



Article

New combinations in *Aerangis*, *Diaphananthe* and *Podangis* (Orchidaceae, subtribe Angraecinae)

PHILLIP CRIBB¹ & BARBARA CARLSWARD²

¹Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AB, UK

²Department of Biological Sciences, Eastern Illinois University, Charleston, IL, 61920, US; email: bscarlward@eiu.edu

Abstract

New combinations in *Aerangis* are made for six species previously ascribed to *Microterangis*, for twelve species and one variety in *Chamaeangis* that are transferred to *Diaphananthe*, and for *Rangaeris rhipsalisocia* that is transferred to *Podangis rhipsalisocia*. The morphological and DNA-based evidence for these transfers is discussed.

Key words: African orchids, Afro-Malagasy orchids, *Chamaeangis*, *Genera Orchidacearum*, *Microterangis*, *Rangaeris*

Introduction

Schlechter (1918) attempted to provide a natural classification of Afro-Malagasy angraecoid orchids by recognizing 32 genera and providing a key to them. He originally proposed subtribes Angraecinae and Aerangidinae but did not validate them (Schlechter, 1926). Summerhayes (1966) circumscribed these subtribes based on rostellum shape and chromosome number (generally, $n = 25$ for Aerangidinae and $n = 19$ for Angraecinae), but within each subtribe tremendous variation exists. The genera under consideration here, *Aerangis* Reichenbach (1865: 190), *Chamaeangis* Schlechter (1918: 107), *Diaphananthe* Schlechter (1915: 600), *Microterangis* Senghas (1985: 22), *Podangis* Schlechter (1918: 82) and *Rangaeris* (Schlechter 1918: 121) Summerhayes (1936a: 227), all fall in Aerangidinae *sensu* Summerhayes (1926).

Szlachetko (1995) further subdivided the Afro-Malagasy angraecoid orchids into six subtribes: Aerangidinae, Angraecinae, Bolusiellinae, Calypetrochilinae, Listrostachyinae and Rhaesteriinae. These subtribes were based upon his interpretations of column morphology, in particular rostellum and pollinarium structures. The genera we consider here fall within Szlachetko's interpretation of Aerangidinae (*Aerangis* and *Microterangis*) and Bolusiellinae (*Chamaeangis*, *Diaphananthe*, *Podangis* and *Rangaeris*).

Based upon phylogenetic analyses using DNA sequence data for only a limited number of species in the genera concerned, Chase *et al.* (2003) recognized Angraecinae with 18 genera and Aerangidinae with 32 genera. In the most recent molecular phylogenetic analyses of Vandeeae (Carlsward *et al.* 2006, Micheneau *et al.* 2008), Szlachetko's subtribes Aerangidinae, Angraecinae, Bolusiellinae, Calypetrochilinae, Listrostachyinae and Rhaesteriinae were individually polyphyletic, but together they formed a well-supported clade. Therefore, Carlsward *et al.* (2006) proposed recognizing a broadly circumscribed subtribe Angraecinae that included all other previously named angraecoid subtribes of Vandeeae.

Schlechter (1918) prepared a complete account of the Afro-Malagasy angraecoid orchids at the generic level. Senghas (1986) updated this treatment, providing informative line illustrations and photographs of one species per genus. Szlachetko (1995, 2003) also provided detailed line drawings of the column and pollinarium structure of a species from each genus. Carlsward *et al.* (2006) noted the non-monophyly of *Aerangis*, *Chamaeangis*, *Diaphananthe*, *Microterangis* and *Rangaeris*, but did not make any nomenclature