

Windows Grep Search Results

'lacuna' in *.rtf: 345 matches in 243 files. 619 files searched. 0 files skipped.

Fancy | File contents ✓ | File names ✓ | Line numbers ✓ | Whole line ✓ | Fixed Font | Match window: +/- 0 ✓ | 1 | 2 | 3 | 4 | 5 lines

C:\Users\joshir\Downloads\angiodata\info\acanthac.rtf

00005: posedly peculiar to the family and recorded in numerous genera); containing crystals, or without crystals. The crystals raphides (rarely), or solitary-prismatic. Main veins embedded. Minor leaf veins with phloem transfer cells (*Ruellia*), or without phloem transfer cells (9 genera). Axial (stem, wood) anatomy. Cork cambium present; initially deep-seated (sometimes), or initially superficial. Nodes **unilacunar**. Primary vascular tissues in a cylinder, without separate bundles; collateral, or bicollateral. Internal phloem present (noted as conspicuous groups in about 10 genera), or absent. Cortical bundles absent. Medullary bundles present (with groups of collateral and inversely orientated bundles in some *Acanthus* spp.), or absent. Secondary thickening developing from a conventional cambial ring (nearly always?), or absent (with a ring of separate steles surrounding a central one in aquatic *Justicia*). Primary m

C:\Users\joshir\Downloads\angiodata\info\aceracea.rtf

00004: ed and simple. Adaxial hypodermis absent. The mesophyll containing crystals. The crystals druses. Main veins vertically transcurrent. Minor leaf veins without phloem transfer cells (*Acer*). Axial (stem, wood) anatomy. Young stems with solid internodes. Cork cambium present; initially deep-seated (in species secreting wax from the branches), or initially superficial (usually). Nodes **tri-lacunar**. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays wide (occasionally), or narrow. The wood ring porous. The vessels moderately small; solitary, radially paired, and in radial multiples (in *Acer*), or clustered (in *Dipteronia*). The vessel end-walls horizontal to oblique; simple. T

C:\Users\joshir\Downloads\angiodata\info\actinidi.rtf

00004: ed, or initially superficial. Nodes **unilacunar** (usually), or **tri-lacunar**. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow. The wood diffuse porous. The vessels small, or small and medium (then locally zonate); mostly solitary. The vessel end-walls oblique; simple, or scalariform and simple. The vessels without vestured pits; commonly with spiral thickening. The axial xylem with tracheids; without vasicentric tracheids; with fibre tracheids; without septate fibres. The fibres without spiral thickening. The parenchyma apotracheal; wood not storied. Reproductive type, pollination. Unisexual flowers present, or absent. Plants hermaphrodite, or monoecious, or dioecious.

C:\Users\joshir\Downloads\angiodata\info\agavaceae.rtf

00004: y. Nodes **multi-lacunar**. Primary vascular tissues consisting of scattered bundles. Secondary thickening absent, or anomalous (e.g. *Agave*, *Furcraea*, *Yucca*). The anomalous secondary thickening when present, from a single cambial ring. The axial xylem without vessels. Root anatomy. Root xylem with vessels; vessel end-walls scalariform, or simple. Reproductive type, pollination. Unisexual flowers present, or absent. Plants hermaphrodite (usually), or andromonoecious, or gynomonoecious, or dioecious. Floral nectaries present. Nectar secretion from the gynoeceum (from septal nectaries). Inflorescence, floral, fruit and seed morphology. Flowers aggregated in inflorescences; in panicles. The ultimate inflorescence units cymose (

C:\Users\joshir\Downloads\angiodata\info\aiizoacea.rtf

00004: ular, or glandular; unicellular, or multicellular. Unicellular hairs branched, or simple (sometimes 2-armed). Urticating hairs absent. Adaxial hypodermis absent. Lamina without secretory cavities. Main veins embedded. Minor leaf veins without phloem transfer cells (*Mesembryanthemum*). Axial (stem, wood) anatomy. Secretory cavities absent. Cork cambium present, or absent; initially deep-seated. Nodes **unilacunar**. Primary vascular tissues comprising a ring of bundles, or comprising two or more rings of bundles; collateral. Internal phloem absent. Cortical bundles present (commonly, representing leaf trace bundles). Medullary bundles present, or absent (depending on interpretation?). Secondary thickening absent, or developing from a conventional cambial ring (rather rarely), or anomalous. The anomalous secondary thickening via concentric cambia (in the woodier genera), or from a single cambial ring. Primary medullary

