

Dichotomous keys to the species of *Solanum* L. (Solanaceae) in continental Africa, Madagascar (incl. the Indian Ocean islands), Macaronesia and the Cape Verde Islands

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Academic editor: Leandro Giacomini | Received 9 March 2019 | Accepted 5 June 2019 | Published 19 July 2019

Citation: Knapp S, Vorontsova MS, Särkinen T (2019) Dichotomous keys to the species of *Solanum* L. (Solanaceae) in continental Africa, Madagascar (incl. the Indian Ocean islands), Macaronesia and the Cape Verde Islands. *PhytoKeys* 127: 39–76. <https://doi.org/10.3897/phytokeys.127.34326>

Abstract

Solanum L. (Solanaceae) is one of the largest genera of angiosperms and presents difficulties in identification due to lack of regional keys to all groups. Here we provide keys to all 135 species of *Solanum* native and naturalised in Africa (as defined by World Geographical Scheme for Recording Plant Distributions): continental Africa, Madagascar (incl. the Indian Ocean islands of Mauritius, La Réunion, the Comoros and the Seychelles), Macaronesia and the Cape Verde Islands. Some of these have previously been published in the context of monographic works, but here we include all taxa. The paper is designed to be used in conjunction with the web resource Solanaceae Source (www.solanaceaesource.org) and hyperlinks provide access to online descriptions, synonymy and images (where available) of each species. All taxa treated and specimens seen are included in searchable Suppl. material 1, 2.

Keywords

Africa, Aldabra, Azores, Canary Islands, Cape Verde, Comoros, cultivated plants, identification, keys, Madagascar, Madeira, Mauritius, La Réunion, Seychelles, *Solanum*, weeds

Introduction

Solanum L. (Solanaceae) is one of the largest of angiosperm genera (Frodin 2004) with ca. 1,200 species distributed worldwide with species on all continents except Antarctica. The greatest species diversity in the genus occurs in the Neotropics (see Bohs 2005), but significant diversity also occurs in the Old World, with Africa and Australia particularly important areas for diversification (see Vorontsova and Knapp 2016; Echeverría-Londoño et al. 2018). Due to its large number of species and the number of introductions and cultivated taxa, *Solanum* is often an identification challenge for non-specialists. Recent completion of several large monographic treatments of the *Solanum* of Africa (e.g. Vorontsova and Knapp 2016; Knapp and Vorontsova 2016; Särkinen et al. 2018) as part of the US National Science Foundation funded Planetary Biodiversity Inventory project “PBI *Solanum*” means we can now provide keys for the genus across the continent and for adjacent islands such as Madagascar and Macaronesia. Some of these have been published in the Open Access literature (e.g. Knapp 2013; Knapp and Vorontsova 2016; Särkinen et al. 2018), but the largest of these, treating the spiny solanums (Vorontsova and Knapp 2016) is not. Several species that are either naturalised (e.g. members of the *Brevantherum* Clade) or cultivated (tree tomatoes, pepinos, potatoes and tomatoes) in the region are also not treated as part of these monographic treatments, although complete species descriptions and photographs are provided on the web resource Solanaceae Source (www.solanaceaesource.org).

Here we provide dichotomous keys that include all groups and species (native, naturalised and widely cultivated; see Table 1 for species list) of *Solanum* occurring in continental Africa, Madagascar (incl. the Indian Ocean islands of Mauritius, La Réunion, the Comoros, and the Seychelles), Macaronesia and the Cape Verde Islands to facilitate identification across the region. Taxa occurring in each country in the region are shown in Table 2 and a map of *Solanum* diversity (all taxa) is presented in Figure 1. Keys to individual groups are also provided for the 135 *Solanum* species occurring in the region (see Table 1 and Appendix 1 for a species list). We hope that these keys will encourage collection and documentation of *Solanum* across Africa and uncover new distributions and perhaps new species for the region.

Materials and methods

We modified keys from published monographs for groups of *Solanum* from the botanical continent “Africa” as defined in the World Geographical Scheme for Recording Plant Distributions (WGSRPD; Brummitt 2001). This corresponds basically to the countries of the continent of Africa, but excludes the Sinai Peninsula (politically part of Egypt and in WGSRPD part of Western Asia). It also includes islands grouped as Macaronesia (Azores, Canary Islands, Madeira and the Cape Verde Islands) and Madagascar and other Indian Ocean islands east to Rodrigues.

We assessed distribution using the published monographs, with additional data points added from subsequent herbarium visits. All specimens seen for these keys can be seen in the Supplemental File and in the dataset published on the NHM Data Portal (<https://doi.org/10.5519/0042549>). For descriptions of the taxa, users are referred to the original publications or the Solanaceae Source website (www.solanaceaesource.org), where all species treated here are described and synonymy listed.

To access descriptions on the Solanaceae Source website, begin by typing the species name in the search box in the upper right-hand part of the screen banner (tick the option “Taxonomy” below the box); when the correct name you are searching for appears, select it, then push the “Search” button to the right of the search box (if you do not push the “Search” button, nothing will happen). You will be taken to the species page, where images and synonyms appear on the opening page; to access descriptions, click on the “Description” tab where information can be obtained. Up-to-date specimen details are not currently available on the website but can be found as described above.

Keys

Solanum can be divided into 13 major clades or monophyletic groups (Bohs 2005; Weese and Bohs 2007; Särkinen et al. 2013; see Figures 2 and 3 for photographs illustrating representative morphology of these groups in Africa). The largest monophyletic clade is the Leptostemonum clade, or the “spiny solanums”, which comprises approximately half of the species diversity of the genus; divisions within that clade have been defined by Stern et al. (2011), Vorontsova et al. (2013) and Aubriot et al. (2016). This group is rapidly diversifying in the Old World (Echeverría-Londoño et al. 2018), with most taxa occurring in the Old World belonging to a single monophyletic group. Previous treatments (e.g. Whalen 1984; Jaeger 1985; Jaeger and Hepper 1986) had suggested the African taxa were members of, or closely related to New World groups. More information on the phylogenetic relationships of African and Asian members of the Leptostemonum Clade can be found in Vorontsova et al. (2013) and Aubriot et al. (2016). Other clades with significant species diversity in Africa (as defined here) are the African non-spiny (ANS) and Normania Clades (both endemic to the region; see Bohs and Olmstead 2001) and the Morelloid Clade (with a number of widespread weedy taxa, see Särkinen et al. 2018). Other clades such as the Geminata, Brevantherum and Potato Clades are represented only by introduced or cultivated species. The Dulcamaroid Clade has a single species native to Mediterranean northern Africa and Macaronesia and two cultivated taxa that can become naturalised (Knapp 2013). In order to facilitate identification and to assist with the discovery of novelties from the region, we provide a key to the major groups (clades) of *Solanum* following the most recent phylogeny of the genus (Särkinen et al. 2013) and additional dichotomous keys to the species within each group. Groups are ordered as they occur as branches in the phylogeny of Särkinen et al. (2013).

Table 1. The 135 species of *Solanum* (native, naturalised and widely cultivated) occurring in Africa as defined by Brummitt (2001), with their places of original publication and clade membership as currently understood (Major Clades sensu Bohs 2005; minor clades are divisions within these sensu Bohs 2007; Stern et al. 2011; Vorontsova et al. 2103; Särkinen et al. 2015, 2018; Aubriot et al. 2016; Tepe et al. 2016).

Species	Place of original publication	Major Clade	Minor clade
<i>Solanum aculeastrum</i> Dunal	Prodr. [A. P. de Candolle] 13(1): 366. 1852.	Leptostemonum	Old World-Africa
<i>Solanum aculeatissimum</i> Jacq.	Collectanea [Jacquin] 1: 100. 1787 [‘1786’].	Leptostemonum	Acanthophora
<i>Solanum adoense</i> Hochst. ex A.Rich.	Tent. Fl. Abyss. 2: 105. 1850 [1851].	Leptostemonum	Old World-Africa
<i>Solanum aethiopicum</i> L.	Cent. Pl. 2: 10. 1756.	Leptostemonum	Old World-Africa
<i>Solanum africanum</i> Mill.	Gard. Dict. ed. 8, no. 26. 1768.	African non-spiny (ANS)	
<i>Solanum agnewiorum</i> Voronts.	Phytotaxa 10: 32. 2010.	Leptostemonum	Old World-Africa
<i>Solanum agrarium</i> Sendtn.	Fl. Bras. (Martius) 10: 68, fig. 5, 32–33. 1846.	Leptostemonum	Gardneri
<i>Solanum aldabrense</i> C.H.Wright	Kew Bull. 1894: 149. 1894.	Leptostemonum	Old World
<i>Solanum americanum</i> Mill.	Gard. Dict. ed. 8, no. 5. 1768.	Morelloid	Black nightshade
<i>Solanum anguivi</i> Lam.	Tabl. Encycl. 2: 23. 1794.	Leptostemonum	Old World-Africa
<i>Solanum anomalum</i> Thonn.	Beskr. Guin. Pl. 126 1827.	Leptostemonum	Old World-Africa
<i>Solanum arundo</i> Mattei	Boll. Reale Orto Bot. Giardino Colon. Palermo 7: 188. 1908.	Leptostemonum	Old World-Africa
<i>Solanum atropurpureum</i> Schrank	Syll. Ratisb. 1: 200. 1824.	Leptostemonum	Acanthophora
<i>Solanum aureitomentosum</i> Bitter	Repert. Spec. Nov. Regni Veg. 11: 18. 1912.	Leptostemonum	Old World-Africa
<i>Solanum batoides</i> D’Arcy & Rakot.	Fl. Madag., Fam. 176: 75. 1994.	Leptostemonum	Old World-Madagascar
<i>Solanum betaceum</i> Cav.	Anales Hist. Nat. 1: 44. 1799.	Cyphomandra	Pachyphylla
<i>Solanum betroka</i> D’Arcy & Rakot.	Fl. Madag., Fam. 176: 77. 1994.	African non-spiny (ANS)	
<i>Solanum bumeliifolium</i> Dunal	Prodr. [A. P. de Candolle] 13(1): 292. 1852.	Leptostemonum	Old World-Madagascar
<i>Solanum burchellii</i> Dunal	Prodr. [A. P. de Candolle] 13(1): 291. 1852.	Leptostemonum	Old World-Africa
<i>Solanum campylacanthum</i> Hochst. ex A.Rich.	Tent. Fl. Abyss. 2: 102. 1850.	Leptostemonum	Old World-Africa
<i>Solanum capense</i> L.	Syst. ed. 10: 935. 1759.	Leptostemonum	Old World-Africa
<i>Solanum capsicoides</i> All.	Auct. Syn. Meth. Stirp. Hort. Regii Taur. 64. 1773.	Leptostemonum	Acanthophora
<i>Solanum catombelense</i> Peyr.	Sitzungsber. Kaiserl. Akad. Wiss., Math.-Naturwiss. Cl. 38: 576. 1860.	Leptostemonum	Old World-Africa
<i>Solanum cerasiferum</i> Dunal	Prodr. [A. P. de Candolle] 13(1): 365. 1852.	Leptostemonum	Old World-Africa
<i>Solanum chenopodioides</i> Lam.	Tabl. Encycl. 2: 18. 1794.	Morelloid	Black nightshade
<i>Solanum chrysotrichum</i> Schltdl.	Linnaea 19: 304. 1847.	Leptostemonum	Torva
<i>Solanum coagulans</i> Forssk.	Fl. Aegypt.-Arab. 47. 1775.	Leptostemonum	Old World-Africa
<i>Solanum cordatum</i> Forssk.	Fl. Aegypt.-Arab. 47. 1775.	Leptostemonum	[not assigned]
<i>Solanum croatii</i> D’Arcy & R.C.Keating	Phytologia 34: 282. 1976.	Leptostemonum	Old World-Madagascar
<i>Solanum cyaneopurpureum</i> De Wild.	Pl. Bequaert. 1: 425. 1922.	Leptostemonum	Old World-Africa
<i>Solanum cymbalariaefolium</i> Chiov.	Boll. Soc. Bot. Ital. 1925: 107. 1925.	Leptostemonum	Old World-Africa
<i>Solanum dasyphyllum</i> Schumach. & Thonn.	Beskr. Guin. Pl. 126 [146]. 1827.	Leptostemonum	Old World-Africa
<i>Solanum dennekense</i> Dammer	Bot. Jahrb. Syst. 38: 57. 1905.	Leptostemonum	Old World-Africa
<i>Solanum diphyllum</i> L.	Sp. Pl. 184. 1753.	Geminata	
<i>Solanum elaeagnifolium</i> Cav.	Icon. 3: 22, tab. 243. 1795.	Leptostemonum	Elaeagnifolium
<i>Solanum erianthum</i> D.Don	Prodr. Fl. Nep. 96. 1825.	Brevantherum	
<i>Solanum erythracanthum</i> Dunal	Prodr. [A. P. de Candolle] 13(1): 201. 1852.	Leptostemonum	Old World-Madagascar
<i>Solanum forskalii</i> Dunal	Hist. Nat. Solanum 237. 1813.	Leptostemonum	Old World-Africa
<i>Solanum giganteum</i> Jacq.	Collectanea [Jacquin] 4: 125. 1791.	Leptostemonum	Old World-Africa

