



PHYTOTAXA

229

A monograph of the Anisophylleaceae (Cucurbitales) with description of 18 new species of *Anisophyllea*

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Magnolia Press
Auckland, New Zealand

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(*Phytotaxa* 229)

189 pp.; 30 cm.

2 October 2015

ISBN 978-1-77557-809-3 (paperback)

ISBN 978-1-77557-810-9 (Online edition)

FIRST PUBLISHED IN 2015 BY

Magnolia Press

P.O. Box 41-383

Auckland 1346

New Zealand

e-mail: magnolia@mapress.com

<http://www.mapress.com/phytotaxa/>

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ISSN 1179-3155 (Print edition)

ISSN 1179-3163 (Online edition)

Abstract

A monographic study of the family Anisophylleaceae in the order Cucurbitales was carried out. Four genera, *Anisophyllea* (67 spp.), *Combretocarpus* (1 sp.), *Poga* (1 sp.), and *Polygonanthus* (2 spp.), and together 71 species are recognized, of which 18 are described as new. The 18 new species are all in *Anisophyllea* and include *A. bakoensis*, *A. biokoensis*, *A. borneensis*, *A. cuneata*, *A. dinghoui*, *A. glandibeccariana*, *A. glandulipetiolata*, *A. insularis*, *A. malayensis*, *A. myriostictoides*, *A. neopurpurascens*, *A. obanica*, *A. rengamensis*, *A. rubroglandula*, *A. sabahensis*, *A. sarawakensis*, *A. sessiliflora*, and *A. sumatrana*. Keys to the genera and to species of *Anisophyllea* and to those of *Polygonanthus* are provided. All species are described in detail and all but two are illustrated. Information on their distribution and habitat, phenology, and vernacular name and local usage, if available, is given. Distribution map of every species is presented. Taxonomic history, taxonomic characters, and various taxonomic issues are discussed. We also lectotypify or neotypify 30 names in the family including *Anisophyllea apetala* Scortechini ex King, *A. beccariana* Baillon, *A. boehmii* Engler, *A. brachystyla* Engler & von Brehmer, *A. buettneri* Engler, *A. cabole* Henriques, *A. cordata* Engler & von Brehmer, *A. curtisii* King, *A. exellii* P. A. DuVigneaud & Dewit, *A. fissipetala* Engler & von Brehmer, *A. fruticulosa* Engler & Gilg, *A. gaudichaudiana* Baillon, *A. gossweileri* Engler & Brehmer, *A. griffithii* Oliver, *A. guianensis* Sandwith, *A. mayumbensis* Exell, *A. meniaudi* Aubréville & Pellegrin, *A. obtusifolia* Engler & Brehmer, *A. poggei* Engler ex De Wildeman & T. Durand, *A. pomifera* Engler & Brehmer, *A. purpurascens* Hutchinson & Dalziel, *A. scortechinii* King, *A. sororia* Pierre, *A. strychnoides* Engler & Brehmer, *A. tomentosa* Rolfe, *A. trapezoidalis* Baillon, *A. zeylanica* Benthham, *Combretocarpus motleyi* J. D. Hooker, *Macrosolen rotundatus* Miquel, and *Poga oleosa* Pierre.

Key words: *Anisophyllea*, *Combretocarpus*, new species, lectotypification, pantropical, *Poga*, *Polygonanthus*, taxonomy

INTRODUCTION

Anisophylleaceae, a member of the order Cucurbitales (Zhang *et al.* 2006, 2007, Schaefer & Renner 2011), are a little-known pantropical family of trees and shrubs. Species of the family are widespread in tropical Africa, the Malay Peninsula, and tropical South America (Ding Hou 1958, Juncosa & Tomlinson 1988a, Zhang *et al.* 2007, Schwarzbach & Tomlinson 2008, Chen *et al.* 2013).

Anisophylleaceae are generally recognized to contain four genera, of which *Anisophyllea* R. Brown ex Sabine (1824: 446), the most diverse genus in the family, has been estimated to contain 10–30 species (King 1897, Engler & von Brehmer 1917, Juncosa & Tomlinson 1988a, Schwarzbach & Tomlinson 2008). However, no modern taxonomic revision of the family has ever been conducted and all the taxonomic works so far have been regional, such as those by Henslow (1878), King (1897), Ding Hou (1958), and Wong & Madani (1995) on the species of the Malay Peninsula, and those by Baker (in Oliver 1871), Engler & von Brehmer (1917), and Lewis (1956) on African species, and Chen *et al.* (2013) on Malagasy species. In this paper, we reviewed taxonomic history and evaluated taxonomic characters. Based on intensive examination of herbarium specimens and literature, we classify the family into 71 species in four genera: *Anisophyllea* with 67 species (18 of them are new), of which 30 are in Malesia, 26 in mainland Africa, five in Madagascar, and two in South America; *Combretocarpus* J.D. Hooker (in Benthham & Hooker 1865: 683) with one species in Borneo and Sumatra; *Poga* Pierre (1896: 1254) with one species in equatorial Africa; and *Polygonanthus* Ducke (1932: 345) with two in the Brazilian Amazon Basin. With 18 species new to science together with four we described last year (Chen *et al.* 2013) or approximately one third of the 71 species in the family being unknown, Anisophylleaceae are definitely among the least-known angiosperm families.

TAXONOMIC HISTORY

Taxonomic history of Anisophylleaceae

Traditionally, Anisophylleaceae were included in Rhizophoraceae as the subfamily Anisophylleoidae or the tribe Anisophylleae. Benthham & Hooker (1865) regarded *Anisophylleae* as the third tribe of Rhizophoraceae besides *Rhizophoreae* and *Legnotidae*, and added *Combretocarpus* to the tribe. Baillon (1875, 1877) treated these plants