C:\Users\joshir\Downloads\angiodata\info\alangiact.rtf

00003: amily (in several species); manifested as pits.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fb\General anatomy. \b0\fb\fs22\Plants with laticifers, or without laticifers (? not mentioned by Metcalfe and Chalk). Plants without crystal sand.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fb\Leaf anatomy. \b0\fb\fs22\i\The leaf lamina\i0\} dorsiventral (usually, with a single palisade layer), or bifacial, or centric. Stomata present; mainly confined to one surface (abaxial); usually anomocytic. Hairs present, or absent (? sometimes with unequally 2armed or stellate hairs); eglandular, or glandular. Adaxial hypodermis present, or absent. The mesophyll containing crystals. The crystals druses, or solitary-prismatic.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fb\Axial (stem, wood) anatomy. \b0\fb\fs22\Secretory cavities absent. Nodes tri-lacunar. Secondary thickening developing from a conventional cambial ring.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\The wood se

C:\Users\joshir\Downloads\angiodata\info\alzateac.rtf

00003: tipulate. Stipules intrapetiolar (axillary). Lamina margins entire.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fb\Leaf anatomy. \b0\fb\fs22\i\The leaf lamina\i0\} dorsiventral. Stomata present; anomocytic (to almost cyclocytic). Hairs absent. Adaxial hypodermis present. The mesophyll with sclerenchymatous idioblasts (these branched); containing crystals. The crystals druses.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fb\Axial (stem, wood) anatomy. \b0\fb\fs22\Young stems tetragonal (at first), or cylindrical (subsequently). Cork cambium present; initially deep-seated (next to the perivascular sclerenchyma). Nodes tri-lacunar (with three traces). Primary vascular tissues in a cylinder, without separate bundles; bicollateral. \b\Internal phloem\b0\} \b\present\b0\}. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\The vessel end-walls oblique; simple. The vessels w

C:\Users\joshir\Downloads\angiodata\info\amaranth.rtf

00004: y); eglandular and glandular; mostly seemingly multicellular. Multicellular hairs branched and simple. Complex hairs present, or absent; sometimes stellate, or capitate. Adaxial hypodermis absent. The mesophyll containing crystals. The crystals mostly druses (and crystal sand, solitary types being rare; cf. \i\{Caryophyllaceae\i0\}, differing from \i\{Nyctaginaceae\i0\} in absence of raphides and styloids). Main veins embedded. Minor leaf veins without phloem transfer cells (\i\{Amaranthus\i0\}, \i\{Celosia\i0\}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fb\Axial (stem, wood) anatomy. \b0\fb\fs22\Cork cambium present, or absent; initially superficial. Nodes unilacunar. Primary vascular tissues presumably comprising a ring of bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles present (commonly), or absent. Secondary thickening anomalous (nearly always), or developing from a conventional cambial ring (rarely?). The anomalous secondary thickening when present

C:\Users\joshir\Downloads\angiodata\info\amborell.rtf

00002: epn\b\fs22\sbasedon0\snext0\sautoupd\}toc 1;\s24\fi-300\li450\keep\fs22\sbasedon0\snext0\sautoupd\}toc 2;\s30\ql\sb0\sa0\fi-907\li907\tx680\tr\tdot\tx9072\fs22\sbasedon0\Key;\s31\ql\sb100\sa0\fi-907\li907\tx680\tr\tdot\tx9072\fs22\sbasedon30\Key First Lead;\} \widowctrl\}\pard\plain\s21\ql\sb0\sa100\li0\fi0\keep\keepn\b\fs24\fb\Amborellaceae Pichon.\fb\fs22\b0\}\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fb\Habit and leaf form. \b0\fb\fs22\Arborescent, or shrubs; without essential oils (or nearly so). Leaves persistent; alternate; spiral to distichous; simple. Lamina dissected to entire; when dissected, pinnatifid (lobed); pinnately veined. Leaves exstipulate.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fb\Leaf anatomy. \b0\fb\fs22\Stomata present; anomocytic, or paracytic. The mesophyll without etherial oil cells.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fb\Axial (stem, wood) anatomy. \b0\fb\fs22\Nodes unilacunar (with one broad trace). Internal

C:\Users\joshir\Downloads\angiodata\info\anacardi.rtf

00004: litary-prismatic. Main veins embedded. Minor leaf veins without phloem transfer cells (\i\{Odina\i0\} (= \i\{Lannea\i0\})).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fb\Axial (stem, wood) anatomy. \b0\fb\fs22\Secretory cavities present (as canals, especially in the primary phloem); with resin (i.e., assuming the sometimes milky juice is not laticiferous). Cork cambium present; usually initially superficial. Nodes tri-lacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow (mostly), or wide, or mixed wide and narrow. The axial xylem with vessels.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\The wood ring porous to semi-ring porous (rarely), or diffuse porous (usually). The vessels moderately small, or medium, or large; solitary, or radially paired, or in radial multiples, or clustered, or in ta

