Additional new combinations in Sesamum L. (Pedaliaceae: Sesameae)

**Background:** Ongoing systematic studies in the African flora necessitate periodic nomenclatural adjustments and corrections.

**Objectives:** To effect requisite nomenclatural changes.

**Method:** Relevant literature was surveyed and requisite nomenclatural transfers provided.

**Results:** The new combination Sesamum byngianum Christenh. proposed for Josephinia africana Vatke is superfluous as an available synonym exists.

**Conclusions:** The new combination Sesamum rosaceum (Engl.) J.C. Manning & Magee is also provided for Josephinia africana Vatke. Three new sectional combinations are provided to accommodate the species previously placed in Ceratotheca Endl., Josephinia Vent. and Dicerocaryum Bojer in the current infrageneric classification of Sesamum.

**Introduction**

Pedaliaceae are a family of 60–70 species from the Old World tropics and subtropics, mainly in sub-Saharan Africa, with 13 genera traditionally recognised (Christenhusz, Fay & Chase 2017a; Ihlenfeldt 1988). Recent molecular phylogenetic analyses of the family confirm that the tribes Pedalieae Dumort., Sesameae (Endl.) Meisn. and Sesamothamneae Ihlenf. are monophyletic, but that the genus Sesamum L. is not (Gormley, Bedigian & Olmstead 2015).

Tribe Sesamae is recognised by its axillary flowers with obliquely campanulate, pink to purple corolla; anthers with parallel, oblong thecae; and the development of false-septa dividing the ovary and fruit locules (Ihlenfeldt 1988). It has traditionally been treated as comprising the four genera Ceratotheca Endl. (2 spp.), Dicerocaryum Bojer (4 spp.), Josephinia Vent. (6 spp.) and Sesamum (21 spp.), essentially separated, like many of the genera in the family, by characters of the fruit. Thus, both Dicerocaryum and Josephinia are characterised by indehiscent fruits with the locules completely divided by false-septa, whereas Ceratotheca and Sesamum share dehiscent capsules with incompletely divided locules (Bruce 1953; Ihlenfeldt 1988). The development and position of spines on the fruits serve to separate the genera within these two groups: Dicerocaryum has flattened, discoid fruits bearing paired horns on a central disc; Josephinia has ovoid or subglobose fruits densely covered with small spines; Ceratotheca has obtuse or truncate capsules usually with a pair of horns on the distal angles; and Sesamum has acute, beaked capsules. These carpological developments are associated with modes of seed dispersal, with the indehiscent fruits adapted for zoocochy and the capsular fruits adapted for anemochy.

Phylogenetic analyses of plastid (ndhF and trnLF) and nuclear (ETS) sequence data by Gormley et al. (2015) show convincingly that Sesamum is paraphyletic with respect to the remaining genera in the tribe, which fall within a clade including members of S. sect. Aptera and possibly also sect. Sesamum. This finding is borne out by both plastid and nuclear analyses, although sampling in the latter is not as comprehensive as in the former. Morphological support for this relationship is evident in the simple leaves of Ceratotheca, Dicerocaryum and Josephinia, a condition shared with S. sect. Aptera (some of the other sections have palmate leaves) and in the seeds of Ceratotheca (the only one of the three genera with dehiscent fruits), which are consistent with those of S. sect. Aptera in lacking wings but with a well-developed double fringe on the margins and with rugose-reticulate testal sculpturing. The molecular topology reproduced in Gormley et al. (2015) suggests an increasing shift in this clade from anemochy towards zoocochy through the development of lateral horns, accompanied by shortening (or depression) of the capsule and loss of dehiscence.

On the basis of these findings, Sesamum can be rendered monophyletic only by splitting it into smaller segregates or by enlarging its circumscription to include the remaining three genera and...
12 species in the tribe. The former option has no historical precedence, and Christenhusz, Fay and Byng (2017b) adopted and partially implemented the second option. Unfortunately, the new name Sesamum byngianum Christenh. was proposed for Josephinia africana Vatke to avoid a later homonym for S. africanaum Tod. (1866) is superfluous as an earlier available synonym exists and should have been used (McNeil et al. 2012: Art. 11.4). We provide the relevant combination here. We also provide three additional combinations at sectional level in order to integrate these taxa into the infrageneric classification of Sesamum, which currently includes the four sections Aptera Seidenst., Chamaesesamum Benth., Sesamopteris Endl. and Sesamum (Ihlenfeldt 1988).

Materials and methods
We examined the relevant literature and implemented the necessary nomenclatural changes following McNeil at al. (2012).

Results


New sections:


Josephinia africana Vatke in Linnaea 43: 541 (1882), Sesamum byngianum Christenh. in GLOVAP Nomenclature 1, 4: 145 (2017b), as nom. nov. [non S. africanaum Tod. (1866)]. Type: Kenya, ‘Teita District, Tsavo River’, Hildebrandt 2586 (B, holo.)


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Competing interests
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References


Endlicher, S., 1832, ‘Ceratotheca, eine neue Pflanzengattung aus der Ordnung der Sesamene’, Linnaea 7, 1–42.


