Table S1. Embryo morphology for species of Rubiaceae. full, fully-developed embryo; ud,

underdeveloped embryo.

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| Species | Tribe | Embryo | References |
| *Acranthera* sp. | Coptosapelteae | spatulate | Gamble, 1921 |
| *Adina cordifolia* | Naucleeae | spatulate | Gamble, 1921 |
| *Adina pilulifera* | Naucleeae | spatulate | Compilation Committee, 2000 |
| *Adina racemosa* | Naucleeae | spatulate | Tirvengadum & Sastre, 1986 |
| *Afrocanthium lactescens* | Vanguerieae | spatulate | Robbrecht, 1988; Bridson, 1992 |
| *Aidia cowleyi* | Gardenieae | spatulate | RFK code 1120 |
| *Aidia gyropetala* | Gardenieae | spatulate | Ford & Halford, 2015 |
| *Airosperma psychotrioides* | Airospermeae | spatulate | Robbrecht, 1988 |
| *Airosperma trichotomum*  | Airospermeae | spatulate | Robbrecht, 1988 |
| *Alberta magna* | Alberteae | spatulate-ud | Puff et al., 1984 |
| *Aleisanthia sylvatica* | Aleisanthieae | linear-full | Tange, 1996 |
| *Alibertia sorbilis* | Cordiereae | spatulate-ud | Braga et al., 1999 |
| *Alleizettella rubra* | Gardenieae | spatulate | Pitard, 1922-1933 |
| *Amaioua corymbosa* | Gardenieae | spatulate-ud | C. Baskin, unpubl. |
| *Amaracarpus nematopodus* | Psychotrieae | spatulate-ud | RFK code 3472 |
| *Amaracarpus pubescens* | Psychotrieae | spatulate-ud | Hooker, 1909 |
| *Anthospermum bergianum* | Anthospermeae | spatulate | Gaertner, 1805-1807 |
| *Arcytophyllum* sp. | Spermacoceae | spatulate | Gamble, 1921 |
| *Arcytophyllum filiforme*  | Spermacoceae | spatulate | Wendell, 1855-1857 |
| *Argostemma* sp. | Argostemmateae | spatulate | Korthals, 1851 |
| *Asperula orientalis* | Rubieae | spatulate | Lloyd, 1899/1902 |
| *Astiella delicatula* | Spermacoceae | spatulate | Jovet, 1941 |
| *Atractocarpus bracteatus* | Gardenieae | spatulate | Mouly, 2012 |
| *Atractocarpus fitzalanii* | Gardenieae | spatulate | RFK code 145 |
| *Atractocarpus heterophyllus* | Gardenieae | spatulate | Mouly, 2012 |
| *Atractocarpus hirtus* | Gardenieae | spatulate | RFK code 3180 |
| *Atractocarpus stipularis*  | Gardenieae | spatulate | Hamilton et al., 2013 |
| *Atractogyne bracteata*  | Sherbournieae | spatulate | Hallé, 1962 |
| *Batopedina pulvinellata* | Knoxieae | spatulate | Robbrecht, 1981 |
| *Belonophora coffeoides* | Aulacocalyceae | spatulate-ud | Hooker, 1876 |
| *Bertiera guianensis* | Bertieae | spatulate | Gaertner, 1805-1807 |
| *Bertiera spicata*  | Bertieae | spatulate | Gaertner, 1805-1807 |
| *Blepharidium guatemalense* | Rondeletieae | spatulate-ud | Niembro, 1983; Rocas, 1988 |
| *Boholia nematostylis*  | Airospermeae | linear-ud | Robbrecht, 1988 |
| *Borreria ocimoides* | Spermacoceae | spatulate | Gamble, 1921; Martin, 1946 |
| *Bothriospora corymbosa* | Condamineeae | linear-full | Gaertner, 1805-1807; Hooker, 1867-1871; von Martius et al., 1881-1889 |
| *Bouvardia ternifolia* | Spermacoceae | spatulate-ud | Martin, 1946 |
| *Brachytome* sp. | Gardenieae | spatulate-ud  | Hooker, 1867-1871; Flora of China |
| *Breonadia salicina* | Naucleeae | spatulate | Schatz, 2001 |
| *Breonia chinensis* | Naucleeae | spatulate | Koorders & Valeton, 1915; Compilation Committee, 2000 |
| *Bullockia pseudosetiflorum* | Vanguerieae | spatulate | Bridson, 1992 |
| *Calycophyllum candidissimum* | Calycophylleae | spatulate | Gutiérrez et al., 2020 |
| *Canthium coromandelicum* | Vanguerieae | spatulate | Verdcourt, 1983; Bridson, 1985, 1992 |
| *Canthium horridum* | Vanguerieae | spatulate | Koorders & Valeton, 1915 |
| *Cantium oligocarpum* | Vanguerieae | spatulate | Bridson, 1992 |
| *Canthium parvifolium* | Vanguerieae | spatulate | Compilation Committee, 2000 |
| *Canthiumera glabra* | Vanguerieae | spatulate | Koorders & Valeton, 1915; Bridson, 1992; Ng, 1992 |
| *Canthiumera neilgherrensis* | Vanguerieae | spatulate  | Wong et al., 2018 |
| *Casasia clusiifolia* | Gardenieae | spatulate-ud | Lubbock, 1892; Martin, 1946; Rogers, 1987 |
| *Catesbaea phyllacantha* | Cinchoneae | spatulate-ud | Hooker, 1867-1871 |
| *Catunaregam nutams* | Gardenieae | spatulate | Wight, 1846 |
| *Catunaregam tomentosa* | Gardenieae | spatulate | Koorders & Valeton, 1897-1914 |
| *Catunaregam spinosa*  | Gardenieae | spatulate | Koorders & Valeton, 1897-1914 |
| *Cephalanthus occidentalis* | Naucleeae | spatulate | Martin, 1946; USDA-FS, 1985; Rogers, 1987; Robbrecht, 1988; Young & Young, 1992 |
| *Ceratopyxis verbenacea* | Chiococceae | spatulate | Hooker, 1867-1871 |
| *Chassalia* sp.  | Psychotrieae | spatulate-ud | Gamble, 1921 |
| *Chiococca alba* | Chiococceae | spatulate | Gaertner, 1788; von Martius et al., 1881-1889; Schumann, 1891; Martin, 1946 |