Species	Place of original publication	Major Clade	Minor clade
<i>Solanum glabratum</i> Dunal	Hist. Nat. Solanum 240. 1813.	Leptostemonum	Old World-Africa
<i>Solanum goetzei</i> Dammer	Bot. Jahrb. Syst. 28: 473. 1900.	Leptostemonum	Old World-Africa
<i>Solanum guineense</i> L.	Sp. Pl. 184. 1753.	African non-spiny (ANS)	
<i>Solanum hastifolium</i> Hochst. ex Dunal	Prodr. [A. P. de Candolle] 13(1): 284. 1852.	Leptostemonum	Old World-Africa
<i>Solanum heinianum</i> D'Arcy & R.C.Keating	Phytologia 34: 282. 1976.	Leptostemonum	Old World-Madagascar
<i>Solanum herculeum</i> Bohs	Plant Syst. Evol. 228: 44. 2001.	Normania	
<i>Solanum humblotii</i> Dammer	Bot. Jahrb. Syst. 38: 184. 1906.	African non-spiny (ANS)	
<i>Solanum humile</i> Lam.	Tabl. Encycl. 2: 23. 1794.	Leptostemonum	Old World-Africa
<i>Solanum imamense</i> Dunal	Prodr. [A. P. de Candolle] 13(1): 85. 1852.	African non-spiny (ANS)	
<i>Solanum inaequinadians</i> Werderm.	Notizbl. Bot. Gart. Berlin-Dahlem 12: 90. 1934.	Leptostemonum	Old World-Africa
<i>Solanum incanum</i> L.	Sp. Pl. 188. 1753.	Leptostemonum	Old World-Africa
<i>Solanum insanum</i> L.	Mant. 1: 46. 1767.	Leptostemonum	Old World-Tropical Asia
<i>Solanum ivohibe</i> D'Arcy & Rakot.	Fl. Madag., Fam. 176: 97. 1994.	African non-spiny (ANS)	
<i>Solanum jubae</i> Bitter	Bot. Jahrb. Syst. 54: 501. 1917.	Leptostemonum	Old World-Africa
<i>Solanum laciniatum</i> Aiton	Hort. Kew. ed. 1, 1: 247. 1789.	Archaeosolanum	
<i>Solanum lamprocarpum</i> Bitter	Repert. Spec. Nov. Regni Veg. Beih. 16: 107. 1923.	Leptostemonum	Old World-Africa
<i>Solanum lanzae</i> J.-P.Lebrun & Stork	Candollea 50: 217. 1995.	Leptostemonum	Old World-Africa
<i>Solanum lichtensteinii</i> Willd.	Enum. Pl. (Willdenow) 1: 238. 1809.	Leptostemonum	Old World-Africa
<i>Solanum lidii</i> Sunding	Blyttia 24: 368. 1966.	Leptostemonum	Old World
<i>Solanum linnaeanum</i> Hepper & P.-M.L. Jaeger	Kew Bull. 41: 435. 1986.	Leptostemonum	Old World-Africa
<i>Solanum litoraneum</i> A.E.Gonç.	Kew Bull. 52(3): 703. 1997.	Leptostemonum	Old World-Africa
<i>Solanum lycopersicum</i> L.	Sp. Pl. 185. 1753.	Potato	Tomato
<i>Solanum macracanthum</i> A.Rich.	Tent. Fl. Abyss. 2: 106. 1850.	Leptostemonum	Old World-Africa
<i>Solanum macrocarpon</i> L.	Mant. Pl. Altera: 205. 1771.	Leptostemonum	Old World-Africa
<i>Solanum macrothyrsum</i> Dammer	Bot. Jahrb. Syst. 38: 185. 1906.	African non-spiny (ANS)	
<i>Solanum madagascariense</i> Dunal	Prodr. [A. P. de Candolle] 13(1): 99. 1852.	African non-spiny (ANS)	
<i>Solanum mahoriense</i> D'Arcy & Rakot.	Ann. Missouri Bot. Gard. 73: 498. 1986.	Leptostemonum	Old World-Madagascar
<i>Solanum malindiense</i> Voronts.	Syst. Bot. 35: 904. 2010.	Leptostemonum	Old World-Africa
<i>Solanum mammosum</i> L.	Sp. Pl. 187. 1753.	Leptostemonum	Acanthophora
<i>Solanum marginatum</i> L.f.	Suppl. 147. 1781.	Leptostemonum	Old World-Africa
<i>Solanum mauense</i> Bitter	Repert. Spec. Nov. Regni Veg. Beih. 16: 42. 1923.	Leptostemonum	Old World-Africa
<i>Solanum mauritianum</i> Scop.	Delic. Fl. Faun. Insubr. 3: 16. 1788.	Brevantherum	
<i>Solanum melastomoides</i> C.H.Wright	Bull. Misc. Inform. Kew 1894: 128. 1894.	Leptostemonum	Old World-Africa
<i>Solanum melongena</i> L.	Sp. Pl. 186. 1753.	Leptostemonum	Old World-Tropical Asia
<i>Solanum memphiticum</i> J.F.Gmel.	Syst. Nat., ed. 13[bis] 2(1): 385. 1791	Moreloid	Black nightshade
<i>Solanum muricatum</i> Aiton	Hort. Kew, ed. 1, 1: 250. 1789.	Potato	Basarthrum
<i>Solanum myoxotrichum</i> Baker	J. Linn. Soc., Bot. 21: 426. 1885.	Leptostemonum	Old World-Madagascar
<i>Solanum myrsinoides</i> D'Arcy & Rakot.	Fl. Madag., Fam. 176: 115. 1994.	African non-spiny (ANS)	
<i>Solanum nava</i> Webb & Berthel.	Phyt. Canar. 2. 3(3): 123. 1845.	Normania	

Species	Place of original publication	Major Clade	Minor clade
<i>Solanum nigriviolaceum</i> Bitter	Repert. Spec. Nov. Regni Veg. Beih. 16: 163. 1923.	Leptostemonum	Old World-Africa
<i>Solanum nigrum</i> L.	Sp. Pl. 186. 1753.	Morelloid	Black nightshade
<i>Solanum nitidibaccatum</i> Bitter	Repert. Spec. Nov. Regni Veg. 11: 208. 1912.	Morelloid	Black nightshade
<i>Solanum pampaninii</i> Chiov.	Res. Sci. Somalia Ital. 1: 128. 1916.	Leptostemonum	Old World-Africa
<i>Solanum pauperum</i> C.H.Wright	Bull. Misc. Inform. Kew 1894: 127. 1894.	Leptostemonum	Old World-Africa
<i>Solanum pectinatum</i> Dunal	Prodr. [A. P. de Candolle] 13(1): 250. 1852.	Leptostemonum	Lasiocarpa
<i>Solanum phoxocarpum</i> Voronts.	Syst. Bot. 35: 903. 2010.	Leptostemonum	Old World-Africa
<i>Solanum pimpinellifolium</i> L.	Cent. Pl. 1: 8. 1755.	Potato	Tomato
<i>Solanum polhillii</i> Voronts.	Syst. Bot. 35: 902. 2010.	Leptostemonum	Old World-Africa
<i>Solanum pseudospinosum</i> C.H.Wright	Fl. Trop. Afr. [Oliver et al.] 4, 2: 220. 1906.	Morelloid	Black nightshade
<i>Solanum pyracanthos</i> Lam.	Tabl. Encycl. 2: 21. 1794.	Leptostemonum	Old World-Madagascar
<i>Solanum retroflexum</i> Dunal	Prodr. [A. P. de Candolle] 13(1): 50. 1852.	Morelloid	Black nightshade
<i>Solanum richardii</i> Dunal	Encycl. [J. Lamarck & al.] Suppl. 3: 775. 1814.	Leptostemonum	Old World-Africa
<i>Solanum rigidum</i> Lam.	Tabl. Encycl. 2: 23. 1794.	Leptostemonum	Old World-Africa
<i>Solanum robustum</i> H.L.Wendl.	Flora 27: 784. 1844.	Leptostemonum	Erythrotrichum
<i>Solanum rubetorum</i> Dunal	Prodr. [A. P. de Candolle] 13(1): 304. 1852.	Leptostemonum	Old World-Africa
<i>Solanum runsoriense</i> C.H.Wright	Uganda Prot. (H.H.Johnston) 1: 326. 1902.	African non-spiny (ANS)	
<i>Solanum ruvu</i> Voronts.	J. E. Afr. Nat. Hist. 99: 230. (2010) 2011.	Leptostemonum	Old World-Africa
<i>Solanum sambiranense</i> D'Arcy & Rakot.	Fl. Madag., Fam. 176: 123. 1994.	African non-spiny (ANS)	
<i>Solanum sarrachoides</i> Sendtn.	Fl. Bras. (Martius) 10: 18, tab. 1, fig. 1-8. 1846.	Morelloid	Black nightshade
<i>Solanum scabrum</i> Mill.	Gard. Dict. ed. 8, no. 6. 1768.	Morelloid	Black nightshade
<i>Solanum schimperianum</i> Hochst. ex A.Rich.	Tent. Fl. Abyss. 2: 98. 1850.	Leptostemonum	Old World-Africa
<i>Solanum schliebenii</i> Werderm.	Notizbl. Bot. Gart. Berlin-Dahlem 12: 92. 1934.	Leptostemonum	Old World-Africa
<i>Solanum schumannianum</i> Dammer	Pflanzenw. Ost-Afrikas C (Engler): 352. 1895.	Leptostemonum	Old World-Africa
<i>Solanum setaceum</i> Dammer	Pflanzenw. Ost-Afrikas C (Engler): 33. 1895.	Leptostemonum	Old World-Africa
<i>Solanum sisymbriifolium</i> Lam.	Tabl. Encycl. 2: 25. 1794.	Leptostemonum	Sisymbriifolium
<i>Solanum sodomaeodes</i> Kuntze	Revis. Gen. Pl. 3(3): 227. 1898.	Leptostemonum	Old World-Africa
<i>Solanum somalense</i> Franch.	Sert. Somal. 47. 1882.	Leptostemonum	Old World-Africa
<i>Solanum stipitatosellatum</i> Dammer	Abh. Königl. Akad. Wiss. Berlin 1894: 63. 1894.	Leptostemonum	Old World-Africa
<i>Solanum supinum</i> Dunal	Prodr. [A. P. de Candolle] 13(1): 289. 1852.	Leptostemonum	Old World-Africa
<i>Solanum taitense</i> Vatke	Linnaea 43: 327. 1882.	Leptostemonum	Old World-Africa
<i>Solanum tarderemotum</i> Bitter	Repert. Spec. Nov. Regni Veg. 10: 547. 1912.	Morelloid	Black nightshade
<i>Solanum terminale</i> Forssk.	Fl. Aegypt.-Arab. 45. 1775.	African non-spiny (ANS)	
<i>Solanum tettense</i> Klotzsch	Naturw. Reise Mossambique (Peters) 1: 237. 1861.	Leptostemonum	Old World-Africa
<i>Solanum thomsonii</i> C.H.Wright	Fl. Trop. Afr. [Oliver et al.] 4, 2: 217. 1906.	Leptostemonum	Old World-Africa
<i>Solanum toliarae</i> D'Arcy & Rakot.	Ann. Missouri Bot. Gard. 76: 351. 1989.	Leptostemonum	Old World-Madagascar
<i>Solanum tomentosum</i> L.	Sp. Pl. 188. 1753.	Leptostemonum	Old World-Africa
<i>Solanum torreanum</i> A.E.Gonç.	Kew Bull., 52(3): 706. 1997.	Leptostemonum	Old World-Africa
<i>Solanum torvum</i> Sw.	Prodr. [O. P. Swartz] 47. 1788.	Leptostemonum	Torva
<i>Solanum trichopetiolatum</i> D'Arcy & Rakot.	Fl. Madag., Fam. 176: 130. 1994.	African non-spiny (ANS)	
<i>Solanum triflorum</i> Nutt.	Gen. N. Amer. Pl. 1: 128. 1818.	Morelloid	

