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LECTOTYPIFICATION OF SOME ARABIAN *APOCYNACEAE*

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Lectotypes are selected for the following names in the *Apocynaceae* from the Arabian Peninsula: *Adenium arabicum* Balf.f., *Adenium obesum* (Forssk.) Roem. & Schultes, *Caralluma adenensis* (Deflers) A.Berger, *Cryptolepis intricata* (Balf.f.) Venter, *Cryptolepis volubilis* (Balf.f.) O.Schwartz, *Kanahia laniflora* (Forssk.) R.Br., *Leptadenia arborea* (Forssk.) Schweinf., *Marsdenia robusta* Balf.f., *Rhazya stricta* Decne. and *Tylophora yemensis* Deflers. For *Secamone socotrana* Balf.f., it is noted that a previous citation of a holotype is rather an effective designation of a lectotype. Neotypes are selected for *Caralluma hexagona* var. *septentrionalis* Lavranos & L.E.Newton, *Glossonema boveanum* (Decne.) Decne., *Leptadenia pyrotechnica* (Forssk.) Decne. and *Orbea chrysostephana* (Deflers) Bruyns.

Keywords. *Apocynaceae*, Arabian Peninsula, Flora of Arabia, lectotypes, neotypes.

Introduction

Examination of the literature and of material from several herbaria, in preparation for an account of the family for the Flora of Arabia, has indicated that the names of the following species (and one variety) of *Apocynaceae* from the Arabian Peninsula have not been precisely typified. Since typification is not included in the Flora of Arabia format, where necessary, lectotypes and neotypes are designated here. In the case of *Secamone socotrana*, where a holotype had been cited in error (Goyder, 1992), this is corrected to the effective designation of a lectotype.

Adenium obesum (Forssk.) Roem. & Schultes, Syst. Veg. 4: 411 (1819). – *Nerium obesum* Forssk., Fl. Aegypt.-Arab. 205 (1775). – *Cameraria obesum* (Forssk.) Spreng., Syst. Veg. 1: 641 (1824). – Type: Yemen (N), Jabal Milhan, *Forsskål* 235 (lecto C, designated here).

In Leeuwenberg (2003) this collection is cited as the holotype. However, Forsskål (1775) mentioned two collections, one from 'Melhan' and one from 'Aden', and did not indicate either as a type. Therefore a lectotype should be selected and the collection from Jabal Milhan (the 'Melhan' of Forsskål) is proposed here as the lectotype. Leeuwenberg's citation is not an effective lectotypification under Art. 7.11 of the ICBN (McNeill *et al.*, 2006).

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Adenium arabicum Balf.f., Trans. Roy. Soc. Edinburgh 31: 162 (1888). – Type: Yemen (S), Aden, iii 1862, *Playfair* s.n. (lecto K, designated here). = **Adenium obesum.**

Balfour (1888) did not cite any material when he described *Adenium arabicum* but mentioned that this 'species' occurred around Aden. No material from Aden that he may have seen has been traced at Edinburgh and the only specimen that we have located that he might have consulted is that of Playfair at Kew. Since he cited a different specimen of Playfair's, also at Kew, under his *Adenium somalense* Balf.f. (Balfour, 1888), it is assumed that he also saw the Playfair specimen lectotypified here for *Adenium arabicum*.

Caralluma adenensis (Deflers) A.Berger, Stapel. & Klein. 79 (1910). – *Boucerosia adenensis* Deflers, Bull. Soc. Bot. France 43: 115 (1896). – *Crenulluma adenensis* (Deflers) Plowes, Haseltonia 3: 66 (1995). – *Desmidorchis adenensis* (Deflers) Meve & Liede, Pl. Syst. Evol. 234: 202 (2002). – Type: Yemen (S), Mt Nakhai, 600–700 m, 1 iv 1890, *Deflers* 506 (lecto MPU, designated here; isolecto P).

Deflers (1896) cited several collections for this species in the protologue. These were Jabal Scham-Scham, *Deflers* 65 and 518 (collected 1889–90); Wadi Eybad, near Schoukra and towards Jabals Nakhai and 'Areys, *Deflers* 506, 863, 917 and 1019 (collected 1889–90 and 1893); and Jabal Heys, *Deflers* 1163 (collected 1894). Of these collections, *Deflers* 65 has not been located. The rest are all present in MPU and duplicates of *Deflers* 506 and 518 are also housed at P. *Deflers* 506 (MPU) is selected as the lectotype.