| *Chiococca belizensis* | Chiococceae | spatulate | Robbrecht, 1988 |
| *Chione vernosa* | Chiococceae | spatulate | Richard, 1834 |
| *Cinchona calisaya* | Cinchoneae | spatulate-ud | Cancho CCaico, 2017 |
| *Cinchona krauseana* | Cinchoneae | spatulate-ud | Cancho CCaico, 2017 |
| *Cinchona officinalis* | Cinchoneae | spatulate-ud | Robbrecht, 1988; Romero-Saritama, 2015 |
| *Clarkella nana* | Clarkelleae | spatulate | Williams, 1906 |
| *Coelospermum crassifolium* | Morindeae | spatulate-ud | Johansson, 1988 |
| *Coelospermum dasylobum* | Morindeae | spatulate-ud | Halford & Ford, 2004; RFK code 2100 |
| *Coelospermum paniculatum* | Morindeae | spatulate-ud | RFK code 2027 |
| *Coelospermum purpureum* | Morindeae | spatulate-ud | RFK code 3285 |
| *Coffea arabica* | Coffeeae | spatulate-ud | Dedecca, 1957; Goldberg, 1986; Compilation Committee, 2000; da Silva et al., 2008 |
| *Coffea brassii* | Coffeeae | spatulate-ud | RFK code 3471 |
| *Coffee liberica* | Coffeeae | spatulate-ud | Eira et al., 2006 |
| *Coffea stenophylla* | Coffeeae | spatulate-ud | https://www.delta-intkey.com/angio/www/rubiacea.htm |
| *Coffea travancorensis* | Coffeeae | spatulate-ud | https://www.delta-intkey.com/angio/www/rubiacea.htm |
| *Colletoecema tortistilum* | Colletoecemateae | linear-full | Petit, 1963 |
| *Coptosapelta laotica* | Coptosapelteae | spatulate | Pitard, 1922-1933 |
| *Coptospermum borbonicum* | Pavetteae | spatulate | Chan-Chin, 2012 |
| *Coprosma areolata* | Anthospermeae | spatulate | Cheeseman, 1914 |
| *Coprosma baueri* | Anthospermeae | spatulate | Endlicher, 1837-1838 |
| *Coprosma cymosa* | Anthospermeae  | spatulate | C. Baskin, unpubl. |
| *Coprosma ernodeoides* | Anthospermeae | spatulate | C. Baskin, unpubl. |
| *Coprosma lucida* | Anthospermeae | spatulate | Cheeseman, 1914 |
| *Coprosma montana* | Anthospermeae | spatulate | C. Baskin, unpubl. |
| *Coprosma ochrocea* | Anthospermeae | spatulate | C. Baskin, unpubl. |
| *Coprosma robusta* | Anthospermeae | spatulate | Raoul, 1846  |
| *Cordiera sessilis* | Cordiereae | spatulate | Matheus et al., 2008 |
| *Cordiera triflora* | Cordiereae | spatulate | Richard, 1834 |
| *Corynanthe* sp. | Coptosapelteae | linear-ud | Stoffelen, 1996 |
| *Cosmibuena grandiflora*  | Hillieae | spatulate | von Martius et al., 1881-1889 |
| *Cosmocalyx spectabilis* | Hamelieae | spatulate | Delprete, 1998a |
| *Coussarea graciliflora* | Coussareeae | spatulate-ud | von Martius et al., 1881-1889 |
| *Coussarea meridionalis* | Coussareeae | spatulate-ud | von Martius et al., 1881-1889 |
| *Coussarea moritziana* | Coussareeae | spatulate-ud | Schumann, 1891 |
| *Coutarea* sp*.* | Coussareeae | spatulate | Barroso et al., 1999 |
| *Coutarea hexandra* | Coussareeae | spatulate | Gaertner, 1805-1807 |
| *Craterispermum* sp. | Craterispermeae | spatulate-ud | Robbrecht, 1988; Igersheim, 1992  |
| *Cremaspora triflora* | Cremasporeae | spatulate | Schumann, 1891 |
| *Crossopteryx* sp. | Crossopterygeae | spatulate | Robbrecht & Manen, 2006 |
| *Crossopteryx febrifuga* | Crossopterygeae | spatulate | Kotschy and Peyritsch, 1867 |
| *Crucianella angustifolia* | Rubieae | spatulate | Gaertner, 1788 |
| *Cruciata laevipes*  | Rubieae | spatulate | C. Baskin, unpubl. |
| *Cruciata pedemontana* | Rubieae | spatulate | Schumann, 1891 |
| *Cruckshanksia hymenodon* | Coussareeae | spatulate | Schumann, 1891 |
| *Crusea* sp. | Spermacoceae | linear-full | Martin, 1946 |
| *Cuviera acutiflora*  | Vanguerieae | spatulate | Verdcourt, 1983 |
| *Cuviera schliebenii*  | Vanguerieae | spatulate | Verdcourt, 1983 |
| *Cyclophyllum costatum* | Vanguerieae | linear-full | RFK code 1123 |
| *Cynanchica pyrenaica* | Rubieae | spatulate | Wight, 1850 |
| *Damnacanthus indicus*  | Mitchelleae | spatulate-ud | Numata & Asano, 1970; Robbrecht et al., 1991 |
| *Danais* sp. | Danaideae | spatulate? | Rydin et al., 2008 |
| *Declieuxia coerulea* | Coussareeae | spatulate-ud | von Martius et al., 1881-1889 |
| *Declieuxia fruticosa* | Coussareeae | spatulate-ud | von Martius et al., 1881-1889 |
| *Declieuxia oenanthoides* | Coussareeae | spatulate-ud | von Martius et al., 1881-1889 |
| *Declieuxia rhexioides* | Coussareeae | spatulate-ud | von Martius et al., 1881-1889 |
| *Dentella repens*  | Spemacoceae | linear-full | Gunn & Ritchie, 1988; Kirkbride et al., 2000 |
| *Dialypetalanthus fuscescens* | Condamineeae | spatulate | Kirkbride et al., 2000 |
| *Didymosalpinx lanciloba* | Octotropideae | spatulate-ud | Robbrecht, 1986 |
| *Dimetia scandens* | Spermacoceae | spatulate | Kanjilal et al., 1939 |