Species	Place of original publication	Major Clade	Minor clade
<i>Solanum trisetum</i> Dunal	Prodr. [A. P. de Candolle] 13(1): 36. 1852.	Normania	
<i>Solanum truncicola</i> Bitter	Bot. Jahrb. Syst. 54: 435. 1917.	African non-spiny (ANS)	
<i>Solanum tuberosum</i> L.	Sp. Pl. 185. 1753.	Potato	Petota
<i>Solanum umalilaense</i> Manoko	PhytoKeys 16: 67. 2012.	Morelloid	Black nightshade
<i>Solanum umtuma</i> Voronts. & S.Knapp	PhytoKeys 8: 4. 2012.	Leptostemonum	Old World-Africa
<i>Solanum usambarense</i> Bitter & Dammer	Repert. Spec. Nov. Regni Veg. Beih. 16: 40. 1923.	Leptostemonum	Old World-Africa
<i>Solanum usaramense</i> Dammer	Pflanzenw. Ost-Afrikas C (Engler): 353. 1895.	Leptostemonum	Old World-Africa
<i>Solanum vespertilio</i> Aiton	Hort. Kew. ed. 1, 1: 252. 1789.	Leptostemonum	Old World
<i>Solanum viarium</i> Dunal	Prodr. [A. P. de Candolle] 13(1): 240. 1852.	Leptostemonum	Acanthophora
<i>Solanum villosum</i> Mill.	Gard. Dict. ed. 8, no. 2. 1768.	Morelloid	Black nightshade
<i>Solanum violaceum</i> Ortega	Nov. Pl. Descr. Dec. 56. 1798.	Leptostemonum	Old World-Tropical Asia
<i>Solanum virginianum</i> L.	Sp. Pl. 187. 1753.	Leptostemonum	Old World-Tropical Asia
<i>Solanum wendlandii</i> Hook.f.	Bot. Mag. 113: tab. 6914. 1887.	Wendlandii-Allophyllum	
<i>Solanum wittei</i> Robyns	Bull. Jard. Bot. État Bruxelles 17: 82. 1943.	Leptostemonum	Old World-Africa
<i>Solanum wrightii</i> Benth.	Fl. Hongk. 243. 1861.	Leptostemonum	Androceras-Crinitum
<i>Solanum zanzibarense</i> Vatke	Linnaea 43: 326. 1882.	Leptostemonum	Old World-Africa

Table 2. Country distribution of *Solanum* species in Africa (as defined here); introduced (incl. cultivated) species in brackets (epithet); taxa not included in the keys because they are known from a singleton cultivated specimen, are in *italic* type. All records based on specimens examined by the authors with verified identities. The status of *S. torvum* is not completely clear, but it is most likely to be introduced from the New World, so is treated as that here; *S. americanum*, on the other hand, appears to have a worldwide distribution, so is treated as native. The occurrence of *S. rigidum* in Senegal is doubtful, the specimen is very old and the label may be in error. Cultivated plants are often not collected, so the absence of records of commonly cultivated crops (e.g. *S. lycopersicum*, *S. macrocarpon*, *S. tuberosum*) should not be interpreted as lack of occurrence, merely as lack of collections. *Solanum diphyllum* was recorded from Egypt by Fawzi and Habeeb (2016) with a verifiable photograph; this Mexican species is widely cultivated and easily naturalised and is likely to be spreading around the Mediterranean.

Country	Species
Algeria	<i>herculeum</i> , <i>linnaeanum</i> , <i>nigrum</i> , <i>villosum</i>
Angola	<i>aculeastrum</i> , (<i>aculeatissimum</i>), <i>aethiopicum</i> , <i>americanum</i> , <i>anguivi</i> , <i>anomalum</i> , <i>auweitomentosum</i> , (<i>betaceum</i>), <i>campylacanthum</i> , <i>capsicoides</i> , <i>catombelense</i> , <i>dasyphyllum</i> , <i>humile</i> , <i>lichtensteinii</i> , (<i>lycopersicum</i>), <i>macrocarpon</i> , <i>mammosum</i> , (<i>mauritianum</i>), <i>pauperum</i> , <i>scabrum</i> , <i>tarderemotum</i> , <i>terminale</i> , <i>tettense</i> , <i>villosum</i>
Azores	(<i>linnaeanum</i>), (<i>chenopodioides</i>), (<i>chrysotrichum</i>), (<i>nava?</i>), <i>nigrum</i> , (<i>maritimum</i>), (<i>pseudocapsicum</i>), <i>villosum</i>
Benin	<i>anguivi</i> , <i>anomalum</i> , <i>incanum</i> , <i>scabrum</i> , (<i>torvum</i>)
Botswana	<i>campylacanthum</i> , <i>catombelense</i> , <i>lichtensteinii</i> , <i>retroflexum</i> , <i>scabrum</i> , <i>supinum</i> , <i>tarderemotum</i> , <i>tettense</i> , <i>villosum</i>
Burkina Faso	<i>cerasiferum</i> , <i>dasyphyllum</i> , <i>incanum</i> , <i>scabrum</i>
Burundi	<i>aculeastrum</i> , <i>anguivi</i> , <i>campylacanthum</i> , <i>cyaneopurpureum</i> , <i>dasyphyllum</i> , <i>mammosum</i> , <i>memphiticum</i> , <i>tarderemotum</i> , <i>terminale</i> , <i>villosum</i>
Cabo Verde	(<i>agrarium</i>), <i>americanum</i> , (<i>lycopersicum</i>), <i>nigrum</i> , <i>rigidum</i> , <i>scabrum</i> , <i>tarderemotum</i> , (<i>torvum</i>)
Cameroon	<i>aculeastrum</i> , (<i>aculeatissimum</i>), <i>aethiopicum</i> , <i>americanum</i> , <i>anguivi</i> , <i>anomalum</i> , <i>cerasiferum</i> , <i>dasyphyllum</i> , (<i>erianthum</i>), <i>giganteum</i> , (<i>lycopersicum</i>), <i>macrocarpon</i> , (<i>mauritianum</i>), (<i>melongena</i>), <i>pseudospinosum</i> , <i>scabrum</i> , <i>tarderemotum</i> , <i>terminale</i> , (<i>torvum</i>), (<i>wendlandii</i>), (<i>wrightii</i>)

Country	Species
Canary Islands (Spain)	<i>americanum</i> , (<i>laxum</i>), (<i>lycopersicum</i>), (<i>mauritanium</i>), <i>nava</i> , <i>nigrum</i> , (<i>pseudocapsicum</i>), (<i>robustum</i>), <i>vespertilio</i> , (<i>wendlandii</i>)
Central African Republic (CAR)	<i>aculeastrum</i> , (<i>aculeatissimum</i>), <i>anguivi</i> , <i>cerasiferum</i> , <i>dasyphyllum</i> , <i>giganteum</i> , (<i>lycopersicum</i>), <i>macrocarpon</i> , <i>scabrum</i> , (<i>seaforthianum</i>), <i>terminale</i> , (<i>torvum</i>), (<i>wrightii</i>)
Chad	<i>cerasiferum</i> , <i>forskalii</i> , <i>incanum</i> , <i>tarderemotum</i> , <i>villosum</i>
Comoros (incl. Mayotte)	<i>americanum</i> , <i>macrothyrsus</i> , <i>richardii</i> , <i>scabrum</i> , <i>tarderemotum</i> , <i>terminale</i> , (<i>torvum</i>)
Democratic Republic of the Congo	<i>aculeastrum</i> , (<i>aculeatissimum</i>), <i>aethiopicum</i> , <i>anomalum</i> , <i>aureitomentosum</i> , <i>campylacanthum</i> , <i>cerasiferum</i> , (<i>chrysotrichum</i>), <i>cyaneopurpureum</i> , <i>dasyphyllum</i> , <i>giganteum</i> , <i>lichtensteinii</i> , (<i>lycopersicum</i>), <i>macrocarpon</i> , (<i>mammosum</i>), (<i>mauritanium</i>), (<i>melongena</i>), <i>memphiticum</i> , <i>richardii</i> , <i>runsoriense</i> , <i>scabrum</i> , (<i>seaforthianum</i>), <i>tarderemotum</i> , <i>terminale</i> , <i>tettense</i> , (<i>torvum</i>), (<i>viarum</i>), <i>wittei</i> , (<i>wrightii</i>)
Republic of the Congo	<i>aculeastrum</i> , <i>anomalum</i> , <i>dasyphyllum</i> , (<i>lycopersicum</i>), <i>terminale</i> , (<i>torvum</i>)
Cote d'Ivoire	(<i>aculeatissimum</i>), <i>americanum</i> , <i>anguivi</i> , <i>anomalum</i> , <i>cerasiferum</i> , <i>dasyphyllum</i> , (<i>lycopersicum</i>), <i>scabrum</i> , <i>terminale</i> , (<i>torvum</i>)
Djibouti	<i>somalense</i>
Egypt (incl. Hala'ib triangle)*	<i>coagulans</i> , (<i>diphyllum</i>), <i>dulcamara</i> , <i>elaegnifolium</i> , <i>forskalii</i> , <i>incanum</i> , (<i>lycopersicum</i>), <i>macrocarpon</i> , (<i>melongena</i>), <i>memphiticum</i> , <i>nigrum</i> , <i>scabrum</i> , (<i>torvum</i>), <i>villosum</i> , <i>virginianum</i> , (<i>wendlandii</i>), (<i>wrightii</i>)
Equatorial Guinea	(<i>aculeatissimum</i>), <i>aethiopicum</i> , <i>americanum</i> , <i>anguivi</i> , <i>dasyphyllum</i> , <i>giganteum</i> , (<i>lycopersicum</i>), <i>pseudospinosum</i> , <i>scabrum</i> , <i>terminale</i> , (<i>torvum</i>)
Eritrea	<i>adoense</i> , <i>americanum</i> , <i>anguivi</i> , <i>campylacanthum</i> , <i>cerasiferum</i> , <i>coagulans</i> , <i>dasyphyllum</i> , <i>forskalii</i> , <i>glabratum</i> , <i>incanum</i> , (<i>lycopersicum</i>), <i>macracanthum</i> , <i>marginatum</i> , <i>melastomoides</i> , (<i>melongena</i>), <i>memphiticum</i> , <i>muricatum</i> , <i>scabrum</i> , <i>schimperianum</i> , <i>somalense</i> , <i>tarderemotum</i> , <i>terminale</i> , <i>villosum</i>
Ethiopia	(<i>aculeatissimum</i>), <i>adoense</i> , <i>americanum</i> , <i>anguivi</i> , <i>arundo</i> , <i>campylacanthum</i> , <i>capsicoides</i> , <i>cerasiferum</i> , <i>coagulans</i> , <i>cordatum</i> , <i>dennekense</i> , <i>forskalii</i> , <i>giganteum</i> , <i>glabratum</i> , <i>hastifolium</i> , <i>hirtulum</i> , <i>incanum</i> , <i>jubae</i> , <i>lanzae</i> , (<i>lycopersicum</i>), <i>macracanthum</i> , <i>macrocarpon</i> , <i>marginatum</i> , <i>melastomoides</i> , <i>memphiticum</i> , <i>muricatum</i> , <i>pampaninii</i> , <i>runsoriense</i> , <i>schimperianum</i> , <i>somalense</i> , <i>tarderemotum</i> , <i>terminale</i> , <i>tettense</i> , <i>villosum</i> , (<i>wrightii</i>)
Gabon	<i>aethiopicum</i> , <i>americanum</i> , <i>anguivi</i> , <i>anomalum</i> , <i>dasyphyllum</i> , <i>giganteum</i> , <i>macrocarpon</i> , <i>scabrum</i> , <i>terminale</i> , (<i>torvum</i>), (<i>wrightii</i>)
Gambia	<i>americanum</i> , <i>anguivi</i> , <i>cerasiferum</i> , <i>dasyphyllum</i>
Ghana	(<i>aculeatissimum</i>), <i>americanum</i> , <i>anguivi</i> , <i>anomalum</i> , <i>capsicoides</i> , <i>dasyphyllum</i> , (<i>erianthum</i>), <i>incanum</i> , <i>macrocarpon</i> , (<i>melongena</i>), <i>scabrum</i> , <i>tarderemotum</i> , <i>terminale</i> , (<i>torvum</i>), (<i>wrightii</i>)
Guinea	(<i>aculeatissimum</i>), <i>anguivi</i> , (<i>erianthum</i>), <i>scabrum</i> , <i>tarderemotum</i> , <i>terminale</i> , (<i>torvum</i>), (<i>wrightii</i>)
Guinea-Bissau	<i>americanum</i> , <i>anguivi</i> , <i>cerasiferum</i> , <i>dasyphyllum</i> , <i>terminale</i>
Kenya	<i>aculeastrum</i> , (<i>aculeatissimum</i>), <i>aethiopicum</i> , <i>agneviorum</i> , <i>americanum</i> , <i>anguivi</i> , <i>arundo</i> , (<i>betaceum</i>), <i>campylacanthum</i> , <i>coagulans</i> , <i>cordatum</i> , <i>dasyphyllum</i> , <i>dennekense</i> , <i>forskalii</i> , <i>giganteum</i> , <i>goetzei</i> , <i>hastifolium</i> , <i>incanum</i> , <i>jubae</i> , <i>lanzae</i> , (<i>laxum</i>), (<i>lycopersicum</i>), <i>macrocarpon</i> , <i>malindiense</i> , <i>mammosum</i> , <i>mauense</i> , (<i>mauritanium</i>), <i>melastomoides</i> , (<i>melongena</i>), <i>nigriviolaceum</i> , <i>pampaninii</i> , <i>phoxocarpum</i> , <i>polhillii</i> , (<i>pseudocapsicum</i>), <i>richardii</i> , <i>runsoriense</i> , <i>schumannianum</i> , (<i>seaforthianum</i>), <i>setaceum</i> , <i>sisymbriifolium</i> , <i>somalense</i> , <i>stipitatostellatum</i> , <i>taitense</i> , <i>tarderemotum</i> , <i>terminale</i> , <i>tettense</i> , (<i>tuberosum</i>), <i>usambarense</i> , <i>usaramense</i> , <i>villosum</i> , (<i>wendlandii</i>), (<i>wrightii</i>), <i>zanzibarense</i>
Lesotho	(<i>aculeatissimum</i>), (<i>chenopodioides</i>), <i>lichtensteinii</i> , <i>retroflexum</i> , <i>scabrum</i> , <i>sodomeodes</i> , <i>tarderemotum</i>
Liberia	(<i>aculeatissimum</i>), <i>americanum</i> , <i>anguivi</i> , <i>anomalum</i> , <i>dasyphyllum</i> , (<i>lycopersicum</i>), (<i>mauritanium</i>), <i>scabrum</i> , <i>terminale</i> , (<i>torvum</i>)
Libya	<i>linnaeanum</i> , <i>nigrum</i> , <i>villosum</i> , <i>virginianum</i>
Madagascar	<i>aethiopicum</i> , <i>americanum</i> , <i>anguivi</i> , <i>batoides</i> , (<i>betaceum</i>), <i>betroka</i> , <i>bumelifolium</i> , <i>croatii</i> , <i>erythracanthum</i> , <i>heinianum</i> , <i>humblotii</i> , <i>imamense</i> , <i>insanum</i> , <i>ivohibe</i> , (<i>lycopersicum</i>), <i>macrocarpon</i> , <i>madagascariense</i> , <i>mahoriense</i> , (<i>mauritanium</i>), (<i>melongena</i>), <i>myoxotrichum</i> , <i>mysinoides</i> , (<i>pseudocapsicum</i>), <i>pyracanthos</i> , <i>richardii</i> , <i>sambiranense</i> , <i>scabrum</i> , (<i>seaforthianum</i>), <i>tarderemotum</i> , <i>toliaraea</i> , (<i>torvum</i>), <i>trichopetiolum</i> , <i>truncicola</i> , (<i>tuberosum</i>), <i>violaceum</i>
Madeira (Portugal)	(<i>chenopodioides</i>), <i>dulcamara</i> , (<i>laxum</i>), <i>linnaeanum</i> , (<i>lycopersicum</i>), <i>marginatum</i> , <i>nigrum</i> , (<i>pseudocapsicum</i>), <i>trisectum</i> , <i>villosum</i>
Malawi	<i>aculeastrum</i> , (<i>aculeatissimum</i>), <i>aethiopicum</i> , <i>americanum</i> , <i>anguivi</i> , <i>aureitomentosum</i> , <i>campylacanthum</i> , (<i>chrysotrichum</i>), <i>dasyphyllum</i> , <i>giganteum</i> , <i>goetzei</i> , <i>lichtensteinii</i> , <i>macrocarpon</i> , <i>retroflexum</i> , <i>richardii</i> , <i>scabrum</i> , <i>schumannianum</i> , (<i>seaforthianum</i>), <i>tarderemotum</i> , <i>terminale</i> , <i>tettense</i> , (<i>torvum</i>), <i>villosum</i> , (<i>wendlandii</i>), (<i>wrightii</i>)
Mali	<i>cerasiferum</i> , <i>dasyphyllum</i> , <i>forskalii</i> , <i>incanum</i> , (<i>lycopersicum</i>), <i>tarderemotum</i>

