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Pollen morphology of *Sabinaria magnifica* (Cryosophileae, Coryphoideae, Arecaceae)

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Abstract

Sabinaria magnifica is so far the only known species in the recently discovered tropical palm genus *Sabinaria* (Arecaceae). Here we present a complete description of the pollen morphology of this palm species based on light microscopy (LM), scanning electron microscopy (SEM) and transmission electron microscopy (TEM). We also made SEM-based comparisons of *Sabinaria* with other genera within the tribe Cryosophileae. Pollen grains of *Sabinaria magnifica* resemble the other genera in the heteropolar, slightly asymmetric monads, and the monosulcate and tectate exine with perforate surface. Nevertheless, there are some clear differences with *Thrinax, Chelyocarpus* and *Cryosophila* in terms of aperture and exine. *S. magnifica* differs from its closest relative, *Itaya amicorum,* in the exine structure. This study shows that a combination of microscope techniques is essential for the identification of different genera within the Cryosophileae and may also be a necessary when working with other palynologically less distinct palm genera.

Keywords: biodiversity, Palmae, palynology, pollen, systematics

Introduction

Arecaceae (palms) constitute an important and highly diverse family in the tropical and subtropical ecosystems (Dransfield *et al.* 2008). Ranging from sea level up to high altitudes, this family encompasses about 2400 species, with the forests of the Amazon and Chocó, in Colombia being important diversity hotspots. Within the subfamily Coryphoideae, the Cryosophileae is the most widely distributed tribe in the Neotropics. It comprises 82 species (the genus *Coccothrinax* alone includes 53), and is distributed from Mexico and southern Florida to Uruguay and northern Argentina, including the Caribbean (Dransfield *et al.* 2008), with some of its genera exhibiting an intriguing patchy distribution.

The recently described genus *Sabinaria,* and its single species *S. magnifica,* are restricted to the Darién region at the Panamá–Colombia border (Galeano & Bernal 2013) and thus lie roughly halfway within the tribe's range. It has floral characters unique in the tribe; therefore, understanding the morphology of this genus will throw light on the evolution of the tribe and on the relationships among its genera.

In this study light microscopy (LM), scanning electron microscopy (SEM) and transmission electron microscopy (TEM) were used to characterize the pollen of this species (Fig. 1). Based on pollen morphology we provide a general comparison of the new genus with other genera of the tribe Cryosophileae (Table 1).

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