| *Diodia virginiana* | Spermacoceae | spatulate | Gaertner, 1788; Richard, 1834 |
| *Diplospora erythrospora* | Coffeeae | spatulate-ud | Ali & Robbrecht, 1991 |
| *Dirichletia glaucescens* | Knoxieae | spatulate | Puff, 1888 |
| *Discospermum malaccense* | Coffeeae | spatulate | Ng, 1992 |
| *Discopsermum parvifolium* | Coffeeae | spatulate | Pitard, 1922-1933 |
| *Discospermum polyspermum* | Coffeeae | spatulate | Koorders & Valeton, 1897-1914 |
| *Dunnia sinensis* | Dunnieae | spatulate? | Rydin et al., 2008 |
| *Duperrea pavettifolia* | Gardenieae | spatulate-ud | Pitard, 1922-1933; De Block & Robbrecht, 1998 |
| *Edrastima uniflora* | Spermacoceae | linear-full | Martin, 1946 |
| *Emmenopterys henryi* | Condamineeae | spatulate-ud | https://www.delta-intkey.com/angio/www/rubiacea.htm |
| *Erithalis fruticosa*  | Chiococceae | spatulate | Gaertner, 1788; Martin, 1946 |
| *Ernodea littoralis* | Spermacoceae | spatulate | Gaertner, 1805-1807; Richard, 1834; Martin, 1946 |
| *Eumachia cephalantha* | Palicoureeae  | spatulate-ud | von Martius et al., 1881-1889 |
| *Eumachia frutescens* | Palicoureeae | spatulate-ud | RFK code 3169 |
| *Everistia vacciniifolia* | Vanguerieae | linear-full | RFK code 3423 |
| *Exallage auricularia* | Spermacoceae | spatulate-ud | Gunn & Ritchie, 1988 |
| *Exallosperma longiflora* | Pavetteae | spatulate | De Block et al., 2018 |
| *Exostema caribaeum* | Chiococceae | spatulate-ud | Gaertner, 1788 |
| *Fadogia ancylantha*  | Vanguerieae | spatulate | Verdcourt, 1987 |
| *Fadogia cienkowskii* | Vanguerieae | spatulate | Schumann, 1891; Verdcourt, 1987 |
| *Fadogiella stigmatoloba* | Vanguerieae | spatulate | Verdcourt, 1987 |
| *Faramea multiflora* | Coussareeae | spatulate | Richard, 1834 |
| *Fergusonia zeylanica* | Spermacoceae | spatulate-ud | Hooker, 1867-1871; Gamble, 1921 |
| *Fernelia obovata* | Octotropideae | spatulate-ud | Chan-Chin and Govinden-Soulange, 2015 |
| *Flagenium petrikense* | Octotropideae | spatulate-ud | Ruhsam & Davis, 2007 |
| *Gaertnera longifolia* | Gaertnereae | linear-ud | Gaertner, 1805-1807 |
| *Gaertnera macrostipula* | Gaertnereae | linear-ud | Grandidier, 1890; Schatz, 2001 |
| *Gaertnera phyllostachya* | Gaertnereae | linear-ud | Grandidier, 1890 |
| *Gaertnera walkeri* | Gartnereae | linear-ud | Athugala et al., 2018 |
| *Galianthe* sp. | Spermacoceae | spatulate | Florentín et al., 2021 |
| *Galium aparine* | Rubieae | spatulate | C. Baskin, unpubl. |
| *Galium bermudense*  | Rubieae | linear-full | Martin, 1946 |
| *Galium cryptanthum* | Rubieae | spatulate | Hooker, 1883-1885 |
| *Galium hirtum* | Rubieae | spatulate | De Toni & Mariath, 2011 |
| *Galium javanicum* | Rubieae | spatulate | Gamble, 1921 |
| *Galium latifolium*  | Rubieae | spatulate | Martin, 1946 |
| *Galium noxium*  | Rubieae | spatulate | De Toni & Mariath, 2011 |
| *Galium odoratum*  | Rubieae | spatulate | Richard, 1834; Martin, 1946 |
| *Galium parisiense*  | Rubieae | spatulate | C. Baskin, unpubl. |
| *Galium spurium*  | Rubieae | spatulate | Gunn & Ritchie, 1988; Kirkbride et al., 2000 |
| *Galium trifidum*  | Rubieae | linear-full | Martin, 1946. |
| *Galium uncinulatum* | Rubieae | spatulate | Schumann, 1891 |
| *Galium verrucosum* | Rubieae | spatulate | Schumann, 1891; Waseem, 1977 |
| *Galium virgatum*  | Rubieae | spatulate | C. Baskin, unpubl. |
| *Gardenia actinocarpa* | Gardenieae | spatulate | RFK code 3163 |
| *Gardenia brighamii*  | Gardenieae | spatulate | C. Baskin, unpubl. |
| *Gardenia carinata*  | Gardenieae | spatulate | Ng, 1992 |
| *Gardenia jasminoides*  | Gardenieae | spatulate | Martin, 1946; Compilation Committee, 2000 |
| *Gardenia psidioides* | Gardenieae | spatulate | RFK code 3369 |
| *Gardenia thunbergia* | Gardenieae | spatulate | Baillon, 1866-1895 |
| *Gardenia turbifera*  | Gardenieae | spatulate | Ng, 1992 |
| *Gardenia vilhelmii* | Gardenieae | spatulate | RFK code 3165 |
| *Genipa americana* | Gardenieae | spatulate-ud | Gaertner, 1805-1807; Queiroz et al., 2012 |
| *Genipa clusiifolia* | Gardenieae | spatulate-ud | Martin, 1946 |
| *Geophila* sp. | Psychotrieae | linear-ud | C. Baskin, unpubl. |
| *Geophila repens* | Psychotrieae | linear-ud | Pitard, 1922-1933 |
| *Gleasonia uaupensis* | Henriquezieae | investing  | Rogers, 1984 |
| *Gonzalagunia sagrana* | Guettardeae | spatulate-ud | Valdes et al., 2014 |
| *Greenea* sp. | Greeneeae | linear-full? | Tange, 1996; RFK code 2120 |
| *Guettarda elliptica* | Guettardeae | linear-full | Martin, 1946 |
| *Guettarda ovatifolia* | Guettardeae | linear-full | RFK code 3167 |
| *Guettarda platypoda* | Guettardeae | linear-full | Lima et al., 2010 |