Country	Species
Mauritania	<i>dasyphyllum</i> , <i>scabrum</i> , <i>villosum</i>
Mauritius (incl. La Réunion)	<i>americanum</i> , (<i>anguivi</i>), (<i>chenopodioides</i>), <i>erythracanthum</i> , <i>insanum</i> , (<i>lycopersicum</i>), (<i>mauritanum</i>), (<i>melongena</i>), <i>richardii</i> , <i>tarderemotum</i> , (<i>torvum</i>), <i>violaceum</i>
Morocco	<i>dulcamara</i> , <i>elaeagnifolium</i> , <i>forskalii</i> , <i>berculeum</i> , (<i>laciniatum</i>), <i>linnaeanum</i> , <i>nigrum</i> , <i>triflorum</i> , <i>villosum</i>
Mozambique	<i>aculeastrum</i> , (<i>aculeatissimum</i>), <i>aethiopicum</i> , <i>americanum</i> , <i>anguivi</i> , <i>aureitomentosum</i> , <i>campylacanthum</i> , <i>catombelense</i> , <i>dasyphyllum</i> , <i>giganteum</i> , <i>goetzei</i> , <i>lamprocarpum</i> , <i>lichtensteinii</i> , <i>linnaeanum</i> , <i>litoraneum</i> , <i>retroflexum</i> , <i>richardii</i> , <i>scabrum</i> , <i>stipitatostellatum</i> , <i>tarderemotum</i> , <i>tettense</i> , <i>torreanum</i> , (<i>torvum</i>), <i>usaramense</i> , (<i>viarum</i>), <i>villosum</i> , <i>zanzibarens</i>
Namibia	<i>burchellii</i> , <i>campylacanthum</i> , <i>capense</i> , <i>catombelense</i> , <i>elaeagnifolium</i> , <i>numile</i> , <i>lichtensteinii</i> , (<i>lycopersicum</i>), <i>pimpinellifolium</i> , <i>retroflexum</i> , <i>scabrum</i> , (<i>seaforthianum</i>), <i>supinum</i> , <i>tarderemotum</i> , <i>tettense</i>
Niger	<i>anguivi</i> , <i>forskalii</i> , <i>incanum</i> , (<i>lycopersicum</i>), <i>villosum</i>
Nigeria	<i>aculeastrum</i> , (<i>aculeatissimum</i>), <i>aethiopicum</i> , <i>americanum</i> , <i>anguivi</i> , <i>anomalum</i> , <i>cerasiferum</i> , <i>dasyphyllum</i> , (<i>erianthum</i>), <i>giganteum</i> , <i>incanum</i> , (<i>lycopersicum</i>), <i>macrocarpon</i> , <i>melongena</i> , <i>scabrum</i> , <i>terminale</i> , (<i>torvum</i>), <i>villosum</i> , (<i>wrightii</i>)
Rwanda	<i>aculeastrum</i> , (<i>aculeatissimum</i>), <i>anguivi</i> , <i>campylacanthum</i> , <i>cyaneopurpureum</i> , <i>dasyphyllum</i> , <i>giganteum</i> , <i>tarderemotum</i> , <i>terminale</i> , <i>wittei</i>
São Tome e Príncipe	<i>americanum</i> , <i>capsicoides</i> , (<i>melongena</i>), <i>scabrum</i> , <i>terminale</i>
Senegal	<i>anguivi</i> , <i>cerasiferum</i> , <i>forskalii</i> , <i>incanum</i> , (<i>lycopersicum</i>), <i>rigidum</i> ?, <i>scabrum</i> , <i>tarderemotum</i>
Seychelles	<i>aldabrense</i> , <i>americanum</i> , <i>scabrum</i>
Sierra Leone	<i>aculeatissimum</i> , <i>americanum</i> , <i>anguivi</i> , <i>capsicoides</i> , <i>dasyphyllum</i> , (<i>erianthum</i>), (<i>lycopersicum</i>), <i>macrocarpon</i> , (<i>melongena</i>), <i>scabrum</i> , <i>tarderemotum</i> , <i>terminale</i> , (<i>torvum</i>), (<i>wrightii</i>)
Somalia	<i>arundo</i> , <i>campylacanthum</i> , <i>coagulans</i> , <i>cordatum</i> , <i>cymbalariaifolium</i> , <i>dasyphyllum</i> , <i>denekense</i> , <i>forskalii</i> , <i>glabratum</i> , <i>hastifolium</i> , <i>incanum</i> , <i>jubae</i> , <i>melastomoides</i> , (<i>melongena</i>), <i>memphiticum</i> , <i>pampaninii</i> , <i>schimperianum</i> , <i>somalense</i> , <i>tarderemotum</i> , <i>tettense</i> , <i>villosum</i>
South Africa	<i>aculeastrum</i> , (<i>aculeatissimum</i>), <i>africanum</i> , <i>americanum</i> , <i>anguivi</i> , <i>burchellii</i> , <i>campylacanthum</i> , <i>capense</i> , <i>catombelense</i> , (<i>chenopodioides</i>), (<i>chrysotrichum</i>), <i>dasyphyllum</i> , <i>elaeagnifolium</i> , <i>giganteum</i> , <i>guineense</i> , <i>humile</i> , (<i>laxum</i>), <i>lichtensteinii</i> , <i>linnaeanum</i> , (<i>mauritanum</i>), (<i>pseudocapsicum</i>), <i>retroflexum</i> , <i>rubetorum</i> , (<i>sarrachoides</i>), (<i>seaforthianum</i>), <i>sisymbriifolium</i> , <i>sodomeodes</i> , <i>supinum</i> , <i>tarderemotum</i> , <i>terminale</i> , <i>tettense</i> , <i>tomentosum</i> , <i>torreanum</i> , (<i>torvum</i>), <i>triflorum</i> , (<i>viarum</i>), (<i>wrightii</i>)
South Sudan	<i>aculeastrum</i> , (<i>aculeatissimum</i>), <i>aethiopicum</i> , <i>anguivi</i> , <i>campylacanthum</i> , <i>cerasiferum</i> , <i>coagulans</i> , <i>dasyphyllum</i> , <i>giganteum</i> , <i>hastifolium</i> , <i>scabrum</i> , <i>tarderemotum</i> , <i>terminale</i>
Sudan (incl. Hala'ib triangle)*	<i>aculeastrum</i> , <i>adoense</i> , <i>aethiopicum</i> , <i>campylacanthum</i> , <i>cerasiferum</i> , <i>coagulans</i> , <i>forskalii</i> , <i>hastifolium</i> , <i>incanum</i> , <i>macrocarpon</i> , <i>memphiticum</i> , <i>nigrum</i> , <i>scabrum</i> , <i>schimperianum</i> , <i>somalense</i> , <i>tarderemotum</i> , <i>villosum</i>
Swaziland	<i>aculeastrum</i> , <i>campylacanthum</i> , <i>catombelense</i> , <i>retroflexum</i> , (<i>robustum</i>), (<i>seaforthianum</i>), <i>sisymbriifolium</i> , <i>torreanum</i>
Tanzania	<i>aculeastrum</i> , (<i>aculeatissimum</i>), <i>americanum</i> , <i>anguivi</i> , <i>arundo</i> , (<i>atropurpureum</i>), <i>aureitomentosum</i> , (<i>betaceum</i>), <i>campylacanthum</i> , <i>coagulans</i> , <i>cyaneopurpureum</i> , <i>dasyphyllum</i> , <i>denekense</i> , <i>giganteum</i> , <i>goetzei</i> , <i>hastifolium</i> , <i>inaequiradians</i> , <i>lamprocarpum</i> , <i>lanzae</i> , <i>lichtensteinii</i> , (<i>lycopersicum</i>), <i>macrocarpon</i> , <i>mauense</i> , (<i>melongena</i>), <i>memphiticum</i> , (<i>pectinatum</i>), <i>phoxocarpum</i> , <i>polhillii</i> , <i>richardii</i> , (<i>robustum</i>), <i>scabrum</i> , <i>schliebenii</i> , <i>schumannianum</i> , (<i>seaforthianum</i>), <i>setaceum</i> , <i>stipitatostellatum</i> , <i>taitense</i> , <i>tarderemotum</i> , <i>terminale</i> , <i>tettense</i> , <i>thomsonii</i> , (<i>tuberosum</i>), <i>umalilaense</i> , <i>usambarens</i> , <i>usaramense</i> , <i>villosum</i> , (<i>wendlandii</i>), <i>wittei</i> , (<i>wrightii</i>), <i>zanzibarens</i>
Togo	(<i>aculeatissimum</i>), <i>aethiopicum</i> , <i>americanum</i> , <i>anguivi</i> , <i>anomalum</i> , (<i>melongena</i>), <i>scabrum</i> , <i>terminale</i> , (<i>torvum</i>)
Tunisia	<i>linnaeanum</i> , (<i>lycopersicum</i>), <i>nigrum</i> , <i>triflorum</i> , <i>villosum</i>
Uganda	<i>aculeastrum</i> , (<i>aculeatissimum</i>), <i>aethiopicum</i> , <i>americanum</i> , <i>anguivi</i> , (<i>betaceum</i>), <i>campylacanthum</i> , <i>cerasiferum</i> , <i>coagulans</i> , <i>cyaneopurpureum</i> , <i>dasyphyllum</i> , <i>giganteum</i> , <i>hastifolium</i> , <i>lanzae</i> , <i>macrocarpon</i> , <i>mammosum</i> , <i>mauense</i> , <i>mauritanum</i> , <i>memphiticum</i> , <i>runsiense</i> , <i>scabrum</i> , <i>schumannianum</i> , (<i>seaforthianum</i>), <i>tarderemotum</i> , <i>terminale</i> , <i>tettense</i> , <i>villosum</i> , <i>wittei</i> , (<i>wrightii</i>)
Western Sahara	<i>villosum</i>
Zambia	(<i>aculeatissimum</i>), <i>americanum</i> , <i>anguivi</i> , <i>aureitomentosum</i> , <i>campylacanthum</i> , (<i>chrysotrichum</i>), <i>goetzei</i> , <i>lichtensteinii</i> , (<i>lycopersicum</i>), <i>retroflexum</i> , <i>richardii</i> , <i>scabrum</i> , (<i>seaforthianum</i>), <i>tarderemotum</i> , <i>terminale</i> , <i>tettense</i> , (<i>torvum</i>), (<i>tuberosum</i>), <i>villosum</i> , (<i>wendlandii</i>), (<i>wrightii</i>)
Zimbabwe	<i>aculeastrum</i> , (<i>aculeatissimum</i>), <i>anguivi</i> , <i>aureitomentosum</i> , (<i>betaceum</i>), <i>campylacanthum</i> , <i>catombelense</i> , <i>giganteum</i> , <i>lichtensteinii</i> , <i>linnaeanum</i> , (<i>mauritanum</i>), <i>retroflexum</i> , <i>richardii</i> , <i>scabrum</i> , (<i>seaforthianum</i>), <i>tarderemotum</i> , <i>terminale</i> , <i>villosum</i> , (<i>wendlandii</i>)