C:\Users\joshir\Downloads\angiodata\info\annonace.rtf

00004: even in the absence of complete septa). Secretory cavities present; with resin. Cork cambium present; initially superficial. Nodes unilacunar (with three traces), or bilacunar (according to Lammers \i\{et al\i0\} 1986). Primary vascular tissues in a cylinder, without separate bundles, or comprising a ring of bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays wide, or mixed wide and narrow, or narrow. The axial xylem

with vessels (but these rather few). The wood variously ring porous to diffuse porous. The vessels very small; solitary, radially paired, in radial multiples, and clustered. The vessel end-walls horizontal; simple. The vessels without vested pits; with spiral thickening (rarely, reported in *Asimena*), or without spiral thickening. The axial xylem with fibre tracheids. The fibres without spiral thickening. The

C:\Users\joshr\Downloads\angiodata\info\apocynac.rtf

00004: landular (often with glandular shaggy hairs at lamina bases and on the petiole). Complex hairs absent (the only recorded exception being *Pachypodium*). Adaxial hypodermis present (commonly), or absent. The mesophyll with sclerenchymatous idioblasts (spicular cells recorded in several genera, in the form of extensions from the sclerenchyma around the veins), or without sclerenchymatous idioblasts; containing crystals. The crystals raphides, druses, and solitary-prismatic. Midrib usually conspicuous (often with a bicollateral vascular bundle). Minor leaf veins without phloem transfer cells (*Dipladenia*, *Trachelospermum*, *Vinca*). Axial (stem, wood) anatomy. Cork cambium present; initially deep-seated (rarely), or initially superficial. Nodes unilacunar. Primary vascular tissues in a cylinder, without separate bundles; bicollateral. Internal phloem present (usually, in the form

C:\Users\joshr\Downloads\angiodata\info\aquifoli.rtf

00004: druses. Minor leaf veins without phloem transfer cells (*Ilex*). Axial (stem, wood) anatomy. Secretory cavities absent. Cork cambium present; initially superficial. Nodes unilacunar, or trilacunar. Primary vascular tissues in a cylinder, without separate bundles, or comprising a ring of bundles (commonly traversed by broad rays); collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays commonly wide. The wood ring porous to diffuse porous. The vessels mostly small (sometimes extremely so), or small to medium; solitary, or radially paired, or in radial multiples, or clustered, or in tangential arcs. The vessel end-walls oblique; scalariform. The vessels without vested pits; with spiral thickening. The axial xylem with tracheids; without vasicentric tracheids; with

C:\Users\joshr\Downloads\angiodata\info\araliace.rtf

00006: age, and with latex (i.e., with imprecise references to oily, resinous, gummy and occasionally milky contents). Cork cambium present; initially superficial. Nodes pentalacunar to multilacunar (mostly), or trilacunar (rarely). Primary vascular tissues generally comprising a ring of bundles (at first, separated by wide rays), or in a cylinder, without separate bundles (subsequently), or comprising two or more rings of bundles, or consisting of scattered bundles (the conventional ring often accompanied by additional cortical and/or medullary circles of bundles, and occasionally by scattered medullary bundles); collateral. Internal phloem absent. Cortical bundles present (commonly), or absent. Medullary bundles present (often), or absent. Secondary thickening usually developing from a conventional cambial ring (? - no reference to anomalous secondary thickening having been found). The wood ring porous to diffuse porous. The vessels small to medium

C:\Users\joshr\Downloads\angiodata\info\aralidia.rtf

00003: enulate. Leaves exstipulate (though the petiole margins are spread). Lamina margins coarsely dentate, or entire; flat. General anatomy. Plants with crystal sand (in epidermal and subepidermal leaf tissues, and in the stem). Leaf anatomy. The leaf lamina dorsiventral. Stomata present; on both surfaces; anisocytic. Hairs present; eglandular and glandular; unicellular and multicellular. Unicellular hairs simple. Multicellular hairs uniseriate; simple. Complex hairs absent. Adaxial hypodermis absent. Lamina without secretory cavities. Main veins embedded. Axial (stem, wood) anatomy. Pith heterogeneous (with sclereids). Secretory cavities absent. Cork cambium present; initially superficial. Nodes multilacunar. Cortical bundles present (reflecting the multilacunar nodes).

C:\Users\joshr\Downloads\angiodata\info\argophyl.rtf

00003: f2 Leaf anatomy. The leaf lamina dorsiventral. Stomata in *Argophyllum* very small and almost circular in outline, cf. *Escalloniaceae* sensu lato. Hairs present (T-shaped); multicellular. Adaxial hypodermis present. Minor leaf veins without phloem transfer cells (*Corokia*). Axial (stem, wood) anatomy. Cork cambium present; initially superficial. Nodes unilacunar (*C. virgata*), or trilacunar (mostly), or pentalacunar (*A. laxum*). Primary vascular tissues in a cylinder, without separate bundles; collateral. Secondary thickening developing from a conventional cambial ring (?). The wood semi-ring porous, or diffuse porous. The vessel end-walls scalariform. Reproductive type, pollination. Unisexual flowers absent. Plants hermaphrodite.