| *Guettarda scabra* | Guettardeae | linear-full | Lamarck, 1791-1823 |
| *Guettarda speciosa*  | Guettardeae | linear-full | Robbrecht, 1988; Ng, 1992, RFK code 1113 |
| *Guettarda spruceana* | Guettardeae | linear-full | von Martius et al., 1881-1889 |
| *Gynochthodes australiensis* | Morindeae | spatulate-ud | RFK code 2537 |
| *Gynochthodes jasminoides* | Morindeae | spatulate-ud | RFK code 2050 |
| *Gynochthodes oresbia* | Morindeae | spatulate-ud | RFK code 2107 |
| *Gynochthodes retropila* | Morindeae | spatulate-ud | RFK code 2506 |
| *Gynochthodes sessilis* | Morindeae | spatulate-ud | RFK code 2151 |
| *Gynochthodes umbellata* | Morindeae | spatulate-ud | RFK code 2024 |
| *Gyrostipula foveolata* | Naucleeae | spatulate-ud | Capuron, 1972 |
| *Hamelia patens* | Hamelieae | spatulate | Martin, 1946; Rogers, 1987 |
| *Hedyotis fruticosa* | Spermacoceae | linear-full | Lamarck, 1791-1823 |
| *Hedyotis pruinosa* | Spermacoceae | linear-full | Gaertner, 1788 |
| *Hedyotis rugosa* | Spermacoceae | linear-full | Puff & Igersheim, 1994a |
| *Helictosperma malacophyllum* | Pavetteae | spatulate-ud | De Block et al., 2018 |
| *Henriquezia jenmanii* | Henriquezieae | investing | Rogers, 1984 |
| *Hexasepalum angustifolium*  | Spermacoceae | spatulate | Cabaña Fader et al., 2016 |
| *Hexasepalum domingense* | Spermacoceae | spatulate | Cabaña Fader et al., 2016 |
| *Hexasepalum gardneri* | Spermacoceae | spatulate | Bacigalupo & Cabral, 2006 |
| *Hexasepalum teres* | Spermacoceae | spatulate | Pitard, 1922-1933; Martin, 1946; C. Baskin, unpubl. |
| *Hexasepalum vaginale* | Spermacoceae | spatulate | Cabaña Fader et al., 2016 |
| *Hillia parasitica*  | Hillieae | spatulate | Robbrecht, 1988 |
| *Hodgkinsonia ovatiflora* | Guettardeae | spatulate | Schumann, 1891 |
| *Hoffmannia peckii* | Hamelieae | spatulate | von Martius et al., 1881-1889 |
| *Houstonia caerulea*  | Spermacoceae | linear-full | Martin, 1946 |
| *Houstonia longifolia* | Spermacoceae | linear-full | Gaertner, 1788 |
| *Houstonia purpurea*  | Spermacoceae | linear-full | C. Baskin, unpubl. |
| *Hydrophylax maritima* | Spermacoceae | spatulate | Gaertner, 1788 |
| *Hydnophytum moseleyanum* | Psychotrieae | spatulate | https://www.delta-intkey.com/angio/www/rubiacea.htm |
| *Hymenodictyon obovatum* | Hymenodictyeae | spatulate | Gamble, 1921 |
| *Hymenodictyon orixense* | Hymenodictyeae | spatulate | Roxburgh, 1824; Compilation Committee, 2000 |
| *Hypobathrum frutescens* | Octotropideae | spatulate | Koorders & Valeton, 1915 |
| *Hypobathrum glaberrimum* | Octotropideae | spatulate | Mulyaningshi & Ridsdale, 2002 |
| *Hypobathrum lithophilum* | Octotropideae | spatulate | Mulyaningshi & Ridsdale, 2002 |
| *Hypobathrum rheophyticum* | Octotropideae | spatulate | Mulyaningshi & Ridsdale, 2002 |
| *Hypobathrum sampitense* | Octotropideae | spatulate | Mulyaningshi & Ridsdale, 2002 |
| *Hypobathrum subulatum* | Octotropideae | spatulate | Mulyaningshi & Ridsdale, 2002 |
| *Hyptianthera stricta* | Octotropideae | spatulate-ud | Kanjilal et al., 1939; Flora of China |
| *Isertia hypoleuca* | Isertieae | spatulate | Giacomin, 2015 |
| *Ixora alba* | Ixoreae | spatulate | Koorders & Valeton, 1915 |
| *Ixora baileyana* | Ixoreae | spatulate | RFK code 3170 |
| *Ixora chinensis* | Ixoreae | spatulate | Gaertner, 1788 |
| *Ixora congesta*  | Ixoreae | spatulate | Lubbock, 1892 |
| *Ixora grandifolia* | Ixoreae | spatulate | Koorders & Valeton, 1915 |
| *Ixora lobbii*  | Ixoreae | spatulate | Ng, 1992 |
| *Ixora macrantha* | Ixoreae | spatulate | Koorders & Valeton, 1915 |
| *Ixora nigricans* | Ixoreae | spatulate | Koorders & Valeton, 1915 |
| *Ixora oreogena* | Ixoreae | spatulate | RFK code 66 |
| *Ixora paludosa* | Ixoreae | spatulate | Koorders & Valeton, 1915 |
| *Ixora polyantha* | Ixoreae | spatulate | Gamble, 1921 |
| *Ixora pueuana* | Ixoreae | spatulate | Koorders & Valeton, 1915 |
| *Ixora timorensis* | Ixoreae | spatulate | RFK code 581 |
| *Ixora trilocularis*  | Ixoreae | spatulate | Verdcourt, 1983 |
| *Ixora undulata* | Ixoreae | spatulate | Waseem, 1977 |
| *Jackiopsis ornata* | Jackieae | spatulate | Razafimandimbison et al., 2011 |
| *Kadua affinis*  | Spermacoceae | linear-ud | C. Baskin, unpubl. |
| *Kanapia* sp. | Vanguerieae | spatulate | Arriola et al., 2016 |
| *Keetia gueinzii* | Vanguerieae | spatulate | Bridson, 1992 |
| *Keetia hispida* | Vanguerieae | spatulate | Gunn & Ritchie, 1988 |
| *Kelloggia* sp. | Rubieae | spatulate | Flora of China |
| *Knoxia sumatrensis* | Knoxieae | spatulate-ud | Schumann, 1891 |
| *Kohautia gracilis* | Spermacoceae | linear-full | Waseem, 1977 |
