The name *Ophioglossum melipillense* is reinstated and the other species recognized to the genus *Ophioglossum* s.s. in this region are the following: *O. crotalophoroides*, *O. nudicaule*, *O. opacum*, and *O. vulgatum*. *Ophioglossum fernandezianum* appears to be a doubtful species. *Ophioglossum lusitanicum* is excluded from the study area, but the lectotype of *O. lusitanicum* is designated, and a revised synonymy is presented.

Resumen

El género *Ophioglossum* cuenta con alrededor de 25 especies y presenta distribución casi cosmopolita. Históricamente se han planteado numerosos problemas taxonómicos debido a la falta de caracteres morfológicos sobre los cuales basar la delimitación de las especies. Para hacer frente a esto, se analizaron los patrones de escultura de esporas de diez taxones críticos en el género *Ophioglossum* del Cono Sur de América. Los datos palinológicos se compararon con la morfología de la esporofito. El patrón de la escultura fue un carácter taxonómico muy valioso y consistente sobre la cual basar la delimitación de las especies. Se examinaron los tipos nomenclaturales de las especies estudiadas. Se restablece el nombre *Ophioglossum melipillense* y para el área de estudio se reconocen las siguientes especies para género *Ophioglossum* s.s.: *O. crotalophoroides*, *O. nudicaule*, *O. opacum*, *O. vulgatum* y el nombre *O. lusitanicum* es excluido. *Ophioglossum fernandezianum* es considerada una especie dudosa. Se examinan todos los tipos nomenclaturales de las especies estudiadas, se designa el lectotipo de *Ophioglossum lusitanicum* y se presentan nuevas sinonimias.

Keywords: Linnaean species; ophioglossoid species; palynology, southern South America; spores; typification

Introduction

The genus *Ophioglossum* was described by Linnaeus (1754: 484), and probably has 20–25 species worldwide (Mickel & Smith 2004). It occurs mostly in disturbed, open and grassy habitats and is often overlooked because of superficial resemblance to seedlings of monocotyledonous plants (Wagner & Wagner 1993). This genus has historically posed a number of problems for taxonomists because of the lack of morphological characters upon which to base species delimitations. Its simple structure and presumed variation within a species has resulted in many distinct taxa being lumped in large ‘traditional’ species complexes due mainly to an insufficient characters with which to set them apart (Burrows, 1997). Burrows (1997) found that the spore morphology provided the most consistent taxonomic character upon which to delimit most species. In an effort to find other diagnostic characters, several taxonomists working in this family focused on the ornamentation of the spore walls to complement their systematic studies (e.g.: Burrows 1997, Burrows & Edwards 1993, 1995; Uehara & Kurita 1989).

A world-wide revision of *Ophioglossaceae* was conducted by Clausen (1938), and the species from southern

closely related taxa Africa, Asia, Australasia, North and South America would be required to revise species delimitation in the genus *Ophioglossum*.

Acknowledgement

This study was possible thanks to doctoral grants from CONICET. All directors and curators from the various herbaria cited in this paper are thanked for allowing to examine their material, especially Mia Ehn and Jens Klackenberg (S), Alison Paul and Jovita Yesilyurt (BM), Nicolas Fumeaux (G) and Germinal Rouhan (P). We also thank Ewen Cameron and Geoff Davidson from the Auckland Museum, for providing specimens from the Cook Islands; Michael Sundue and Mararten Christenhusz for correcting the English in this manuscript, and for their valuable comments. Antonio Krapovickas is acknowledged for making valuable taxonomic suggestions. Financial support for our research was provided by Myndel Botanical Foundation and by the Universidad Nacional del Nordeste (SGCyT-UNNE. PI N° A012-2013).

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