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Two new species of *Ctenitis* (Dryopteridaceae) from South America and taxonomic notes on similar species

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Abstract

Two new species of *Ctenitis* (Dryopteridaceae) from South America are described and illustrated: *Ctenitis christensenii* is endemic to southeastern Brazil and *C. glandulosa* occurs from southeastern to northeastern Brazil and in Guyana. An identification key and notes about the distribution, habitat and taxonomy of the new species, *C. falciculata* and allies are provided. Moreover, seven lectotypifications and two new synonyms are proposed.

Key words: Atlantic Forest, *Ctenitis falciculata,* endemism, ferns, taxonomy

Introduction

Ctenitis (Christensen 1911: 77) Christensen (1938: 544) is one of the most diverse genera of Dryopteridaceae (Smith *et al.* 2006) and is distributed in the Old and New World wet tropics (Mickel & Smith 2004). *Ctenitis* comprises scaly plants and differs from the other genera of Dryopteridaceae mainly by the presence of catenate trichomes, slender vein tips and the basal basiscopic vein of distal pinnules arising from costule or very close to its juncture with the costa (except few species, on which this vein arises from costa). In all species, the catenate trichomes are found adaxially on petioles, rachises and costae and can be present also in other locations in some species. These trichomes are usually less than 0.5 mm long (occasionally up to 2 mm long) and consist of few cells (2–6), with the apical cell not acicular. These trichomes are terete and hyaline, but when dried the cells collapse in a catenate state and the transverse cell walls become ferrugineous. Originally, Christensen (1911) described it as a subgenus of *Dryopteris* Adanson (1763: 20). The most recent monographs of neotropical *Ctenitis* are about one century old (Christensen 1913, 1920). Although these works provide great insight into characters and relationships of the species, the taxonomy of the group remains poorly understood (Stolze 1990). According to some works, the genus contains about 100 to 150 species (Proctor 1977, Stolze 1981, Moran 1995, Mickel & Smith 2004, Gómez & Arbeláez 2009). These approximations were probably based on Christensen (1938), who estimated there was 150 species of *Ctenitis* worldwide when he elevated its status to the genus level. Subsequently, other genera were segregated from *Ctenitis* (Holltum 1986a, 1986b) and many species were transferred to these genera (Holttum 1986a, 1986b, Holttum & Edwards 1986, Smith & Moran 1987). Based on this, Tryon & Stolze (1991) estimated the genus had about 70 to 80 species and that half of these occurred in the Neotropics. Even later, additional species were removed from *Ctenitis* and placed in other genera (Sundue *et al.* 2010, Zhang 2012). On the other hand, some new species and varieties have been described (Rosenstock 1915, Christensen 1936, Proctor 1958, Proctor 1965, Smith 1975, Stolze 1977, Sehnem 1979, Rojas 2001, Mickel & Smith 2004, Schwartsburd *et al.* 2007) and new combinations of neotropical *Ctenitis* have been published (Salino & Morais 2003) for taxa not included in Christensen's monographs (Christensen 1913, 1920). Nevertheless, after analyzing numerous exsiccatae from European and North, Central and South American herbaria (see Methods), we believe there are ca. 50 species of *Ctenitis* in the New World. During this study, we also realized that collections of some indusiate species with 1-pinnate-pinnatifid to 1-pinnate-pinnatisect lamina from Brazil and Guyana have been confused with *C. falciculata* (Raddi 1819: 289) Ching (1940: 250) and remained undetermined or identified as *C. falciculata*, *C.* cf. *falciculata* or *C.* aff. *falciculata*. Christensen did not treat all of the 1-pinnate-pinnatifid and indusiate species in the first part of his

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