| *Kupeantha pentamera* | Coffeeae | spatulate-ud | Sonké et al., 2007 |
| *Kupeantha yabassi* | Coffeeae | spatulate-ud | Alvarez-Aguirre et al., 2021 |
| *Kutchubaea* sp. | Cordiereae | spatulate | Bremekamp, 1934 |
| *Ladenbergia hexandra* | Cinchoneae | spatulate | Endlicher, 1837-1838 |
| *Landiopsis capuronii* | Mussaendeae | spatulate | Schatz, 2001 |
| *Lasianthus chlorocarpus* | Lasiantheae | linear-full | RFK code 3171 |
| *Lasianthus chrysoneurus*  | Lasiantheae | linear-full | Koorders & Valeton, 1897-1914 |
| *Lasianthus hirsutus* | Lasiantheae | linear-full | RFK code 3372 |
| *Lasianthus stercorarius* | Lasiantheae | linear-full | Koorders & Valeton, 1897-1914 |
| *Lasianthus vernulosus* | Lasiantheae | linear-full | Wight, 1846 |
| *Lecananthus erubescens*  | Schradereae | linear-full | Puff & Buchner, 1998 |
| *Leptodermis lanceolata*  | Paederieae | spatulate  | Gamble, 1921; Wunderlich, 1971 |
| *Leptopetalum pteritum*  | Spercacoceae | linear-full | Endlicher, 1833-1835 |
| *Leptoscela ruellioides* | Spermacoceae | spatulate | von Martius et al., 1881-1889 |
| *Leptostigma pilosum* | Anthospermeae | spatulate | Hooker, 1876 |
| *Leptostigma setulosum*  | Anthospermeae | spatulate | Hooker, 1853; Gardner, 1999a |
| *Lerchea longicauda* | Ophiorrizeae | spatulate | Horsfield, 1838 |
| *Lintersemina chucuriensis* | Condamineeae | spatulate | Mendoza-Cifuentes et al., 2020 |
| *Luculia* sp. | Luculieae | spatulate-ud | Flora of China |
| *Machaonia brasiliensis* | Guettardeae | linear-full | von Martius et al., 1881-1889 |
| *Malanea glabra* | Guettardeae | linear-full | von Martius et al., 1881-1889 |
| *Manettia alba* | Spermacoceae | spatulate | Richard, 1834 |
| *Manettia gaertneri* | Spermacoceae | spatulate | Gaertner, 1805-1807 |
| *Massularia acuminata*  | Gardenieae | spatulate | Robbrecht, 1986 |
| *Melanopsidium nigrum* | Gardenieae | spatulate-ud | von Martius et al., 1881-1889; Persson & Delprete, 2017 |
| *Melanoxerus antsirananensis* | Gardenieae | linear-ud | Kainulainen, 2021 |
| *Meyna spinosa* | Vanguerieae | spatulate | Koorders & Valeton, 1915 |
| *Meyna tetraphylla*  | Vanguerieae | spatulate | Verdcourt, 1987 |
| *Microphysa* sp. | Rubieae | spatulate | Flora of China |
| *Mitchella repens* | Mitchelleae | spatulate-ud | Martin, 1946; Robbrecht et al., 1991; Young & Young, 1992; Rogers, 2005 |
| *Mitchella undulata* | Mitchelleae | spatulate-ud | Numata & Asano, 1970; Robbrecht et al., 1991 |
| *Mitracarpus hirtus* | Spermacoceae | spatulate | Richard, 1834; Galati, 1988; Gunn & Ritchie, 1988; Kirkbride et al., 2000 |
| *Mitragyna parvifolia* | Naucleeae | spatulate | Gamble, 1921; Pitard, 1922-1933; Waseem, 1997 |
| *Molopanthera paniculata*  | Posoquerieae | spatulate | von Martius et al., 1881-1889 |
| *Monosalpinx guillaumetii* | Gardenieae | spatulate | Hallé, 1968 |
| *Morinda bracteata* | Morindeae | linear-full | RFK code 3373 |
| *Morinda citrifolia*  | Morindeae | linear-full | Ng, 1992; Nelson, 2005; C.-T. Chen, unpubl. |
| *Morinda royoc* | Morindeae | linear-full | Rogers, 2005 |
| *Multidentia crassa*  | Vanguerieae | spatulate | Verdcourt, 1983 |
| *Mussaenda* sp. | Mussaendeae | spatulate-ud | Gamble, 1921; Kanjilal et al., 1939 |
| *Mussaendopsis beccariana* | Condamineeae | spatulate | Puff & Igersheim, 1994b |
| *Mycetia* sp. | Argostemmateae | spatulate-ud | Gamble, 1921; Deb, 1986 |
| *Nargedia macrocarpa* | Octotropideae | spatulate | Beddome, 1874 |
| *Nauclea orientalis* | Naucleeae | spatulate | Gaertner, 1788; Koorders & Valeton, 1915  |
| *Nauclea subdita* | Naucleeae | spatulate | Koorders & Valeton, 1915; Ng, 1992 |
| *Neanotis indica* | Spermacoceae | linear-full | Wight, 1846 |
| *Neanotis oxyphylla*  | Spermacoceae | spatulate | Kanjilal et al., 1939 |
| *Nematostylis anthophylla* | Alberteae | spatulate-ud | Puff et al., 1984 |
| *Neolamarckia cadamba* | Naucleeae | spatulate | Kanjilal et al., 1939 |
| *Neonauclea calycina* | Naucleeae | spatulate | Koorders & Valeton, 1915 |
| *Neonauclea excelsa* | Naucleeae | spatulate | Koorders & Valeton, 1915 |
| *Neonauclea glabra* | Naucleeae | spatulate | RFK code 75 |
| *Neonauclea lanceolata* | Naucleeae | spatulate | Koorders & Valeton, 1915 |
| *Neocauclea pallida* | Naucleeae | spatulate | Koorders & Valeton, 1915 |
| *Neocauclea parviflora* | Naucleeae | spatulate | Koorders & Valeton, 1915 |
| *Neohymenopogon parasiticus* | Spermacoceae | spatulate-ud | Kanjilal et al., 1939 |
| *Nertera dichondrifolia* | Anthospermeae | spatulate | Hooker, 1853 |
| *Nertera granadensis* | Anthospermeae | spatulate | Gaertner, 1788; Wendell, 1855-1857 |
