Solfia Transferred to *Balaka*

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***Solfia*, a monotypic genus from Samoa, is synonymized with *Balaka*, based on molecular evidence. When transferred to *Balaka*, *Solfia samoensis* requires a new name for which we propose *Balaka insularis*.**

Recent research in the subtribe Ptychospermatinae has brought us incrementally closer to understanding the evolutionary history of this important, species-rich branch of the palm family tree. One long-standing problem in the group has been the disposition of *Solfia samoensis*, a seldom-seen species from Samoa. It was originally described by Rechinger in 1907, but soon thereafter was transferred to *Drymophloeus* by Martelli, based on the work of Beccari (Martelli 1935). The work of the first author (Zona 1999), analyzing morphological characters, suggested that the species be returned to its own genus. That decision was based on the fact that it lacked many of the characters of *Drymophloeus*, including wedge-shaped leaflets and a persistent peduncular bract.

The advent of molecular work shed new light on the phylogenetic position of *Solfia*. Initial studies (Norup et al. 2006; Baker et al. 2009) paired it, for the first time, with *Balaka*, a genus of seven species in Fiji and two in Samoa, but these studies had only one species of *Balaka* to compare with the one species of *Solfia*. More recent studies with two species of *Balaka* (Baker et al. 2011, Zona et al. 2011) continued to show *Solfia* to be most closely related to two *Balaka* species. In terms of the taxonomy, *Solfia* could continue to stand as a genus sister to all *Balaka* species, the position taken in *Genera Palmarum* ed. 2. (Dransfield et al. 2008).

The juxtaposition of *Balaka*, with its black, angular, beaked endocarps (square or pentagonal in cross-section) with *Solfia* (straw-colored endocarps, circular in cross-section) was unexpected. Hodel (2010) claimed that the Samoan *Balaka* species have obscurely or slightly angled endocarps with no beaks, but specimens examined by the first author of the Samoan *Balaka samoensis* (*Zona et al. 717*) and *B. tahitensis* (*McClatchey 1191*), both in the herbarium of Fairchild Tropical Botanic Garden (Fig. 1), have strongly angled endocarps with tapered beaks, similar in morphology to endocarps found in Fijian taxa.

The taxonomy fell apart with the work of Alapetite et al. (2014), which included five species of *Balaka*, along with *Solfia samoensis*. In their work, based on eight gene sequences, *Solfia* was unambiguously placed on the strongly supported branch of the tree that comprises *Balaka*. It resolved as sister to *B. tahitensis*, which despite its name, is native to Samoa. The remaining species of *Balaka* formed another very strongly supported branch. There are two solutions that would

1. Left to right, rachillae, fruit and seed of *Balaka tahitensis* (*McClatchey 1191*); fruits and seeds of *Solfia samoensis* (*Tipama'a 2*); fruits, seed and seed cross-section of *Balaka samoensis* (*Zona et al. 717*). Scale is mm.

make the taxonomy reflect the evolutionary history suggested by Alapetite et al. (2014). The first solution is to transfer the Samoan *Balaka* into *Solfia*. This option has molecular support but would make *Solfia* a disharmonious genus in which dark, angular endocarps are present in two (former *Balaka*) species and terete, straw-colored endocarps are found in the type species. The second option, the one followed here, is to sink *Solfia* into *Balaka*, thereby creating one monophyletic genus, *Balaka*, in which only one species is a morphological outlier.

When included in *Balaka*, *Solfia samoensis* requires a new epithet. The one chosen here is a nod to its home in Samoa and to its isolated morphology within the genus.

Balaka insularis Zona & W.J. Baker, **nom. nov**.

based on *Solfia samoensis* Rech., Repert. Spec. Nov. Regni Veg. 4: 233. 1907 (non *Balaka samoensis* Becc., Webbia 4: 267. 1914). Type: Samoa, Savai'i, August 1905, *K. Rechinger 79* (FI!).

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