C:\Users\joshr\Downloads\angiodata\info\aristolo.rtf

00004: simple (but varied in form). The mesophyll with spherical etherial oil cells, or without etherial oil cells; containing crystals. The crystals raphides, druses, and solitary-prismatic. Minor leaf veins without phloem transfer

cells (\i{}Aristolochia\i0{} , \i{}Asarum\i0{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22{}Cork cambium present; initially superficial. Nodes tri-**lacunar**. \b{}Primary vascular tissues\b0{} \b{}comprising a ring of bundles\b0{}; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring (but sometimes the pith and primary medullary rays are unusually dilated, the original vascular bundles becoming fan-shaped and deforming the secondarily thickened structure). Primary medullary rays very wide.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood ring porous to diffuse porous. The vessels small to large (very large in some twiners). The ve

C:\Users\joshir\Downloads\angiodata\info\asclepia.rtf

00005: uniseriate (mostly), or multiseriate (with shaggy hairs occasionally recorded). Complex hairs absent. Adaxial hypodermis present, or absent. The mesophyll containing crystals. The crystals druses, or solitary-prismatic. Minor leaf veins without phloem transfer cells (\i{}Hoya\i0{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22{}Cork cambium present; initially superficial. Nodes uni**lacunar**, or tri-**lacunar** (? associated with one or three petiolar traces, not gutter-shaped). Primary vascular tissues in a cylinder, without separate bundles; bicollateral. Internal phloem universally present (in the form of either separate strands or a continuous ring). Secondary thickening developing from a conventional cambial ring, or anomalous (commonly in the climbers, variously involving eccentric or unequal development of the xylem, furrowed xylem, cleavage of the wood, areas of unligified xylem, centripetal development of interxylary phloem). The anomalous secondary t

C:\Users\joshir\Downloads\angiodata\info\asterope.rtf

00003: \sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22{}Pith heterogeneous (with solitary and grouped sclerosed cells). Secretory cavities present (?). Cork cambium present; initially superficial. Nodes uni**lacunar**. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow (wood rays all uniseriate).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood diffuse porous. The vessels small; mostly solitary. The vessel end-walls simple. The axial xylem without tracheids; with libriform fibres. The parenchyma paratracheal.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Reproductive type, pollination. \b0\fo\fs22{}Unisexual flowers absent. Plants hermaphrodite.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Inflorescence, floral, fruit and seed morphology. \b0\fo\fs22{}b{}Flowers\b0

C:\Users\joshir\Downloads\angiodata\info\atherosp.rtf

00003: axial hypodermis present, or absent. The mesophyll with spherical etherial oil cells (with clear or brown contents, sometimes manifested as transparent dots); not containing mucilage cells. Minor leaf veins without phloem transfer cells (\i{}Doryphora\i0{} , \i{}Laurelia\i0{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22{}Cork cambium present; initially superficial. Nodes uni**lacunar**. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood diffuse porous. The vessels mostly small; solitary, radially paired, and in radial multiples (mostly solitary, but always with a few small radial multiples). The vessel end-walls oblique; scalariform (with up to 100 bars in \i{}Atherosperma\i0{}), or scalariform and simple. T

C:\Users\joshir\Downloads\angiodata\info\aucubace.rtf

00003: d axis)\b0{}.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Leaf anatomy. \b0\fo\fs22{}\i{}The leaf lamina\i0{} dorsiventral (with 13 layers of palisade). Stomata present; mainly confined to one surface (the lower); anomocytic. Hairs present, or absent (?); if present, eglandular. Lamina without secretory cavities. Minor leaf veins without phloem transfer cells.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22{}Secretory cavities absent. Nodes tri-**lacunar**. Primary vascular tissues in a cylinder, without separate bundles. Internal phloem absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood semi-ring porous to diffuse porous. The vessel end-walls scalariform. The axial xylem with fibre tracheids; with libriform fibres; without septate fibres. The fibres with spiral thickening. The parenchyma paratracheal (as occasional cells touching the ve

C:\Users\joshir\Downloads\angiodata\info\austroba.rtf

00003: i340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22{}Cork cambium present; initially superficial. Nodes uni**lacunar** (with two traces). Primary vascular tissues in a cylinder, without separate bundles; collateral. Secondary thickening developing from a conventional cambial ring.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood diffuse porous. The vessels large; solitary. The vessel end-walls scalariform. The vessels with spiral thickening. The axial xylem with tracheids; with fibre tracheids (i.e. in addition to tracheids); without septate fibres. The fibres without spiral thickening. The parenchyma apotracheal (terminal only).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Reproductive type, pollination. \b0\fo\fs22{}Unisexual flowers absent. Plants hermaphrodite. Pollination entomophilous; probably via diptera.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Inflorescence, floral, fruit and seed morphology. \b0\fo\fs22{}b{}Flowers\b0{} solitary; axillary; bracteate;

