A CLASSIFICATION OF THE FERN GENUS *TECTARIA* (TECTARIACEAE: POLYPODIALES) BASED ON MOLECULAR AND MORPHOLOGICAL EVIDENCE[1]

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Abstract

The pantropical genus *Tectaria* Cav. (Tectariaceae) is one of the largest fern genera. It has been estimated to contain ca. 210 mostly tropical species in Africa, the Americas, Asia, and the Indian Ocean and Pacific Ocean islands. *Tectaria* had perhaps been the most confusing fern genus in terms of its circumscription and phylogeny. Recent studies have recircumscribed *Tectaria* and resolved the relationships within the genus. However, no efforts have been made to propose an infrageneric classification of the genus based on molecular and morphological evidence. In the present study, we synthesize chloroplast and nuclear DNA evidence, morphology, and/or distribution information and divide *Tectaria* into four subgenera: *Tectaria* subg. *Ctenitopsis* (Ching ex Tardieu & C. Chr.) Li Bing Zhang & Liang Zhang (comb. & stat. nov.), *Tectaria* subg. *Phlebiogonium* (Fée) Li Bing Zhang & Liang Zhang (comb. & stat. nov.), *Tectaria* subg. *Tectaria*, and *Tectaria* subg. *Tectaridium* (Copel.) Li Bing Zhang & Liang Zhang (comb. & stat. nov.). The latter three are further divided into seven, two, and two sections, respectively. Sixteen generic names are synonymized to individual infrageneric taxa, while four generic names are only synonymized to *Tectaria* because of inadequate data. A key to the infrageneric taxa is given. A nomenclatural account of each infrageneric taxon is provided.

Key words: Infrageneric classification, *Tectaria*, Tectariaceae.

Tectaria Cav. (Tectariaceae) is one of the largest genera of ferns and has been estimated to contain ca. 210 species (Holttum, 1991). Species of *Tectaria* have a pantropical distribution occurring in Africa, the Americas, Asia, and the Indian Ocean and Pacific Ocean islands. The circumscription of this genus had notoriously been confusing. Since Cavanilles (1799) described it, at least 26 genera have been separated from *Tectaria* s.l. including *Aenigmopteris* Holttum (Holttum, 1984), *Amphiblestra* C. Presl (Presl, 1836), *Aspidium* Sw. (Swartz, 1800 [1801]), *Bathmium* C. Presl ex Link (Link, 1841), *Camptodium* Fée (Fée, 1852), *Chlamydogramme* Holttum (Holttum, 1986), *Cionidium* T. Moore (in Houlston & Moore, 1852), *Ctenitopsis* Ching ex Tardieu & C. Chr. (Tardieu-Blot & Christensen, 1938), *Dictyoxiphium* Hook. (Hooker, 1840), *Dryomenis* Fée ex J. Sm. (Smith in Seemann, 1852–1857), *Fadyenia* Hook. (Hooker, 1840), *Grammatosorus* Regel (Regel, 1866), *Hemigramma* Christ (Christ, 1907), *Heterogonium* C. Presl (Presl, 1851), *Lenda* Koidz. (Koidzumi, 1936), *Luerssenia* Kuhn ex Luerss. (Luerssen, 1882), *Microbrochis* C. Presl (Presl, 1851), *Phlebiogonium* Fée (Fée, 1852), *Pleuroderris* Maxon (Maxon, 1934), *Podopeltis* Fée (Fée, 1852), *Psomiocarpa* C. Presl (Presl, 1851), *Quercifilix* Copel. (Copeland, 1928), *Sagenia* C. Presl (Presl, 1836), *Stenosemia* C. Presl (Presl, 1836), *Tectaridium* Copel. (Copeland, 1926), and *Trichiocarpa* (Hook.) J. Sm. (Smith, 1856). Molecular and morphological studies have shown that these 25 genera are nested within *Tectaria* and therefore should all be synonymized with it (Copeland, 1947; Morton, 1966; Wagner et al., 1978; Tryon & Tryon, 1982; Kramer et al., 1990; Schuettpelz & Pryer, 2007; Liu et al., 2013, 2014; Ding et al., 2014; Moran et al., 2014; Wang et al., 2014; Zhang et al., 2016, 2017; Chen et al., 2017).

Conversely, some species traditionally treated as members of *Tectaria* based on morphology have been resolved as non-*Tectaria* species using molecular data and transferred to other genera of the same family or even another family. For example, *T. plantaginea* (Jacq.) Maxon has been transferred to the newly

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