Caralluma hexagona var. *septentrionalis* Lavranos & L.E.Newton, Cact. Succ. J. (U.S.) 51: 234 (1979). – *Sulcolluma hexagona* var. *septentrionalis* (Lavranos & L.E.Newton) Plowes, Haseltonia 3: 62 (1995). – Type: Yemen (N), 15 km north of Sana'a, *Lavranos & Newton* 15724 (missing). Neotype: Yemen (N), outskirts of Sana'a along the road to Hodeida, *Bruyns* 10170 (neo E, designated here; isoneo MO). = **Caralluma hexagona** Lavranos.

The type, which was said to be at Edinburgh, is missing. Furthermore, although Lavranos & Newton (1979) mentioned several other collections that they made of this variety, none of these appears to have been preserved and therefore a neotype is selected. This comes from the same general area as the type and has similarly slightly campanulate flowers.

Cryptolepis intricata (Balf.f.) Venter, Taxon 46: 713 (1997). – *Mitolepis intricata* Balf.f., Proc. Roy. Soc. Edinburgh 12: 78 (1883). – Type: Socotra, above Kischen, 800 m, 1 v 1881, *Schweinfurth* 651 (lecto E, designated here).

Balfour (1883) cited two specimens under *Mitolepis intricata*, namely *Balfour, Cockburn & Scott* 508 and *Schweinfurth* 651. Only the latter has been located and is selected as the lectotype.

Cryptolepis volubilis (Balf.f.) O.Schwartz, Mitt. Inst. Allg. Bot. Hamburg 10: 187 (1939). – *Ectadiopsis volubilis* Balf.f., Proc. Roy. Soc. Edinburgh 12: 78 (1883). – *Curroria decidua* var. *volubilis* (Balf.f.) Bullock, Kew Bull. 1953: 361 (1953). – Type: Socotra, 170 m, 1881, *Schweinfurth* 472 (lecto E, designated here).

For this species Balfour (1883) cited the collections *Balfour, Cockburn & Scott* 259 and 696, and *Schweinfurth* 472 and 667. Of these, *Balfour, Cockburn & Scott* 259 and *Schweinfurth* 472 have been located at Edinburgh and the latter is selected as the lectotype.

Glossonema boveanum (Decne.) Decne., Ann. Sci. Nat., Bot., Sér. 2, 9: 335 (1838). – *Cynanchum boveanum* Decne., Ann. Sci. Nat., Bot., Sér. 2, 4: 82 (1835). – *Odontanthera boveana* (Decne.) Mabb. in Manilal, Botany & History of Hortus Malabaricus 89 (1980). – Type: Saudi Arabia, near Ferihe, 15 ii 1836, *Schimper* 920 (neo W, designated here; isoneo FI, K, P).

Decaisne (1835) mentioned only 'Hab. l'Yemen' and no collections (as for *Rhazya stricta*, see below) but, since this paper was about new collections of Botta and Bové that had recently arrived from Arabia, it was clearly described from a collection of theirs. Decaisne (1838) mentioned collections of Botta and Bové from the Tihama in Yemen and also a collection 'in arenosis ad rupes Ferihe, *Schimper*'. The lattermost is almost certainly the collection 'near Ferihe, *Schimper* 920', which is at FI, K, P and W. No collections by either Botta or Bové have been located and so *Schimper* 920 is selected as the neotype.

Kanahia laniflora (Forssk.) R.Br. in Salt, Voy. Abyss., App. 4: 64 (1814). – *Asclepias laniflora* Forssk., Fl. Aegypt.-Arab. 51 (1775). – Type: Yemen, *Forsskål* 265 (lecto C, designated here).

Forsskål (1775) did not list any material or localities but the specimens *Forsskål* 265, 973 and 974, all at C and cited by Goyder (2003), are all almost certainly original material. The first is selected here as the lectotype.

Leptadenia arborea (Forssk.) Schweinf., Arab. Pflanzennamen 167 (1912). – *Cynanchum arboreum* Forssk., Fl. Aegypt.-Arab. 53 (1775). – Type: Yemen, *Forsskål* 271 (lecto C, designated here).

For *Cynanchum arboreum* Forsskål (1775) again listed neither material nor localities but the specimens *Forsskål* 271 and 273, both at C, and *Forsskål* s.n. (LD), cited by Goyder (2003), are almost certainly original material. Here we select the first as the lectotype.