C:\Users\joshr\Downloads\angiodata\info\balsamin.rtf

00004: ry cavities absent (but large cells with mucilaginous contents in the ground parenchyma). Nodes unilacunar. Primary vascular tissues comprising a ring of bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening more or less absent to developing from a conventional cambial ring (the interfascicular cambium giving rise internally only to thin-walled ground tissue, without vessels). The axial xylem with vessels. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ The vessel end-walls simple. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ \fs21\fi2\b\ Reproductive type, pollination. \b0\fo\fs22\ Unisexual flowers absent. Plants hermaphrodite. Pollination entomophilous; mechanism conspicuously specialized (as regards the androecium/gynoecium relationship). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ \fs21\fi2\b\ Inflorescence, floral, fruit and seed morphology. \b0\fo\fs22\ Flowers solitary, or aggregated in inflorescences; when aggregated, in cymes. The

C:\Users\joshr\Downloads\angiodata\info\barbeuia.rtf

00003: tem, wood) anatomy. \b0\fo\fs22\ Nodes unilacunar (with 1 trace). Internal phloem absent. \b\ Secondary thickening\b0\ \b\ anomalous (in the form of successive rings of vascular bundles in the inner pericycle)\b0\ . The anomalous secondary thickening via concentric cambia. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ Included phloem present. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ \fs21\fi2\b\ Reproductive type, pollination. \b0\fo\fs22\ Unisexual flowers absent. Plants hermaphrodite. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ \fs21\fi2\b\ Inflorescence, floral, fruit and seed morphology. \b0\fo\fs22\ Flowers aggregated in inflorescences; in racemes. \b\ The ultimate inflorescence units\b0\ \b\ racemose\b0\ . Inflorescences axillary; short, rigid racemes, the pedicels long. Flowers bracteate (the bracts subulate); regular; cyclic; pentacyclic, or polycyclic. Free hypanthium absent. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ \i\ \b\ Perianth\b0\ \i0\ \b\ sepaline\b0\ ; 5; 1 whorled. Ca

C:\Users\joshr\Downloads\angiodata\info\barbeyac.rtf

00002: epn\b\fs22\sbasedon0\snext0\sautoupd\}toc 1;\} \s24\fi-300\li450\keep\fs22\sbasedon0\snext0\sautoupd\}toc 2;\} \s30\ql\sb0\sa0\fi-907\li907\tx680\tqr\tldot\tx9072\fs22\sbasedon0\}Key;\} \s31\ql\sb100\sa0\fi-907\li907\tx680\tqr\tldot\tx9072\fs22\sbasedon30\}Key First Lead;\} \widowctrl\} \pard\plain\s21\ql\sb0\sa100\li0\fi0\keep\keepn\b\fs24\fi2\ Barbeyaceae Rendle\fo\fs22\b0\ \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ \fs21\fi2\b\ Habit and leaf form. \b0\fo\fs22\ Small, \i\ Olea\i0\ -like trees; non-laticiferous, without coloured juice. \b\ Leaves\b0\ \b\ opposite\b0\ ; simple. Lamina entire; whie-hairy below, oblong- lanceolate; pinnately veined. Leaves exstipulate. Lamina margins entire. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ \fs21\fi2\b\ Leaf anatomy. \b0\fo\fs22\ Stomata mainly laterocytic. Cystoliths absent. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ \fs21\fi2\b\ Axial (stem, wood) anatomy. \b0\fo\fs22\ Nodes unilacunar (with one trace). Internal phloem absent. Secondary thickening develo

C:\Users\joshr\Downloads\angiodata\info\bauerace.rtf

00003: er cells. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ \fs21\fi2\b\ Axial (stem, wood) anatomy. \b0\fo\fs22\ Nodes unilacunar. Secondary thickening presumably developing from a conventional cambial ring (?). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ \fs21\fi2\b\ Reproductive type, pollination. \b0\fo\fs22\ Unisexual flowers absent. Plants hermaphrodite. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ \fs21\fi2\b\ Inflorescence, floral, fruit and seed morphology. \b0\fo\fs22\ Flowers solitary; axillary. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ \i\ \b\ Perianth\b0\ \i0\ \b\ with distinct calyx and corolla\b0\ ; (8)1216(20); 2 whorled; isomerous. Calyx (4)68(10); 1 whorled; polysepalous; persistent; imbricate (slightly), or valvate. Corolla (4)68(10); 1 whorled; polypetalous; imbricate; magenta pink. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ \i\ Androecium\i0\ 410, or 15100 (to many). Androecial members free of the perianth; free of one another; 1 whorled, or 2 whorled. Androeciu **00006:** Species 3. Genera 1; only genus, \i\ Bauera\i0\ . \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ \fs21\fi2\b\ General remarks. \b0\fo\fs22\ Seemingly differing from \i\ Cunoniaceae\i0\ (q.v.) in the sessile, exstipulate leaves and unilacunar nodes; non-versatile short-slitted anthers; also the seed with a non-zig-zag micropyle?.y