*Possession of the area known as the Hala'ib triangle is disputed between Egypt and Sudan, species occurring there are listed under both countries.

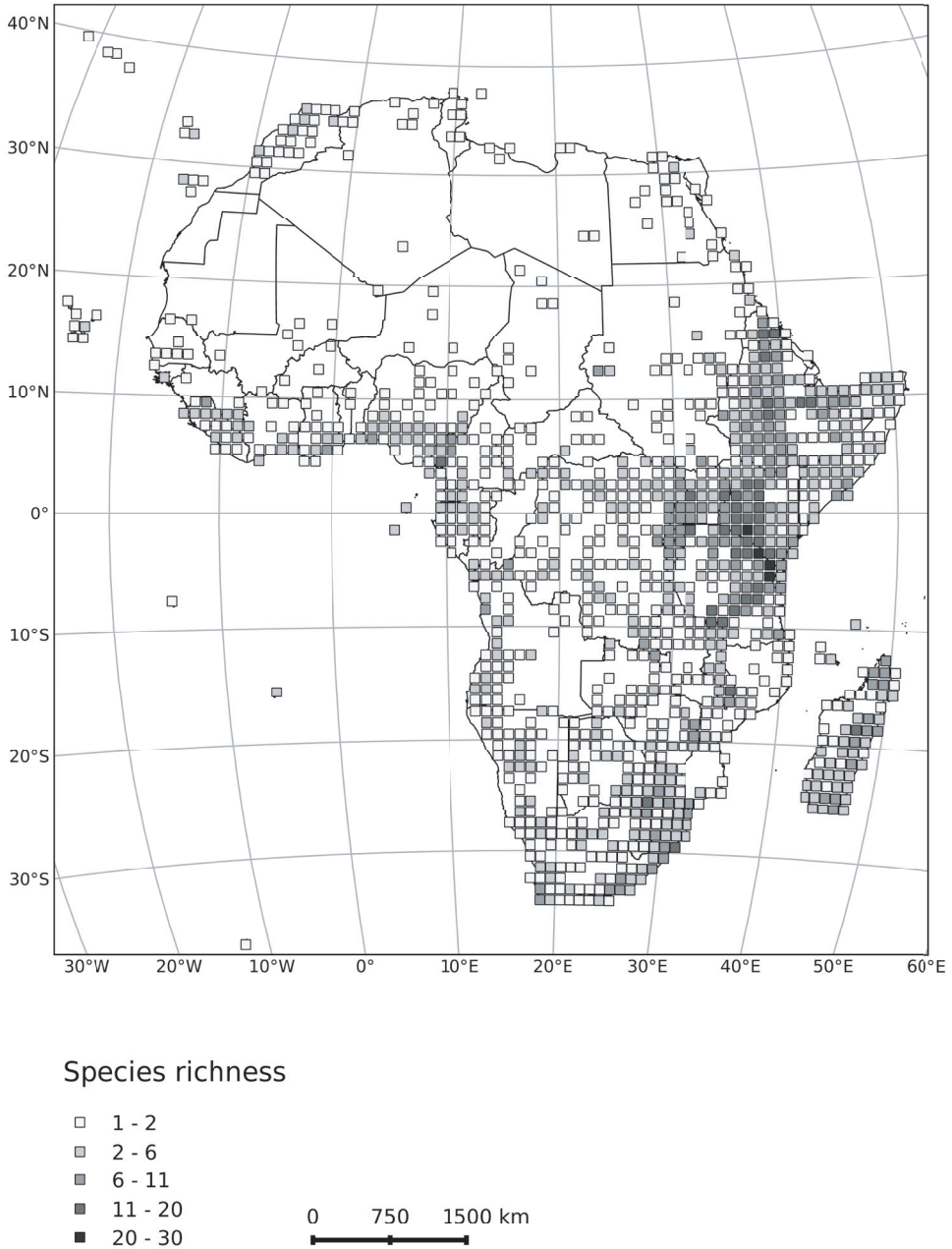


Figure 1. Heat map of *Solanum* diversity in Africa. Darker degree squares indicate greater species richness. The middle to high elevation regions of eastern Africa (Kenya/Tanzania) have the highest high species diversity, followed by secondary areas of species richness in the Ethiopian plateaus, dry areas of central Madagascar, South Africa and the area around Mount Cameroon. We have not analysed how collecting effort has influenced these patterns, but it is likely to be important. As the *Leptostemonum* Clade has the largest number of species in Africa, diversity in that clade drives species richness overall (see Vorontsova and Knapp 2016, figure 2). Map prepared by Sarah Ficinski.

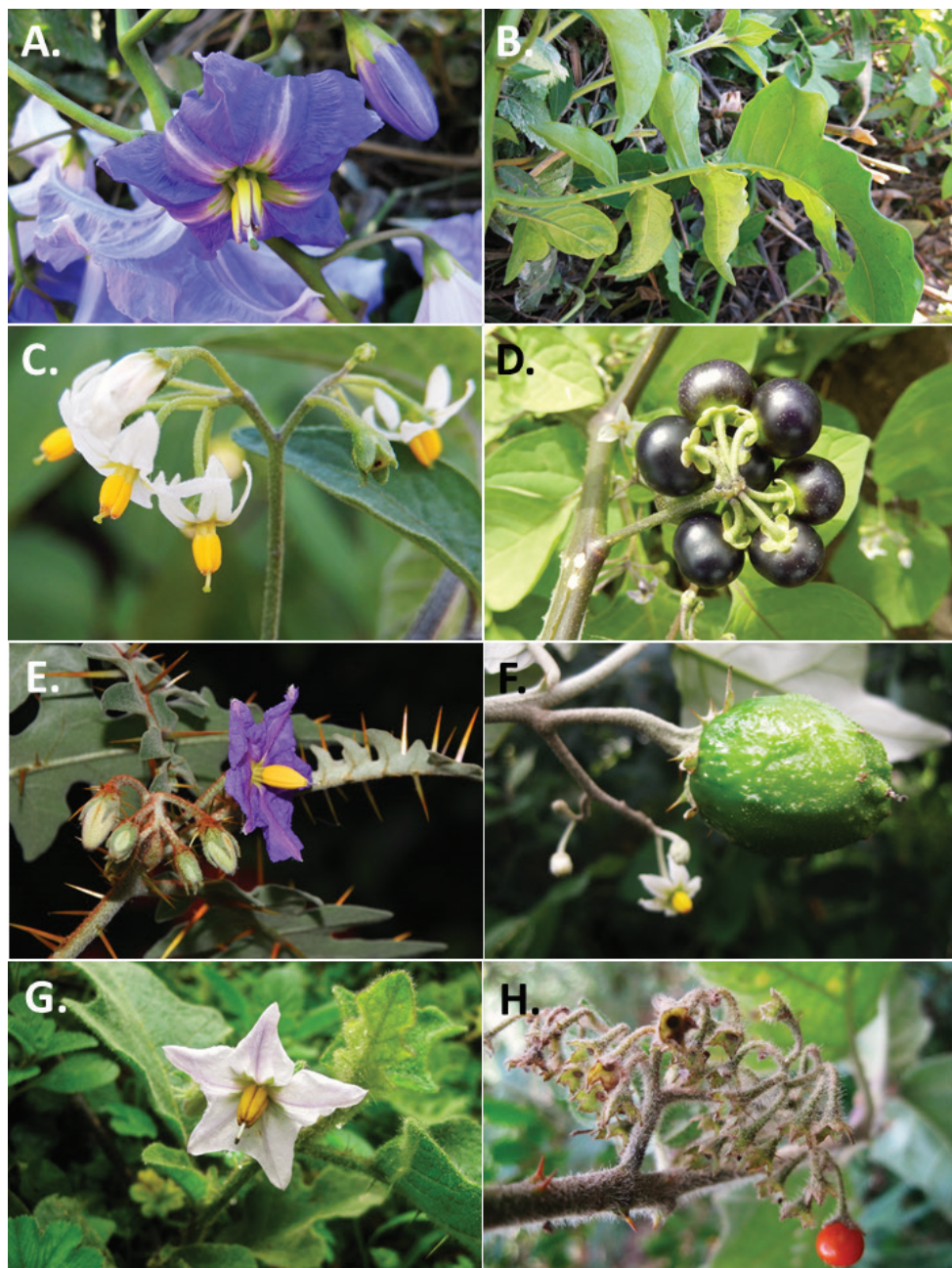


Figure 2. **A, B** *Solanum wendlandii* Hook.f. (Allophyllum-Wendlandii Clade) **C** *Solanum tarderemotum* Bitter (Morelloid Clade) **D** *Solanum scabrum* Mill. (Morelloid Clade) **E** *Solanum pyracanthos* Lam. (Leptostemonum Clade) **F** *Solanum aculeastrum* Dunal (Leptostemonum Clade) **G** *Solanum nigriviola* Bitter (Leptostemonum Clade) **H** *Solanum usambarense* Bitter & Dammer (Leptostemonum Clade). Photos **A, B, F, G, H** by M.S. Vorontsova **C, D, E** by S. Knapp.