| *Nertera scapanioides* | Anthospermeae | spatulate | Gardner, 1999b |
| *Nesohedyotis arborea*  | Spermacoceae | linear-ud | Hooker, 1867-1871 |
| *Normandia neocaledonica* | Anthospermeae | spatulate | Hooker 1876 |
| *Nostolachma odorata* | Coffeeae | spatulate | Pitard, 1922-1933 |
| *Ochreinauclea maingayi*  | Naucleeae | spatulate | Ng, 1992 |
| *Oldenlandia capensis* | Spermacoceae | linear-full | Gunn & Ritchie, 1988; Kirkbride et al., 2000 |
| *Oldenlandia corymbosa* | Spermacoceae | linear-full | Lamarck, 1791-1823 |
| *Oldenlandia gracilis* | Spermacoceae | linear-full | Waseem, 1997 |
| *Oldenlandia herbacea* | Spermacoceae | linear-full | Gaertner, 1788 |
| *Ophiorrhiza australiana* | Ophiorrhizeae | spatulate | RFK code 3173 |
| *Ophiorrhiza eriantha* | Ophiorrhizeae | spatulate | Wight, 1846 |
| *Ophiorrhiza mungos* | Ophiorrhizeae | spatulate  | Richard, 1834; Gamble, 1921; Kanjilal et al., 1939 |
| *Oreopolus glacialis* | Coussareeae | spatulate | Wendell, 1855-1857 |
| *Otiophora inyangana* | Knoxieae | spatulate | Igersheim & Rohrhofer, 1993 |
| *Oxyanthus unilocularis* | Sherbournieae | spatulate | https://plants.jstor.org/stable/10.5555/al.ap.flora.flota003655 |
| *Oxyceros longiflorus*  | Gardenieae | spatulate-ud | Ng, 1992 |
| *Paederia argentea* | Paederieae | spatulate | Richard, 1834 |
| *Paederia bojeriana* | Paederieae | spatulate | Richard, 1834 |
| *Paederia foetida* | Paederieae | spatulate | Gaertner, 1805-1807; Kanjilal et al., 1939; Gunn & Ritchie, 1988; Kirkbride et al., 2000 |
| *Pagamea coriacea* | Gartnereae | linear-ud | von Martius et al., 1881-1889 |
| *Pagamea guianensis* | Gartnereae | linear-ud | Schumann, 1891 |
| *Palicourea corymbifera* | Palicoureeae | spatulate-ud | von Martius et al., 1881-1889 |
| *Palicourea hoffmannseggiana* | Palicoureeae | spatulate-ud | Pietrobom, 2008 |
| *Palicourea longiflora*  | Palicoureeae | spatulate-ud | Richard, 1834 |
| *Palicourea rigida* | Palicoureeae | spatulate-ud | von Martius et al., 1881-1889; Silva, 1995 |
| *Palicourea ruelliifolia* | Palicoureeae | spatulate-ud | Gunn & Ritchie, 1988; Kirkbride et al., 2000 |
| *Palicourea trichophora* | Palicoureeae | spatulate-ud | Pietrobom, 2008 |
| *Paracephaelis cinerea* | Pavetteae | spatulate-ud | Grandidier, 1890 |
| *Paracephaelis sericea* | Pavetteae | spatulate-ud | De Block, 2022 |
| *Paracorynanthe uropetala* | Hymenodictyeae | spatulate | Capuron & Leroy, 1978 |
| *Paralasianthus dichotomus* | Paederieae | linear-full | Koorders & Valeton, 1915 |
| *Paralasianthus lowianus* | Paederieae | linear-full | Ng, 1992 |
| *Pavetta australiensis* | Pavetteae | spatulate | RFK code 3127 |
| *Pavetta granitica* | Pavetteae | spatulate | RFK code 3374 |
| *Pavetta hispidula* | Pavetteae | spatulate | Gamble, 1921 |
| *Pavetta indica* | Pavetteae | spatulate | Gamble, 1921; Kanjilal et al., 1939 |
| *Pavetta nova-guineensis* | Pavetteae | spatulate | Pitard, 1922-1933 |
| *Pavetta zimmermanniana* | Pavetteae | spatulate | Koorders & Valeton, 1897-1914 |
| *Pentaloncha humilis* | Sabiceeae | linear-ud | Hooker, 1894 |
| *Pentas lanceolata*  | Knoxieae | spatulate | Gaertner, 1788; Waseem, 1977 |
| *Pentodon pentandrus* | Spermacoceae | linear-full | Martin, 1946 |
| *Peponidium pervilleanum* | Vanguerieae | spatulate | Grandidier, 1890 |
| *Phellocalyx vollesenii* | Gardenieae | spatulate | Bridson & Verdcourt, 1988 |
| *Phyllomelia coronata* | Rondeletieae | spatulate | Delprete, 1999 |
| *Pinckneya pubens* | Condamineeae  | spatulate | Martin, 1946 |
| *Platycarpum orinocense* | Henriquezieae | investing | Rogers, 1984 |
| *Plocama olivieri*  | Putorieae | spatulate | Richard, 1834 |
| *Plocama pendula* | Putorieae | spatulate | Gaertner, 1805-1807 |
| *Polysphaeria lanceolata* | Octotropideae | spatulate | Schumann, 1891 |
| *Polysphaeria macrophylla* | Octotropideae | spatulate |  Robbrecht, 2009 |
| *Polyura geminata* | Spermacoceae | spatulate | Hooker, 1867-1871; Kanjilal et al., 1939 |
| *Pomax umbellata* | Anthospermeae | spatulate | Richard, 1834; Black, 1922 |
| *Porterandia anisophylla* | Gardenieae | spatulate-ud | Ng, 1992 |
| *Posoqueria latifolia* | Posoquerieae | spatulate | Gaertner, 1805-1807; von Martius et al., 1881-1889 |
| *Prismatomeris albidoflora* | Prismatomerideae | spatulate-ud  | Pitard, 1822-1933 |
| *Prismatomeris tetrandra* | Prismatomerideae | spatulate-ud | Koorders & Valeton, 1897-1914 |
| *Psychotria carthagenensis* | Psychotrieae | spatulate-ud | Santos et al., 2021 |
| *Psychotria coelosperma* | Psychotrieae | spatulate-ud | RFK code 2529 |