C:\Users\joshr\Downloads\angiodata\info\begoniace.rtf

00004: axial hypodermis commonly present (often of large cells, often of more than one layer, sometimes on both leaf surfaces), or absent. Cystoliths present (commonly), or absent. The mesophyll with sclerenchymatous idioblasts (these sometimes crystalliferous), or without sclerenchymatous idioblasts; containing crystals. The crystals druses and solitary-prismatic. Minor leaf veins without phloem transfer cells (\i\ Begonia\i0\). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ \fs21\fi2\b\ Axial (stem, wood) anatomy. \b0\fo\fs22\ Pith with diaphragms, or without diaphragms. Cork cambium present; initially superficial. Nodes trilacunar, or penta-lacunar. Primary vascular tissues comprising a ring of bundles (the bundles usually widely separated, but sometimes constituting an almost closed ring); collateral. Internal phloem absent. Cortical bundles present (commonly), or absent. Medullary bundles present (commonly), or absent. Secondary thickening developing from a conventional cambial ring (the resulting ground tissu

C:\Users\joshr\Downloads\angiodata\info\berberid.rtf

00004: th a uniseriate stalk and ellipsoidal head recorded in Epimedium). Minor leaf veins without phloem transfer cells (*Berberis*, *Epimedium*, *Mahonia*). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\s22\fs21\p2\b\Axial (stem, wood) anatomy. \b0\p0\s22\i\Young stems\i0\ with solid internodes. Pith more or less homogeneous (the peripheral cells tending to be thicker-walled). Cork cambium present; initially deep-seated, or initially superficial. Nodes tri-lacunar, or multilacunar (e.g. *Epimedium*, *Mahonia*). Primary vascular tissues comprising a ring of bundles, or consisting of scattered bundles (in herbaceous and semi-herbaceous forms); collateral. Secondary thickening absent (*Epimedium*, *Vancouveria*), or developing from a conventional cambial ring. Primary medullary rays wide. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\s22\fs21\p2\b\The wood of *Berberis* and *Mahonia* ring porous, or semi-ring porous, or diffuse porous. The vessels very small; com

C:\Users\joshr\Downloads\angiodata\info\betulace.rtf

00003: aly. Leaf development not graminaceous. Domatia occurring in the family (found in both genera); manifested as pits, or pockets, or hair tufts (mostly). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\s22\fs21\p2\b\Leaf anatomy. \b0\p0\s22\i\The leaf lamina\i0\ dorsiventral (usually), or dorsiventral to bifacial (in that the mesophyll largely consists of palisade cells in *A. glutinosa*). Mucilaginous epidermis present, or absent. Stomata mainly confined to one surface (all abaxial, or relatively few adaxially); anomocytic. The mesophyll containing crystals. The crystals druses and solitary-prismatic (the former predominating). Minor leaf veins without phloem transfer cells (*Alnus*, *Betula*). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\s22\fs21\p2\b\Axial (stem, wood) anatomy. \b0\p0\s22\i\Pith almost or quite homogeneous. Cork cambium present; initially superficial (in the outer part of the cortex). Nodes tri-lacunar. Primary vascular tissues in a cylinder, without separate bundle

C:\Users\joshr\Downloads\angiodata\info\bignonia.rtf

00004: \plain\qj\s22\sb0\sa0\li0\fi340\s22\fs21\p2\b\Axial (stem, wood) anatomy. \b0\p0\s22\i\Cork cambium present; initially deep-seated, or initially superficial. Nodes unilacunar (3 to several traces). Primary vascular tissues in a cylinder, without separate bundles. Internal phloem absent. Cortical bundles absent. Medullary bundles present (these inversely orientated, e.g. in *Campsis*, *Tecoma*), or absent. Secondary thickening developing from a conventional cambial ring, or anomalous (represented by assorted variations, featured in Solereder's generic key). The anomalous secondary thickening via concentric cambia (e.g. *Campsis*, *Clytostoma*, *Tecomaria*), where a second series of bundles forms internally to the primary cylinder, in the pith; or in the secondary cortex), or from a single cambial ring. Primary medullary rays wide (in lianes), or mixed wide and narrow. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\s22\fs21\p2\b\The wood variously ring porous, or semi-ring porous, or dif

