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Notes on *Benstonea* (Pandanaceae) from the islands of Halmahera, New Guinea and Sulawesi

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Abstract

Benstonea (Pandanaceae) was circumscribed to include 57 species formerly placed in the genus *Pandanus*. Field observations, accompanied by the study of available herbarium material have brought new insights for the delimitation of certain problematic species, especially in the difficult group of species characterized by an axillary infructescence on a short peduncle covered by prophylls and the abscission of the basal portion of the drupe at maturity. New combinations, based on names in *Pandanus* previously treated as synonyms of *Benstonea stenocarpa*, are proposed for three distinct species of this group from Halmahera (Indonesia) and Papua New Guinea. The identity of *Benstonea celebica*, endemic to Sulawesi (Indonesia), is also elucidated and an epitype is designated for this species.

Introduction

While formally describing the genus *Benstonea* Callmander & Buerki in Callmander & al. (2012: 328) following the study of Buerki & al. (2012), a synopsis of the new genus with the new name combinations for the 50 accepted species was provided. This synopsis was primarily based on observations of herbarium specimens deposited at key herbaria [Berlin (B), Berkeley (UC), Geneva (G), Firenze (FI), Harvard (A), Honolulu (BISH), Kew (K), Kuala Lumpur (KLU), Leiden (L), Sabah (SAN), Sarawak (SAR), St. Louis (MO), Singapore (SING) and Washington (US)] and the relevant literature, in addition to field observations made in Borneo (Sabah, Sarawak), Fiji and Singapore in 2011 and 2012. A further seven new species combinations were added to the genus by Callmander & al. (2013) following further morphological and molecular studies (Booth & al. unpubl. data).

During 2013 and 2014, MWC had the opportunity to visit the Herbarium Bogoriense (BO) on two occasions and the Philadelphia Herbarium (PH), both of which house many types and other important collections of Pandanaceae from south-east Asia, and to spend one month on Halmahera (North Maluku Province, Indonesia). Those visits, and fruitful discussion with AK in BO have provided us with new insights that permit us to refine the taxonomy of certain *Benstonea* species in the region, especially in the difficult 'Dimissistyli' group of species characterized by an axillary infructescence on a short peduncle covered by prophylls and the abscission of the basal portion of the drupe at maturity [previously recognized at the subsectional level by Stone (1969, 1974) as *Pandanus* section *Acrostigma* (Kurz 1867: 100) subsection *Dimissistyli* Stone (1969: 12), but not currently formally recognised in *Benstonea*] (Fig. 1A–G).

Stone (1978) suggested that too many species had been described in the 'Dimissistyli' group, but he nevertheless maintained six distinct species: *Pandanus danckelmannianus* Schumman in Schumman & Hollrung (1899: 18), *P. erinaceus* Stone (1965: 1), *P. lictor* Stone (1965: 2), *P. misimaensis* St. John ex Stone (1978: 54), *P. stenocarpus* Solms (1883: 91) and *P. verruculosus* Backer ex Stone (1978: 55). A broader species concept was proposed by Jebb (1992) who accepted only two species in this group, and one of these with doubt. Jebb (1992) considered *Pandanus danckelmannianus* as probably different from the holotype of *P. stenocarpus* (*Beccari s.n.* [FI2723]! from the Arfak Mts. in West Papua Prov., Indonesia) and reduced all the other eleven species of the 'Dimissistyli' group to

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