



A synopsis of the Neotropical species of *Sticherus* (Gleicheniaceae), with descriptions of nine new species

JASIVIA GONZALES R.¹ & MICHAEL KESSLER²

¹Herbario Nacional de Bolivia, Casilla 10077, La Paz, Bolivia.

²Systematic Botany, University of Zurich, Zollikerstrasse 107, CH-8008 Zurich, Switzerland. E-mail: michael.kessler@systbot.uzh.ch

Abstract

Sticherus (Gleicheniaceae) is a pantropical genus of about 95 species, characterized by scaly buds, mostly 1-forked veinlets in the segments, (2–)3–5(–7) sporangia per sorus, pseudodichotomously branched blades with pinnatifid or pinnate ultimate branches, and monoete spores. In the Neotropics, we recognize 54 species and three named hybrids. We provide typifications, distributional data, and a key for all species. Nine species are described as new: *S. albus*, *S. antillensis*, *S. chocoensis*, *S. fuscus*, *S. jacha*, *S. moyobambensis*, *S. nervatus*, *S. ovatus*, and *S. rufus*. The following new combinations are proposed: *S. boliviensis*, *S. cubensis*, *S. decurrens*, *S. farinosus*, *S. ferrugineus*, *S. interjectus*, *S. lanosus*, *S. ×leonis*, *S. ×pseudobifidus*, *S. squamosus*, and *S. ×subremotus*.

Key words: Americas, *Gleichenia*, hybrids, *Mertensia*, morphology of scales, taxonomy

Introduction

Gleicheniaceae are an ancient, distinctive fern family easily recognized by its pseudodichotomous branching pattern with periodically or permanently dormant buds at the fork of a pair of blade branches (Østergaard & Øllgaard 1996). Phylogenetically, Gleicheniaceae are sister to Dipteridaceae and Matoniaceae (Hasebe *et al.* 1995, Pryer *et al.* 1995, 2004). Together, they are located on an as yet unresolved trichotomy involving on the one hand Hymenophyllaceae and on the other hand a large clade including the majority of leptosporangiate ferns such as the schizaeoid ferns and the core leptosporangiate ferns (Marsileaceae and Azollaceae, the tree fern clade, and the large polypodioid radiation).

The monophyly of Gleicheniaceae has never been seriously questioned (Kramer 1990, Smith 1995), except regarding its relationship with the monotypic genus *Stromatopteris* Mettenius (1861: 84). Phylogenetic studies of Gleicheniaceae were hampered by insufficient taxon sampling based on the mistaken belief that the family included only two distinct phylogenetic lineages, one with species having hairy rhizomes (*Dicranopteris* Bernhardt (1805: 38) *sensu lato*), the other with species having scaly rhizomes (*Gleichenia* Smith (1793: 419) *sensu lato*). This oversimplified view of relationships ignored the distinctiveness of smaller groups, such as *Diplopterygium* (Diels) Nakai (1950: 47) and *Sticherus* Presl (1836: 51), based on details of morphology (Schneider 1996, Stephenson & Loconte 1996), DNA sequence data (Hasebe *et al.* 1995), as well as phylogenetic analyses of combined data sets (Pryer *et al.* 1995). In addition, two recent studies explored the relationships of Cretaceous fossils using morphological data (Gandolfo *et al.* 1997, Herendeen & Skog 1998). Recent phylogenetic studies of Gleicheniaceae (Pryer *et al.* 2004, Perrie *et al.* 2007, Schuettpehlz & Pryer 2007, Li *et al.* 2010) used sequences of several chloroplast regions (*atpA*, *atpB*, *rbcL*, *rps4*) with or without integration of the nuclear small ribosomal unit to infer the relationship among the six recognized genera of Gleicheniaceae by including one or more representatives of each genus. These studies found evidence for two major clades. The first clade comprises *Diplopterygium*, *Dicranopteris* and *Gleichenella* Ching (1940: 276),