C:\Users\joshr\Downloads\angiodata\info\bixaceae.rtf

00003: Adaxial hypodermis absent. Lamina with secretory cavities, or without secretory cavities. Secretory cavities containing mucilage, or containing resin (with dark, refractive resinous contents); schizogenous. The mesophyll containing mucilage cells, or not containing mucilage cells; without sclerenchymatous idioblasts; containing crystals. The crystals druses (these abundant). Minor leaf veins without phloem transfer cells. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\s22\fs21\p2\b\Axial (stem, wood) anatomy. \b0\p0\s22\i\Secretory cavities present (canals in the pith, and secretory cells in the cortex). Cork cambium present; initially superficial. Nodes tri-lacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow (broadening as they traverse the phloem). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\s22\fs21\p2\b\The wood di

C:\Users\joshr\Downloads\angiodata\info\boragina.rtf

00004: landular and glandular. Multicellular hairs uniseriate; branched, or simple. Urticating hairs absent. Adaxial hypodermis absent. Lamina without secretory cavities. \b\}Cystoliths\b0\ \b\}commonly \b0\}\b\}present (at the bases of the hairs)\b0\}. The mesophyll commonly containing crystals. The crystals raphides, or druses, or solitary-prismatic. Midrib conspicuous. Main veins vertically transcurrent, or embedded. Minor leaf veins with phloem transfer cells (usually in 17 genera), or without phloem transfer cells (*Caccinea*, *Heliotropium*). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\s22\fs21\p2\b\Axial (stem, wood) anatomy. \b0\p0\s22\i\Secretory cavities absent. Cork cambium usually present; initially deep-seated, or initially superficial. Nodes unilacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary

C:\Users\joshr\Downloads\angiodata\info\brunelli.rtf

00003: \i\The leaf lamina\i0\ dorsiventral. Extra-floral nectaries absent (commonly), or present. Stomata present; mainly confined to one surface (abaxial); anomocytic. Hairs present (especially abaxially); eglandular; unicellular. Unicellular hairs simple (thick walled, curved). Complex hairs absent. Adaxial hypodermis of one or two layers present. The mesophyll containing crystals. The crystals druses and solitary-prismatic. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\s22\fs21\p2\b\Axial (stem, wood) anatomy. \b0\p0\s22\i\Young stems typically tetragonal, or flattened. Pith very heterogeneous. Secretory cavities absent. Nodes tri-lacunar, or penta-lacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral.

Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays mixed wide and narrow, or narrow. The wood diffuse porous. The vessels usually relatively small, or medium; commonly solitary, radially paired, in radial multiples, and clustered, or in tangential arcs (rarely). The vessel end-walls simple. The vessels without vestured pits; without spiral thickening. The axial xylem with libriform fibres; at least sometimes

C:\Users\joshir\Downloads\angiodata\info\burserac.rtf

00004: Axial (stem, wood) anatomy. Pith homogeneous, or heterogeneous (usually lignified). Secretory cavities present (usually, in the phloem, rarely in the pith: see illustration); with resin (balsam). Cork cambium present; initially superficial (usually), or initially deep-seated (in Santiria). Nodes multilacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles present (e.g., in Canarium), or absent (usually). Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow. The wood diffuse porous. The vessels usually relatively small, or medium; commonly solitary, radially paired, in radial multiples, and clustered, or in tangential arcs (rarely). The vessel end-walls simple. The vessels without vestured pits; without spiral thickening. The axial xylem with libriform fibres; at least sometimes

C:\Users\joshir\Downloads\angiodata\info\buxaceae.rtf

00003: Leaf anatomy. The leaf lamina dorsiventral. Stomata mainly confined to one surface (abaxial); cyclocytic. Hairs present (thick walled); eglandular; unicellular, or multicellular. Unicellular hairs simple. Multicellular hairs uniseriate; simple. Complex hairs absent. The mesophyll containing crystals. The crystals druses and solitary-prismatic (and sand). Minor leaf veins without phloem transfer cells. Axial (stem, wood) anatomy. Cork cambium present; initially superficial (in Buxus). Nodes unilacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles present (commonly), or absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow. The axial xylem with vessels, or without vessels (the bordered pits sometimes

C:\Users\joshir\Downloads\angiodata\info\cactaceae.rtf

00004: Lamina entire; when present on main stems, one-veined, or pinnately veined; cross-venulate, or without cross-venules. Leaves exstipulate. General anatomy. Plants with laticifers (anastomosing, e.g. in Coryphantha, Leuchtenbergia, Neomammillaria), or without laticifers (usually). Leaf anatomy. Minor leaf veins without phloem transfer cells (Opuntia, Zygocactus). Axial (stem, wood) anatomy. Secretory cavities present, or absent; when present, with latex, or with mucilage (but mucilage cells much commoner). Cork cambium present; initially superficial. Nodes when recorded, unilacunar (with one trace, this often bi- or multi-fid). Primary vascular tissues principally comprising a ring of bundles (but sometimes exhibiting additional strands in the cor