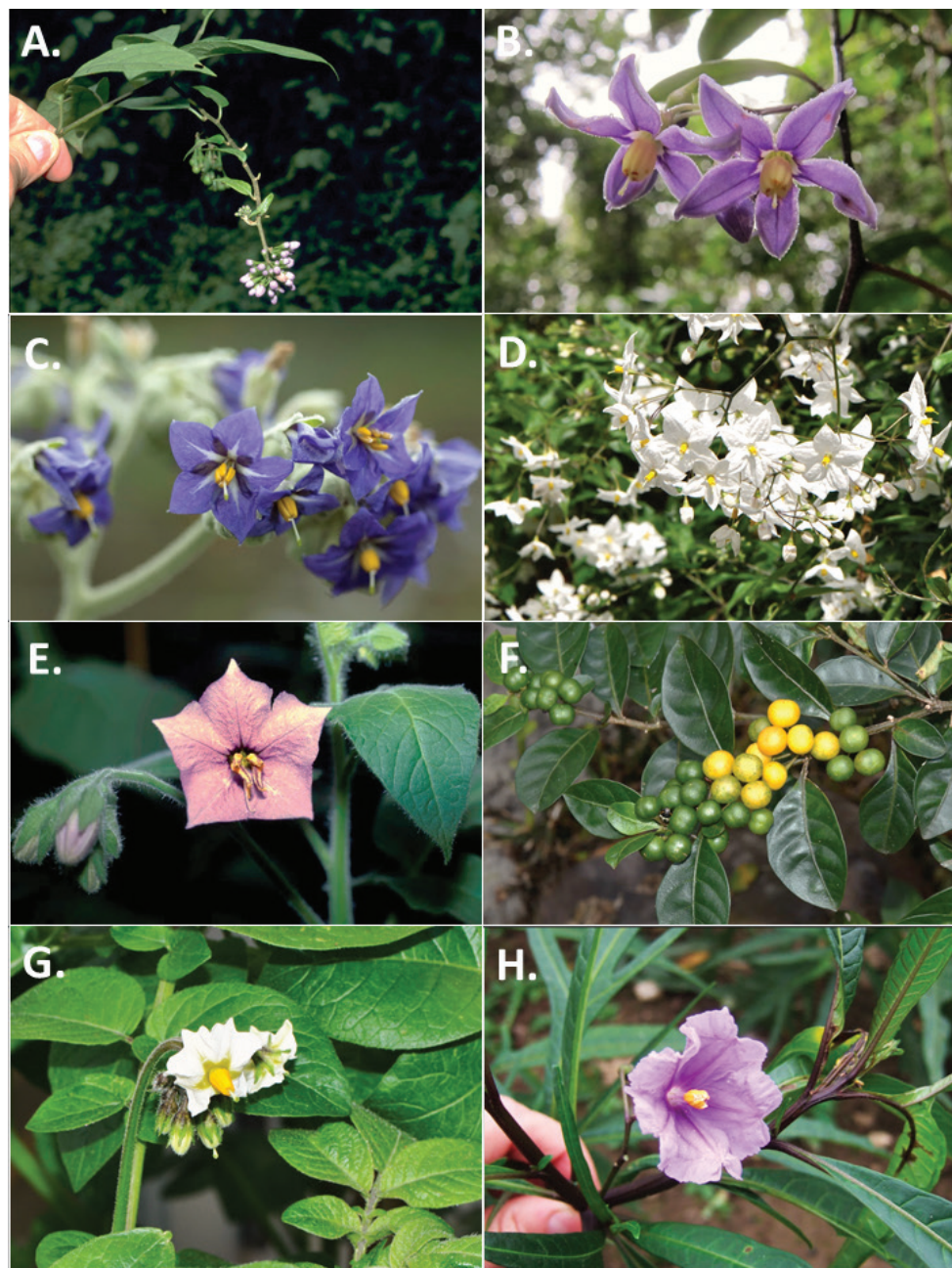


Figure 3. **A** *Solanum terminale* Forssk. (African non-spiny Clade) **B** *Solanum madagascariense* Dunal (African non-spiny Clade) **C** *Solanum mauritianum* Scop. (Brevantherum Clade) **D** *Solanum laxum* Spreng. (Dulcamaroid Clade) **E** *Solanum trisetum* Dunal (Normania Clade) **F** *Solanum diphyllum* L. (Geminata Clade) **G** *Solanum tuberosum* L. (Potato Clade) **H** *Solanum laciniatum* Aiton (Archaeosolanum Clade). Photos **A, C, D, E, F, G, H** by S. Knapp **B** by M.S. Vorontsova.

Four species have been recorded from this area, for which we have only seen single specimens, all of which are cultivated and not naturalised. *Solanum laciniatum* Aiton (Archaeosolanum Clade), the kangaroo apple from Australia and New Zealand, has been recorded from Morocco, *S. agrarium* Sendtn. (Leptostemonum Clade, section *Acanthophora* Dunal sensu Nee 1979) from Brazil has only recently been collected in the Cape Verde Islands and *S. atropurpureum* Schrank (Leptostemonum Clade, section *Acanthophora* Dunal sensu Nee 1979) from Brazil and *S. pectinatum* Dunal (Leptostemonum Clade, section *Lasiocarpa* Dunal sensu Whalen et al. 1981) from Mexico have been recorded from Tanzania in a botanical garden. These singletons have been included in Table 1, but not in the keys below; descriptions should be checked if identification is ambiguous.

Each species name is hyperlinked to its page on Solanaceae Source (www.solanaceaesource.org) where photographs (if available), descriptions and other information can be found. An expanded key to all of the thirteen major clades of *Solanum* worldwide is in preparation (R. Hilgenhof and T. Särkinen, pers. comm.). Instructions on how to use Solanaceae source are included in the Materials and Methods.

Key to the groups of *Solanum* in continental Africa, Madagascar (incl. the islands of Réunion, the Comoros and the Seychelles), Macaronesia and the Cape Verde Islands

- 1a Trichomes of stems and leaves stellate or echinoid.....**2**
- 1b Trichomes of stems and leaves simple (unbranched) or dendritically branched, never stellate or echinoid.....**3**
- 2a Anthers ellipsoid in outline; inflorescences many times branched; branching dichasial; stems without prickles**Key 6. Brevantherum Clade**
- 2b Anthers tapering in outline; inflorescences branched or unbranched; branching monochasial; stems with or without prickles
..... **Key 7. Leptostemonum Clade**
- 3a Shrubs, small trees or woody vines**4**
- 3b Herbs or if plants woody, only at the base; never true vines, occasionally scandent**9**
- 4a Stems with hooked prickles; anthers tapering.....
..... ***Solanum wendlandii* Hook.f. (Wendlandii-Allophyllum Clade)**
- 4b Stems without prickles; anthers ellipsoid.....**5**
- 5a Small trees with foetid cordate leaves; flowers waxy pink or greenish white; anther connectives enlarged; fruit a large turbinate berry with fleshy pulp; cultivated tree tomato
..... ***Solanum betaceum* Cav. (Pachyphylla [Cyphomandra] Clade)**
- 5b Shrubs or woody vines; leaves, flowers and anther connectives not as above .
..... **6**

- 6a Small shrubs with paired (geminate) leaves; flowers nodding, white; fruit held on erect pedicels, orange; cultivated or occasionally naturalised in northern Africa.....7
- 6b Woody vines or scandent shrubs; leaves, flowers and fruit not as above; continental Africa, Madagascar; or cultivated8
- 7a Leaves lanceolate, with at least some branched trichomes on new growth; leaves of a pair more or less the same shape; inflorescence usually with 2 flowers; berry dark orange; cultivated “Jerusalem cherry”
..... *Solanum pseudocapsicum* L. (Geminata Clade)
- 7b Leaves ovate or elliptic, completely glabrous; leaves of a pair markedly different in shape; inflorescence with more than 2 flowers; berry pale orange; only recorded from Egypt *Solanum diphyllum* L. (Geminata Clade)
- 8a Base of pedicel enclosed in a small sleeve of rhachis tissue usually more than 0.5 mm long; Mediterranean northern Africa; Macaronesia; if in other parts of Africa, cultivated..... **Key 3. Dulcamaroid Clade**
- 8b Base of pedicel peg-like, sometimes enclosed in a small sleeve of rhachis tissue, if so the sleeve less than 0.5 mm long; Continental tropical Africa; Madagascar; native plants **Key 1. African non-spiny (ANS) Clade**
- 9a Leaves pinnate or deeply pinnatifid..... 11
- 9b Leaves simple (at most the margins toothed) or at most ternate 12
- 10a Fleshy prostrate herbs; leaves pinnatifid, the leaflets not distinct; inflorescences unbranched..... *Solanum triflorum* Nutt. (Morelloid Clade)
- 10b Spreading herbs or herbaceous scramblers, not fleshy; leaves pinnate with distinct leaflets; inflorescences branched or less often unbranched.....
..... **Key 5. Potato Clade**
- 11a Anthers dimorphic, of different sizes and two of the five with horn-like projections; Macaronesia and northern Africa **Key 2. Normania Clade**
- 11b Anthers equal in size and shape, if unequal only slightly so; widespread or cultivated..... 12
- 12a Trichomes simple with a single long terminal cell (bayonet hairs); fruit a large greenish berry with purple stripes (more than 3 cm diameter), with abundant solid mesocarp; herbaceous vine.....
..... *Solanum muricatum* Aiton (Potato Clade)
- 12b Trichomes simple or branched; fruit variously coloured (usually less than 1 cm in diameter), with juicy mesocarp; annual or short-lived perennial herbs
..... **Key 4. Morelloid Clade**

KEY 1. AFRICAN NON-SPINY (ANS) CLADE (descriptions Knapp and Vorontsova 2016)

- 1a Leaves glabrous on both surfaces.....2
- 1b Leaves with at least some pubescence on either surface (this sometimes sparse along veins and midrib) 10

- 2a Inflorescence few-flowered, unbranched (at most furcate in *Solanum betroka*) ..3
- 2b Inflorescence many flowered, usually many times branched5
- 3a Flowers appearing fasciculate and axillary; corolla usually somewhat campanulate; fruit orange; South Africa*Solanum guineense* L.
- 3b Flowers not appearing fasciculate; corolla stellate, the petals spreading or reflexed; fruit colour green, black or not known, never orange; Madagascar4
- 4a Leaves clustered on short shoots; calyx lobes deltate, not divided to base; dry forests *Solanum betroka* D'Arcy & Rakot.
- 4b Leaves not clustered on short shoots; calyx lobes long triangular, divided to the base; wet forests *Solanum truncicola* D'Arcy & Rakot.
- 5a Flowers or fruits (or pedicel scars) in tightly packed groups on individual branches (these sometimes very short and the inflorescence appearing spicate)..... *Solanum terminale* Forssk.
- 5b Flowers spaced on the open inflorescence, often unevenly so6
- 6a Leaves clustered on short shoots..... *Solanum betroka* D'Arcy & Rakot.
- 6b Leaves spaced along the stem7
- 7a Anthers opening by pores that elongate with age; mountains of continental Africa..... *Solanum runsoriense* C.H.Wright
- 7b Anthers opening by delineated pores that do not elongate with age; Madagascar8
- 8a Leaves fleshy, thick and coriaceous, the venation not visible in dry specimens; fruit with thick pericarp (woody?) *Solanum myrsinoides* D'Arcy & Rakot.
- 8b Leaves membranous to coriaceous, not markedly thick and fleshy, the venation visible in dry specimens; fruit with thin pericarp, the seeds visible through the berry wall9
- 9a Petioles with long, simple trichomes (these not extending to the lamina); seeds 4–8 per berry; inflorescence axis thin and delicate..... *Solanum trichopetiolatum* D'Arcy & Rakot.
- 9b Petioles glabrous or with minute dendritic trichomes; seeds 20–40 per berry; inflorescence axis robust..... *Solanum madagascariense* Dunal
- 10a Leaf trichomes simple (unbranched)11
- 10b Leaf trichomes branched (dendritic to echinoid)16
- 11a Inflorescence axis unbranched, the flowers closely spaced.....12
- 11b Inflorescence axis branched, often many times so.....13
- 12a Leaves clustered along stem; fruit orange; South Africa *Solanum guineense* L.
- 12b Leaves spaced along shoots; fruit purple or black; Madagascar *Solanum truncicola* D'Arcy & Rakot.
- 13a Flowers or fruits (or pedicel scars) in tightly packed groups on individual branches (these sometimes very short and the inflorescence appearing spicate)..... *Solanum terminale* Forssk.
- 13b Flowers spaced on the open inflorescence, often unevenly so14