Leptadenia pyrotechnica (Forssk.) Decne., Ann. Sci. Nat., Bot., Sér. 2, 9: 270 (1838). – *Cynanchum pyrotechnicum* Forssk., Fl. Aegypt.-Arab. 53 (1775). – *Sarcostemma*

pyrotechnicum (Forssk.) Schult. in Roem. & Schult., Syst. Veg. 6: 116 (1820). – *Microloma pyrotechnicum* (Forssk.) Spreng., Syst. Veg., ed. 16, 1: 855 (1824). – Type: Yemen, *Forsskål* s.n. (missing). Neotype: Yemen, iii 1831, *Bové* 255 (neo G-DC, designated here).

None of Forsskål's original material has been located and so a neotype is selected here.

Marsdenia robusta Balf.f., Proc. Roy. Soc. Edinburgh 12: 79 (1883). – Type: Socotra, ii–iii 1880, *Balfour, Cockburn & Scott* 522 (lecto E [barcode E00199373], designated here).

In the protologue Balfour (1883) cited two specimens: *Balfour, Cockburn & Scott* 522 and *Schweinfurth* 741. The collection *Schweinfurth* 741 has not been located, but there are two sheets of *Balfour, Cockburn & Scott* 522 at Edinburgh, of which the one numbered as above has flowers, while the other is sterile. The specimen with flowers is selected as the lectotype.

Orbea chrysostephana (Deflers) Bruyns, Aloe 37: 74 (2001). – *Stapelia chrysostephana* Deflers, Bull. Soc. Bot. France 43: 117 (1896). – *Caralluma chrysostephana* (Deflers) A.Berger, Stapel. & Klein. 115 (1910). – *Pachycymbium chrysostephanum* (Deflers) M.G.Gilbert, Bradleya 8: 24 (1990). – *Angolluma chrysostephana* (Deflers) Plowes, Excelsa 16: 118 (1993). – Type: Yemen (S), steep southern slopes of Jabal al 'Areys, 500–600 m, *Deflers* 1071 (missing). Neotype: Yemen (S), southern slopes of Jabal al 'Areys, *Bruyns* 10284 (neo E, designated here).

Extensive searching at MPU by P. Schäfer has not revealed any material of the type collection, *Deflers* 1071, and we were also not able to locate it at P. It is, therefore, assumed to be missing and the specimen *Bruyns* 10284 (E), from the same area as *Deflers* 1071, is selected here as a neotype.

Rhazya stricta Decne., Ann. Sci. Nat., Bot., Sér. 2, 4: 81 (1835). – Type: Yemen, *Botta* s.n. (lecto P, designated here).

When Decaisne (1835) described this species he mentioned no collections, except to say that the same species had been collected by Jacquemont 'near Pinda Denkan, when returning to Punjab and Kashmir'. The paper in which the name is published is, however, a work on the collections of Botta and Bové which had recently arrived at the Paris Herbarium from Arabia. A Botta specimen from Arabia exists at P and was annotated by Decaisne as *Rhazya stricta*. Consequently this is selected as the lectotype.

Secamone socotrana Balf.f., Proc. Roy. Soc. Edinburgh 12: 79 (1883). – Type: Socotra, ii–iii 1880, *Balfour, Cockburn & Scott* 179 (lecto K, designated by Goyder, 1992).

Balfour (1883) cited two collections, *Balfour, Cockburn & Scott* 179 and *Schweinfurth* 739. The former is at Kew, while the latter has not been located. Goyder (1992) cited

the former as 'holotype' but, being published prior to 2001, this citation is correctable under the ICBN, Art. 9.8 (McNeill *et al.*, 2006) to the selection of a lectotype.

Tylophora yemensis Deflers, Voy. Yemen 165 (1889). – *Tylophoropsis yemensis* (Deflers) N.E.Br., Gard. Chron. Ser. 3, 16: 244 (1894). – Type: Yemen (N), Jabal Kahel, near Menakha, 2500 m, 10 v 1887, *Deflers* 331 (lecto MPU, designated here; isolecto MPU, P).

Deflers (1889) cited two collections: *Deflers* 331 and *Deflers* 620 (Route between Shibam and Kaukaban, 2600–2800 m, 10 vii 1887). Both are present, with duplicates, at MPU and both are present, with duplicates, at P (i.e. a total of eight specimens exists!). *Deflers* 331 is selected here as lectotype.

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