| *Psychotria daphnoides* | Psychotrieae | spatulate-ud | RFK code 3018 |
| *Psychotria fitzalanii* | Psychotrieae | spatulate-ud | RFK code 1092 |
| *Psychotria gardneri*  | Psychotrieae | spatulate-ud | Athugala et al., 2016 |
| *Psychotria grandis* | Psychotrieae | spatulate-ud | Valdes et al., 2014 |
| *Psychotria griffithii* | Psychotrieae | spatulate-ud  | Ng, 1992 |
| *Psychotria horizontalis* | Psychotrieae | spatulate-ud | Robbrecht, 1993 |
| *Psychotria loniceroides* | Psychotrieae | spatulate-ud | RFK code 3177 |
| *Psychotria nigra* | Psychotrieae | spatulate-ud | Athugala et al., 2016 |
| *Psychotria submontana* | Psychotrieae | spatulate-ud | RFK code 3268 |
| *Psychotria suterella* | Psychotrieae | spatulate-ud | Gogosz et al., 2015 |
| *Psychotria tenuifolia* | Psychotrieae  | spatulate-ud | Martin, 1946 |
| *Psychotria zeylanica* | Psychotrieae | spatulate-ud | Athugala et al., 2016 |
| *Psydrax diococcos* | Vanguerieae | spatulate | Gaertner, 1788; Koorders & Valeton, 1915; Bridson, 1985 |
| *Psydrax kraussioides* | Vanguerieae | spatulate | Bridson, 1985 |
| *Psydrax laxiflorens* | Vanguerieae | spatulate | RFK code 1969 |
| *Psydrax lividus* | Vanguerieae | spatulate | Bridson, 1985; Robbrecht, 1988 |
| *Psydrax montigena* | Vanguerieae | spatulate | RFK code 725 |
| *Psydrax obovatus* | Vanguerieae | spatulate | Bridson, 1985 |
| *Psydrax odoratus*  | Vanguerieae | spatulate | C. Baskin, unpubl. |
| *Psydrax paludosa* | Vanguerieae | spatulate | Reynolds & Henderson, 2004 |
| *Psydrax richardsiae* | Vanguerieae | spatulate | Bridson, 1985 |
| *Psydrax schimperianus* | Vanguerieae | spatulate | Bridson, 1985 |
| *Psydrax shuguriensis* | Vanguerieae | spatulate | Bridson, 1985 |
| *Psydrax subcordatus* | Vanguerieae | spatulate | Bridson, 1985 |
| *Pyrostria madagascariensis* | Vanguerieae | spatulate | Cavaco, 1970 |
| *Pyrostria revoluta*  | Vanguerieae | spatulate | Verdcourt, 1983 |
| *Pyrostria verdcourtii* | Vanguerieae | spatulate | Cavaco, 1971 |
| *Randia aculeata*  | Gardenieae | spatulate | Gaertner, 1788; Martin, 1946 |
| *Randia echinocarpa* | Gardenieae | spatulate | Hooker, 1853 |
| *Randia tuberculosa* | Gardenieae | spatulate | RFK code 3181 |
| *Remijia ferruginea* | Cinchoneae | spatulate | von Martius et al., 1881-1889 |
| *Retiniphyllum schomburgkii* | Retiniphylleae | spatulate | Robbrecht, 1988 |
| *Rhodopentas bussei* | Knoxieae | spatulate | Waseem, 1977 |
| *Richardia brasiliensis* | Spermacoceae | spatulate | Galati, 1988 |
| *Richardia scabra*  | Spermacoceae | spatulate | Gaertner, 1788; Martin, 1946 |
| *Richardia tricocca*  | Spermacoceae | linear-full | Martin, 1946 |
| *Ridsdalea schoemanni* | Gardenieae | spatulate | Koorders & Valeton, 1897-1914; Ng, 1992 |
| *Robbrechtia grandifolia* | Pavetteae | spatulate-ud | De Block, 2003 |
| *Rondeletia* sp. | Rondeletieae | spatulate-ud | Flora of China |
| *Rosenbergiodendron formosum* | Gardenieae | spatulate-ud | von Martius et al., 1881-1889 |
| *Rytigynia umbellulata* | Vanguerieae | linear-full | Verdcourt, 1987 |
| *Rubia cordifolia* | Rubieae | spatulate | Gamble, 1921 |
| *Rubia peregrina* | Rubieae | spatulate  | Gaertner, 1805-1807 |
| *Rubia tinctorum* | Rubieae | spatulate | Martin, 1946 |
| *Rudgea recurve* | Palicoureeae | spatulate-ud | von Martius et al., 1881-1889 |
| *Rudgea verticillate* | Palicoureeae | spatulate-ud | von Martius et al., 1881-1889 |
| *Rudgea viburnoides* | Palicoureeae | spatulate-ud | von Martius et al., 1881-1889 |
| *Rutidea* sp. | Pavetteae | spatulate | De Block, 1995 |
| *Sabicea sanguinosa* | Sabiceeae | linear-full | Hallé, 1971 |
| *Saldinia axillaris* | Lasiantheae? | spatulate-ud | Grandidier, 1890 |
| *Salzmannia nitida* | Chiococceeae | linear-ud | von Martius et al., 1881-1889; Schumann, 1891 |
| *Saprosma fruticosum* | Paederieae | spatulate | Koorders & Valeton, 1897-1914 |
| *Sarcocephalus sambucinus* | Nauleeae | spatulate | Schumann, 1891 |
| *Seychellea sechellarum* | Seychelleeae | spatulate-ud? | Razafimandimbison et al., 2020 |
| *Schismatoclada psychotrioides* | Danaideae | spatulate-ud | Baker, 1884 |
| *Schizocalyx cuspidatus* | Condamineeae | spatulate | von Martius et al., 1881-1889 |
| *Schwendenera tetrapyxis* | Spermacoceae | spatulate | von Martius et al., 1881-1889 |
| *Scyphiphora lydrophylacea* | Scyphiphoreae | spatulate | Gamble, 1921; Tomlinson, 1986 |
| *Sericanthe gabonensis* | Coffeeae | spatulate-ud | Sonké et al., 2012 |
| *Sherardia arvensis*  | Rubieae | spatulate | Martin, 1946; C. Baskin, unpubl. |
| *Simira erythroxylon* | Condamineeae | spatulate | Hooker, 1883-1885 |