- 14a Stems strongly quadrangular; at least some leaves with shallow lobes; plants of seashore and dune habitats..... *Solanum africanum* Mill.
- 14b Stems terete; leaves not lobed; plants of forests and forest edges 15
- 15a Leaf pubescence very sparse, confined to the midrib or near the petiole; flowers not heterostylous; Madagascar ... *Solanum trichopetiolatum* D’Arcy & Rakot.
- 15a Leaf pubescence variable, not very sparse, along veins and lamina; flowers heterostylous; mountains of continental Africa
..... *Solanum runsoriense* C.H.Wright
- 16a Abaxial leaf surfaces with tufts of trichomes in the vein axils (domatia)..... 17
- 16b Abaxial leaf surfaces with trichomes on lamina and/or along veins, not with prominent tufts in the vein axils (domatia) 19
- 17a Inflorescence many times branched, open and with many flowers (more than 20); calyx lobes broadly deltate; petioles to 4 cm long, thin and flexuous; Mayotte (Comoros) *Solanum macrothyrsum* Dammer
- 17b Inflorescence furcate, more congested and with fewer flowers (fewer than 20); calyx lobes deltate; petioles to 2.5 cm long, thicker; Madagascar 18
- 18a Calyx lobes 0.8–2 mm long; inflorescences with 10–16 flowers
..... *Solanum ivobibe* D’Arcy & Rakot.
- 18b Calyx lobes 4–6 mm long; inflorescences with 3–10 flowers
..... *Solanum sambiranense* D’Arcy & Rakot.
- 19a Abaxial leaf surfaces evenly pubescent on veins and lamina 20
- 19b Abaxial leaf surfaces pubescent only along the veins and midrib, the trichomes not extending to the lamina 22
- 20a Anther pores lengthening to slits with age; flowers heterostylous; leaves evenly distributed along branches; mountains of continental Africa.....
..... *Solanum runsoriense* C.H.Wright
- 20b Anther pores not lengthening to slit with age; flowers not heterostylous; leaves usually at least somewhat clustered on short shoots; Madagascar 21
- 21a Leaves densely pubescent with golden (when dry) loosely dendritic trichomes; flowers more than 2 cm in diameter; anthers 4–6 mm long; widespread in Madagascar *Solanum imamense* Dunal
- 21b Leaves sparsely pubescent with white (when dry) congested dendritic trichomes; flowers 2 cm in diameter or less; anthers 3.5–4 mm long; dry forests of southern Madagascar *Solanum betroka* D’Arcy & Rakot.
- 22a Inflorescence unbranched, with few flowers; pedicels 1.8–4.5 cm long
..... *Solanum humblotii* Bitter
- 22b Inflorescence many times branched, with many flowers; pedicels 0.8–1.2 cm long 23
- 23a Anther pores lengthening to slits with age; flowers heterostylous; pedicels with pubescence like the inflorescence rhachis; mountains of continental Africa *Solanum runsoriense* C.H.Wright
- 23b Anther pores not lengthening to slit with age; flowers not heterostylous; pedicels always glabrous; Madagascar..... *Solanum madagascariense* Dunal

KEY 2. NORMANIA CLADE (descriptions on Solanaceae Source)

- 1a Leaves shallowly lobed, pubescent with long, tangled eglandular trichomes; anthers tapering, horned near the base, tightly connivent; seeds more than 5 mm long; fruit a dry berry; Mediterranean *Solanum herculeum* Bohs
- 1b Leaves simple or ternate, glabrous or pubescent, but the trichomes not long and tangled, glandular; anthers markedly horned, spreading; seeds less than or equal to 5 mm long; fruit a brightly coloured, juicy berry; laurisylva forest in Macaronesia..... **2**
- 2a Leaves simple or ternate, the base truncate or cordate if leaves unlobed; anthers yellow, horned in lower third; berry bright red; Madeira *Solanum trisectum* Dunal
- 2b Leaves simple, the base cordate; anthers black, horned about halfway up from the base; berry orange or red; Tenerife, Canary Islands..... *Solanum nava* Webb & Berthel.

KEY 3. DULCAMAROID clade (descriptions in Knapp 2013 and on Solanaceae Source)

- 1a Buds turbinate and strongly pointed; petals strongly reflexed, with shiny green dots at the base of each; anthers tightly connivent with “glue”; fruit a shiny red berry, often ellipsoid; native plants in Mediterranean northern Africa..... *Solanum dulcamara* L.
- 1b Buds rounded, often somewhat inflated; petals spreading, without shiny green dots; anthers not tightly connivent with “glue”; fruit red or black, globose; cultivated plants, occasionally naturalised throughout the region **2**
- 2a Flowers white; anthers on equal filaments; leaves with axillary tufts of trichomes on the lower surfaces (domatia), usually simple, occasionally pinnatifid; berry (very rarely) black *Solanum laxum* Spreng.
- 2b Flowers purple; one filament slightly longer than the other 4; leaves completely glabrous, pinnatifid, rarely simple; berry bright shiny red *Solanum seafortianum* Andrews

KEY 4. MORELLOID CLADE (descriptions in Särkinen et al. 2018 and on Solanaceae Source)

- 1a Leaves shallowly to deeply pinnatifid *Solanum triflorum* Nutt.
- 1b Leaves entire to sinuate-dentate **2**
- 2a Glandular trichomes present (e.g. along stems, petioles and leaves), plants usually sticky to touch when fresh..... **3**
- 2b Glandular trichomes absent (e.g. along stems, petioles and leaves), plants not sticky to touch when fresh **14**
- 3a Anthers less than 1.8 mm long..... **4**

3b	Others more than or equal to 1.8 mm long	7
4a	Inflorescences with 10–40 flowers; pedicels spaced 1–2 mm apart, sharply bent at the base (near articulation point) in flower and fruit	
 <i>Solanum tarderemotum</i> Bitter	
4b	Inflorescences with 2–5(-10) flowers; pedicels spaced 0–1 mm apart, nodding, erect or spreading in flower and fruit, reflexed and slightly curved in some species in fruit but never in flower	5
5a	Calyx lobes 1–1.5 mm long in flower; fruiting calyces not accrescent, the tube remaining 1–1.7 mm long and lobes 1–1.5 mm long; fruit black when ripe, not markedly shiny, with a glaucous cast.....	<i>Solanum retroflexum</i> Dunal
5b	Calyx lobes 1.5–2.5 mm long in flower; fruiting calyces accrescent, the tube 3–4 mm long and lobes 2.5–8.0 mm long; fruit green when ripe, shiny	6
6a	Leaf bases attenuate to cuneate; inflorescences mostly intermodal, with 4–8(-10) flowers; pedicels spaced 0.3–1 mm apart; calyx lobes 1.7–2.5 mm long; corollas with yellow-green central eye with black-purple V-shaped margins; anthers 1.0–1.4 mm long; berries dark green to green-brown marbled with white lines, becoming usually translucent and glossy, lower half of berries covered with enlarged calyces but berry mostly visible; seeds brown; stone cells (1-)2–3, these 0.5 mm in diameter; northern Africa	<i>Solanum nitidibaccatum</i> Bitter
6b	Leaf bases truncate; inflorescences mostly leaf-opposed, with 2–5(-7) flowers; pedicels spaced 0(-1) mm apart; calyx lobes 1.5–2.0 mm long; corolla with yellow-green or translucent basal star without black-purple colouration; anthers 1.2–2.0 mm long; berries pale green, shiny becoming dull, opaque, usually completely enveloped by enlarged calyces; seeds pale yellow; stone cells 4–6, these (0.5-)0.8–1 mm in diameter; only known from South Africa	<i>Solanum sarrachoides</i> Sendtn.
7a	Anthers more than or equal to 2.8 mm long	8
7b	Anthers less than 2.8 mm long.....	9
8a	Inflorescences with bracteoles present in most individuals; buds narrowly ellipsoid; corolla deeply stellate, the lobes narrowly lanceolate; berries with more than 30 stone cells	<i>Solanum triflorum</i> Nutt.
8b	Inflorescences never with bracteoles; buds globose, ovoid or narrowly ellipsoid; corolla rotate-stellate, the lobes long- triangular with rounded tips; berries with (0-)2–4 stone cells	<i>Solanum memphiticum</i> Forssk.
9a	Calyx lobes appressed to spreading in fruit, never strongly reflexed	10
9b	Calyx lobes strongly reflexed in fruit	12
10a	Calyx accrescent in fruit, calyx tube 3–4 mm long and lobes 2.5–8 mm long	<i>Solanum sarrachoides</i> Sendtn.
10b	Calyx not accrescent in fruit, calyx tube 1–2 mm long and lobes 1–1.5 mm long	11

- 11a Buds ellipsoid; calyx tube 1.5–2.0 mm long, lobes 1–1.5 mm long, elongate-deltate with rounded tips; fruiting pedicels persist when fruits mature and fall off; Cameroon line (Cameroon and Equatorial Guinea), above 2,000 m elevation *Solanum pseudospinosum* C.H.Wright
- 11b Buds subglobose; calyx tube 0.8–1.0 mm long, lobes 0.5–0.8 mm long, triangular with rounded to acute tips; fruiting pedicels generally do not persist and fall off with maturing fruits; in continental Africa only in South Africa and around the Mediterranean..... *Solanum nigrum* L.
- 12a Leaves rhomboidal to lanceolate; filaments 1.2–1.5 mm long, anthers 1.3–1.8(-2) mm long; seeds 1.6–1.8 mm long and 1.3–1.5 mm wide..... *Solanum retroflexum* Dunal
- 12b Leaves broadly to narrowly ovate to elliptic; filaments 0.5–1.3 mm long; anthers 1.8–2.5 mm long; seeds 1.8–2.2 mm long and 1.5–1.7 mm wide **13**
- 13a Calyx with broad and relatively transparent sinuses, lobes elliptic to triangular, rounded at tip; free part of the filaments 1.0–1.3 mm long; mature berries slightly ellipsoid, shiny yellow, orange or red; stone cells always absent *Solanum villosum* Mill.
- 13b Calyx with narrow, sharp triangular sinuses, lobes deltate with acute or rounded tips; free part of the filaments 0.5–0.7 mm long; mature berries round, dull black or green; stone cells 0–4; in Africa only in South Africa and around the Mediterranean *Solanum nigrum* L.
- 14a Anthers less than 1.8 mm long..... **15**
- 14b Anthers more than or equal to 1.8 mm long..... **17**
- 15a Pedicels spaced 1–2 mm apart, pedicels sharply bent at the base (near the articulation point) in flower and fruit *Solanum tanderemotum* Bitter
- 15b Pedicels spaced 0–0.5 mm apart, pedicels nodding, erect or spreading in flower and fruit..... **16**
- 16a Leaves with entire margins, occasionally sinuate-dentate; calyx lobes 0.3–0.5 mm long in flower, 1(-2) mm in fruit; mature fruits black, the surface very shiny..... *Solanum americanum* Mill.
- 16b Leaves shallowly toothed, occasionally entire; calyx lobes 1.0–1.5 mm long in flower, 1.5–2 mm in fruit; mature fruits purple-black or green, the surface dull *Solanum retroflexum* Dunal
- 17a Anthers less than 2.8 mm long..... **18**
- 17b Anthers more than or equal to 2.8 mm long **27**
- 18a Berries without stone cells..... **19**
- 18b Berries with 2–22 stone cells..... **24**
- 19a Pedicels persisting and not dropping with mature fruits; calyx lobes in fruit mostly strongly reflexed **20**
- 19b Pedicels dropping with mature fruits; calyx lobes in fruit appressed to slightly spreading, rarely strongly reflexed **22**

- 20a Leaves rhomboidal to lanceolate; filaments 1.2–1.5 mm long, anthers 1.3–1.8(–2) mm long; seeds 1.6–1.8 mm long and 1.3–1.5 mm wide.....
..... *Solanum retroflexum* Dunal
- 20b Leaves broadly to narrowly ovate to elliptic; filaments 0.5–1.3 mm long; anthers 1.8–2.5 mm long; seeds 1.8–2.2 mm long and 1.5–1.7 mm wide21
- 21a Calyx with broad and relatively transparent sinuses, lobes elliptic to triangular, rounded at tip; filaments 1.0–1.3 mm long; mature berries slightly ellipsoid, shiny yellow, orange or red; stone cells always absent
..... *Solanum villosum* Mill.
- 21b Calyx with narrow, sharp triangular sinuses, lobes deltate with acute tips; filaments 0.5–0.7 mm long; mature berries round, dull black or green; stone cells generally absent (2–4 stone cells common in Asian material).....
..... *Solanum nigrum* L.
- 22a Buds elongate-oblong; fruiting peduncles strongly deflexed at the base (bent downwards at junction with the stem) *Solanum chenopodioides* Lam.
- 22b Buds ellipsoid to subglobose; fruiting peduncles straight or ascending23
- 23a Pedicels spaced 1–2 mm apart, sharply bent at the base (near the articulation point) in flower and fruit; seeds 1.5–2 mm long and 1–1.5 mm wide.....
..... *Solanum tarderemotum* Bitter
- 23b Pedicels spaced 0–0.7 mm apart, straight, spreading or reflexed in flower and fruit; seeds 1.8–2 mm long and 1.5–1.6 mm wide..... *Solanum nigrum* L.
- 24a Prostrate herb; leaves narrowly elliptic to lanceolate, base strongly attenuate; inflorescences with 1–5 flowers; pedicels stout and spreading; calyx lobes linear-oblong with rounded apices; mountains of Ethiopia
..... *Solanum hirtulum* C.H.Wright
- 24b Upright or spreading herb; leaves broadly ovate to elliptic, base acuminate, acute, obtuse, truncate to abruptly attenuate; inflorescences with 2–40 flowers; pedicels thinner, spreading to strongly reflexed; calyx lobes triangular, broadly deltoid or ovate with acute to rounded apices.....25
- 25a Pedicels strongly bent downwards at the base (near articulation point) in flower and fruit..... *Solanum tarderemotum* Bitter
- 25b Pedicels spreading, stout or pendent in flower, occasionally recurved in fruit but never strongly bent downwards at the base26
- 26a Inflorescences unbranched or more often branched, often with small leaves (bracteoles?); calyx lobes broadly deltate to mere enations of the rim; style exserted 1.0–1.5 mm beyond anther cone; mature berries 3–4(–5) mm in diameter, dull yellowish brown *Solanum umalilaense* Manoko
- 26b Inflorescences unbranched, never with small leaves; calyx lobes triangular; style exserted 0–1 mm beyond anther cone; mature berries 6–10 mm in diameter, dull black..... *Solanum nigrum* L.
- 27a Inflorescences with bracteoles present in most individuals; buds narrowly elliptic; berries with more than 30 stone cells *Solanum triflorum* Nutt.
- 27b Inflorescences never with bracteoles; buds globose, ovoid or narrowly ellipsoid; berries with 0–14 stone cells28

- 28a Berries with 2–14 stone cells; leaf base strongly attenuate *Solanum hirtulum* C.H.Wright
- 28b Berries without stone cells; leaf base not strongly attenuate.....29
- 29a Buds elongate-oblong; calyx lobes broadly deltate to triangular with acute tips; fruiting peduncles strongly bent at the base near junction with the stem; fruiting pedicels thin, reflexed and slightly recurved; seeds 1.2–1.4 mm long and 1.0–1.2 mm wide.....*Solanum chenopodioides* Lam.
- 29b Buds globose-subglobose; calyx lobes broadly deltate with rounded tips; fruiting peduncles straight; fruiting pedicels stout, erect and spreading; seeds 2–2.8 mm long and 1.5–1.8 mm wide*Solanum scabrum* Mill.

KEY 5. POTATO CLADE (descriptions on Solanaceae Source)

- 1a Flowers yellow; anthers tightly connivent and tapering to a beak-like tip; fruit a bright red berry; cultivated tomatoes2
- 1b Flowers white or purple; anthers ellipsoid, not tapering to a beak-like tip; fruit green or whitish green (often with purple stripes).....3
- 2a Corolla lobes deltate to triangular; anther cone stout, the style included; berry usually more than 1 cm in diameter (often much larger), fewer than 20 per infructescence; leaflets with serrate margins; cultivated tomato *Solanum lycopersicum* L.
- 2b Corolla lobes narrowly triangular; anther cone long and narrow, the style exserted; berry less than 1 cm in diameter, more than 20 per infructescence; leaflets with entire margins; cultivated currant tomato*Solanum pimpinellifolium* L.
- 3a Leaves at most ternate, usually simple; fruit a berry more than 3 cm in diameter; plant not bearing underground tubers; cultivated pepino *Solanum muricatum* Aiton
- 3b Leaves pinnate; fruit a berry less than 3 cm in diameter; plant bearing underground tubers; cultivated potato *Solanum tuberosum* L.

KEY 6. BREVANTHERUM CLADE (descriptions on Solanaceae Source)

- 1a Young flower buds turbinate; calyx densely pubescent within over entire surface; young stems sulcate; axillary leaves absent.....*Solanum erianthum* D.Don
- 1b Young flower buds oblong to orbicular; calyx lobes pubescent within only in distal quarter; young stems terete; axillary leaves common *Solanum mauritianum* Scop.

KEY 7. LEPTOSTEMONUM CLADE (descriptions in Vorontsova and Knapp 2016 and on Solanaceae Source)

- 1a Young stems and petioles noticeably winged; mature fruit densely pubescent; invasive plant in Tanzanian highlands and South Africa ***Solanum robustum* H.Wendl.**
- 1b Young stems and petioles not markedly winged (terete or slightly ridged); mature fruit glabrous; native or invasive, widespread..... **2**
- 2a Flowers with stamens of differing lengths (due either to unequal anthers or unequal filaments or both); arid eastern and north-eastern Africa **3**
- 2b Flowers with all stamens equal in length; widespread **8**
- 3a Corolla strongly zygomorphic, with the two lower lobes much larger; flowers often enantiostylous; Canary Islands **4**
- 3b Corolla only weakly zygomorphic, the lower lobes somewhat but not markedly larger; flowers not enantiostylous; continental Africa **5**
- 4a Leaves narrowly elliptic to lanceolate; calyx lobes linear and awn-like; corolla always 5-merous; ripe berry orange; Gran Canaria... ***Solanum lidii* Sunding**
- 4b Leaves ovate; calyx lobes linear; corolla often 4-merous; ripe berry yellow or yellowish green; Tenerife and Gran Canaria ***Solanum vespertilio* Aiton**
- 5a Leaves orbicular to reniform, 1.2–2.5 cm long, wider than long; petioles longer than leaves; rare in north-eastern Somalia..... ***Solanum cymbalariifolium* Chiov.**
- 5b Leaves ovate to elliptic or lanceolate, 2–14 cm long, longer than wide; petioles shorter than leaves; arid eastern and north-eastern Africa **6**
- 6a Stem prickles dense, acicular, less than 0.5 mm wide at base, pale yellow; fruit fully concealed by the accrescent calyx ***Solanum coagulans* Forssk.**
- 6b Stem prickles absent or sparse, if present wider than 1 mm at base, yellow to orange or brown; fruit at least partly exposed..... **7**
- 7a Leaves subentire to lobed; anthers of equal length; seeds very dark brown to almost black..... ***Solanum melastomoides* C.H.Wright**
- 7b Leaves entire; one anther much longer than the others; seeds dull yellow to orange-brown ***Solanum somalense* Franch.**
- 8a Flower one per inflorescence, peduncle and rhachis absent; corolla pentagonal, lobed for 1/4–1/3 of the way to the base, 0.9–1.3 cm in diameter; southern Africa..... ***Solanum supinum* Dunal**
- 8b Flower usually more than one per inflorescence, peduncle and/or rhachis present in at least some inflorescences; corolla usually stellate, lobed for more than 1/3 of the way to the base or, if lobed, for 1/4–1/3 of the way to the base then corolla of long-styled flowers broader than 1.3 cm in diameter; widespread.... **9**
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- 9b Trichomes on young stems and adaxial (upper) surfaces of the leaves stellate... **13**

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- 12b Leaf lobes 3–5 pairs, extending less than 1/3 of the distance to the midvein; calyx lobes 0.8–2 mm long, acute *Solanum viarum* Dunal
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- 13b Leaves entire or lobed, 1–3(8) times longer than wide; shrubs erect, scandent or climbing, 0.2–6 m tall; if leaves entire and more than 3 times longer than wide, then shrub less than 1 m tall and not in southern Madagascar; stem trichomes with free rays 16
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- 19a Mature fruit yellow or greenish yellow, 1.5–5(6) cm in diameter; corolla on long-styled flowers (1.3)2–6 cm in diameter; plants mostly andromonoecious **20**
- 19b Mature fruit orange to red, 0.5–1.2(1.7) cm in diameter; if mature fruit orange (1)1.5–2.5(5) cm in diameter, the plant cultivated; corolla on long-styled flowers 0.8–3 cm in diameter; plants mostly hermaphroditic **45**
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- 23b Plants erect or rarely semi-scandent **27**
- 24a Prickles on young stems straight **25**
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- 25b Prickles yellow (but not straw-coloured) or brown; petiole trichomes usually stalked; corolla 3.5–5 cm in diameter; style straight; southern Kenya *Solanum nigriviolaceum* Bitter
- 26a Corolla white, 1.3–1.6 cm in diameter; seeds 5.5–6 mm long; Kenyan mountains *Solanum agnewiorum* Voronts.
- 26b Corolla mauve to purple, 3.5–6 cm in diameter; seeds 3–4 mm long; eastern and southern Africa, Madagascar *Solanum richardii* Dunal
- 27a Calyx inflated, fully covering the berry at maturity; young stems densely covered with straight prickles; northern Madagascar *Solanum maboriense* D'Arcy & Rakot.
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- 30a Fruit globose, never apiculate, 1.4–1.7 cm in diameter, 4–10 per infructescence; young stems with yellow (when dry) long-stalked trichomes, the stalks 1–3 mm.....***Solanum thomsonii*** C.H.Wright
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- 31a Fruit distinctly turbinate or cone-shaped, 2.8–3.7 x 1.8–2.2 cm; leaves on fertile branches elliptic and subentire, 6–8 x 2.5–4 cm, ca. 2.5 times longer than wide; 2100–3000 m elevation.....***Solanum phoxocarpum*** Voronts.
- 31b Fruit globose, usually somewhat apiculate, 3–5 x 2–4.5 cm; leaves on fertile branches ovate(elliptic) and lobed(subentire), 8–15 x 6–12 cm, 1.5–2 times longer than wide; 1200–2100(3200) m elevation***Solanum aculeastrum*** Dunal
- 32a Prickles straight or occasionally curved; petioles 1/3–2/3 as long as the leaf blades.....***Solanum polhillii*** Voronts.
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- 34b Leaves 6–8 cm long; curved prickles on young stems 1–3 mm long; coastal Kenya, rare***Solanum malindiense*** Voronts.
- 35a Fruit with soft pericarp, in a variety of shapes and colours, edible; common fasciation in the flowers (e.g. increase in the number of flower parts up to 8), inflated ovaries; cultivated species***Solanum melongena*** L.
- 35a Fruit spherical, yellow, with comparatively hard pericarp, not edible; flowers 5-merous; wild plants**36**
- 36a Leaves lobed with primary and secondary lobes, the primary lobes extending 2/3–3/4 of the distance to the midvein and secondary lobes always present; southern Africa and northern African coasts around the Mediterranean.....***Solanum linnaeanum*** Hepper & P.M.-L.Jaeger
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- 41a Prickles straight; corolla on long-styled flowers 1.8–2.5 cm in diameter; anthers ca. 4.5 mm long; Madagascar; Mauritius, Réunion
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Acknowledgements

We thank the curators of the herbaria cited in the Appendix 2 for permission to examine specimens in their care; Michael Gilbert for assisting with key reformatting; Sarah Ficinski, Morvah George, Juana de Egea, Samantha Murphy, Xavier Aubriot and David Spooner all greatly helped in the databasing of specimens and in assessing distributions; comments from Leandro Giacomini, Roy Gereau and Gloria E. Barboza greatly improved the manuscript; much of the field and herbarium work was funded by the National Science Foundation Planetary Biodiversity Inventory program grant “PBI Solanum – a worldwide treatment” (DEB-0316614) to SK; other herbarium visits were funded by the SYNTHESYS Project <http://www.synthesys.info/> which was financed by European Community Research Infrastructure Actions under the FP6 and FP7 “Structuring the European Research Area” Programme; Natural History Museum Special Funds awards; and the Royal Society through travel grants.

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Supplementary material 1

List of *Solanum* species occurring in Africa as defined in this paper

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Data type: species data

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Supplementary material 2

Specimens examined by the authors for the preparation of these keys

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Data type: species data

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