| *Simira gardneriana*  | Condamineeae | spatulate | Felix et al., 2021 |
| *Simira glaziovii* | Condamineeae | spatulate | Delprete, 1998b |
| *Simira salvadorensis* | Condamineeae | spatulate | Standley, 1923; Niembro, 1983; Rocas, 1988 |
| *Sipanea biflora* | Sipaneeae | linear-full | Gaertner, 1805-1807 |
| *Solenandra mexicana* | Chiococceae | spatulate | Niembro, 1983; Rocas, 1988 |
| *Spermacoce alata*  | Spermacoceae | spatulate | Gunn & Ritchie, 1988; Kirkbride et al., 2000 |
| *Spermacoce brachystemonoides* | Spermacoceae | spatulate | Galati, 1988 |
| *Spermacoce glabra* | Spermacoceae | spatulate | Martin, 1946 |
| *Spermacoce ocymifolia* | Spermacoceae | spatulate | Gunn & Ritchie, 1988; Kirkbride et al., 2000 |
| *Spermacoce ocymoides* | Spermacoceae | spatulate | Martin, 1946; Gunn & Ritchie, 1988; Kirkbride et al., 2000 |
| *Spermacoce princeae* | Spermacoceae | spatulate | Gunn & Ritchie, 1988; Kirkbride et al., 2000 |
| *Spermacoce tenuior* | Spermacoceae | spatulate | Gaertner, 1788; Richard, 1834 |
| *Spiradiclis* sp. | Ophiorrhizeae | spatulate-ud? | Flora of China |
| *Squamellaria imberbis* | Psychotrieae | spatulate-ud | Beccari, 1877-1890 |
| *Stachyarrhena spicata* | Gardenieae | spatulate | Hooker, 1867-1871 |
| *Stenostemum aromaticum* | Guettardeae | linear-full | Castillo-Campos & Lorence, 1985 |
| *Stilopnophyllum lineatum* | Cinchoneae | spatulate | von Martius et al., 1881-1889 |
| *Strumpfia maritima* | Strumpfieae | spatulate  | Rogers, 2005 |
| *Tammsia anomala* | Condamineeae | spatulate | Schumann, 1891 |
| *Tarenna alpestris* | Pavetteae | spatulate-ud | Wight, 1846 |
| *Tarenna asiatica* | Pavetteae | spatulate-ud | Koorders & Valeton, 1897-1914; Kanjilal et al., 1939 |
| *Tarenna baviensis* | Pavetteae | spatulate-ud | Koorders & Valeton, 1897-1914 |
| *Tarenna dallachiana* | Pavetteae | spatulate-ud | RFK codes 1168, 1173 |
| *Tarenna monticola* | Pavetteae | spatulate-ud | RFK code 456 |
| *Tarenna verticillata*  | Pavetteae | spatulate-ud | Jérémie, 1974 |
| *Tarennoidea wallichii* | Gardenieae | spatulate | Koorders & Valeton, 1915 |
| *Temnocalyx nodulosa*  | Vanguerieae | linear-full | Verdcourt, 1983 |
| *Theligonum cynocrambe* | Theligoneae | spatulate | Goldberg, 1986; Watson & Dallwitz, 1992 onwards; Rutishauser et al., 1998 |
| *Thiollierea lenormandii* | Chiococceae | spatulate | Jérémie & Hallé, 1976 |
| *Timonius singularis* | Guttardeae | linear-full | RFK code 843 |
| *Timonius timon* | Guttardeae | linear-full | Schumann, 1891; RFK code 425 |
| *Timonius wrayi* | Guttardeae | linear-full | Wong, 1988 |
| *Tocoyena formosa* | Gardenieae | spatulate-ud | von Martius et al., 1881-1889 |
| *Tocoyena longiflora* | Gardenieae | spatulate-ud | Gaertner, 1805-1807 |
| *Trailliaedoxa gracilis* | Trailliaedoxeae | spatulate | Flora of China; Razafimandimbison et al., 2011 |
| *Tricalysia acicliflora* | Coffeeae | spatulate-ud | Brisdon, 2019 |
| *Tricalysia coriacea* | Coffeeae | spatulate-ud | Brisdon, 2019 |
| *Tricalysia vanroechoudtii* | Coffeeae | spatulate-ud | Brisdon, 2019 |
| *Triflorensia australia* | Pavetteae | spatulate-ud | RFK code 1090 |
| *Uncaria callophylla* | Naucleeae | spatulate | RFK code 2090 |
| *Uncaria cordata* | Naucleeae | spatulate | RFK code 2694 |
| *Uncaria guianenesis* | Naucleeae | spatulate | Robbrecht, 1988 |
| *Uncaria lanosa* | Naucleeae | spatulate | RFK code 2240 |
| *Uncaria sessilifructus* | Naucleeae | spatulate | Gamble, 1921 |
| *Urophyllum* sp.  | Urophylleae | spatulate | Gamble, 1921; Flora of China |
| *Valantia hispida* | Rubieae | spatulate | Gaertner, 1788; Lloyd, 1899/1902 |
| *Valantia muralis* | Rubieae | spatulate | Richard, 1834 |
| *Vangueria burttii*  | Vanguerieae | spatulate | Verdcourt, 1987 |
| *Vangueria madagascariensis* | Vanguerieae | spatulate | Verdcourt, 1983 |
| *Vangueria obtusifolia* | Vanguerieae | spatulate | Verdcourt, 1987 |
| *Vangueria pallidiflora* | Vanguerieae | spatulate | Verdcourt, 1987 |
| *Vangueria praecox*  | Vanguerieae | spatulate | Verdcourt, 1983 |
| *Vangueria rufescens*  | Vanguerieae | spatulate | Verdcourt, 1987 |
| *Vangueriopsis longiflora* | Vanguerieae | spatulate | Verdcourt, 1983 |
| *Virectaria* sp.  | Virectarieae | linear-full? | Dessein et al., 2001 |
| *Warszewiczia coccinea*  | Rondeletieae | linear-ud | Duncan, 2007 |
| *Wendlandia basistaminea* | Augusteae | spatulate | RFK code 3182 |
| *Xanthophytum attopevense*  | Ophiorrhizeae | spatulate | Pitard, 1922-1933 |
| *Zuccarinia macrophylla*  | Octotropideae | spatulate-ud | Koorders & Valeton, 1897-1914 |

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