C:\Users\joshir\Downloads\angiodata\info\caesalpi.rtf

00005: Axial (stem, wood) anatomy. Secretory cavities present, or absent. Cork cambium present; initially deep-seated, or initially superficial (?). Nodes trilacunar, or pentalacunar (?). Primary vascular tissues in a cylinder, without separate bundles, or comprising a ring of bundles (?). Internal phloem absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring, or anomalous. The anomalous secondary thickening when present, via concentric cambia (e.g. Koopassia). The vessel end-walls simple. The vessels with vestured pits, or without vestured pits (?). The axial xylem at least sometimes including septate fibres, or without septate fibres (?). The parenchyma apotracheal, or paratracheal (?). The secondary phloem stratified into hard (fibrous) and soft (parenchymatous) zones, or not stratified (?). Included phloem present, or absent (?). The wood storied, or pa

C:\Users\joshir\Downloads\angiodata\info\calycant.rtf

00003: paracytic. Hairs present, or absent; when present, unicellular. Lamina without secretory cavities. The mesophyll with spherical ethereal oil cells; containing crystals, or without crystals. The crystals when present, solitary-prismatic. Minor leaf veins without phloem transfer cells. Axial (stem, wood) anatomy. Young stems with solid internodes. Pith homogeneous (comprising thin-walled parenchyma). Secretory cavities absent. Cork cambium present; initially superficial. Nodes unilacunar (with two traces, or 5 or more according to Lammers et al. 1986). Internal phloem absent. Cortical bundles present (the young stem with four inverted vascular bundles in the pericycle or cortex). Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays mixed wide and narrow. The wood ring porous to semi-ring por

C:\Users\joshir\Downloads\angiodata\info\campanul.rtf

00005: all active, initially deep-seated, or initially superficial. Nodes unilacunar. Primary vascular tissues seemingly usually in a cylinder, without separate bundles; collateral. Internal phloem present (occasionally, in the form of inverted, collateral medullary bundles), or absent. Cortical bundles present (rarely, e.g. in

\i{}Campanula\i0{}), or absent. Medullary bundles present (commonly, sometimes inversely orientated, sometimes consisting only of phloem), or absent. Secondary thickening developing from a conventional cambial ring.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood diffuse porous. The vessels small; radially paired, in radial multiples, and clustered. The vessel end-walls simple (usually), or scalariform, or scalariform and simple. The vessels without vestured pits. The axial xylem without tracheids; without fibre tracheids; with libriform fibres; rarely including septate fibres, or without septate fibres. The fibres without spiral thickening. The parenchyma where recorded, in Lobelia

C:\Users\joshir\Downloads\angiodata\info\canellac.rtf

00003: urface (abaxial); paracytic (usually), or anomocytic. Hairs absent. Adaxial hypodermis present, or absent. The mesophyll always with spherical etherial oil cells (these with yellow contents, appearing as transparent dots in cut leaves); containing crystals. The crystals druses. Minor leaf veins without phloem transfer cells (\i{}Canella\i0{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{} \fs21\fi2\b{}Axial (stem, wood) anatomy. \b0\fi0\fs22{}Cork cambium present; initially superficial. Nodes tri-**lacunar**, or bi**lacunar** (with three traces, according to Lammers \i{}et al\i0{} . 1986). Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood diffuse porous. The vessels small; solitary (usually, exclusively), or solitary and radially paired (in \i{}Warburgia\i0{}). The ve

C:\Users\joshir\Downloads\angiodata\info\capparid.rtf

00004: s without phloem transfer cells (\i{}Capparis\i0{}), \i{}Steriphoma\i0{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{} \fs21\fi2\b{}Axial (stem, wood) anatomy. \b0\fi0\fs22{}Cork cambium present; initially deep-seated, or initially superficial. Nodes uni**lacunar**. Internal phloem absent. Cortical bundles (secondary, pericyclic) present, or absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring, or anomalous. The anomalous secondary thickening via concentric cambia (often), or from a single cambial ring.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The vessel end-walls simple. The vessels with vestured pits. The axial xylem with fibre tracheids, or without fibre tracheids; with libriform fibres; including septate fibres (rarely), or without septate fibres. The parenchyma paratracheal. The secondary phloem stratified into hard (fibrous) and soft (parenchymatous) zones, or not stratified. Included phloem present (often), or absent. The wood partially storied, or not

C:\Users\joshir\Downloads\angiodata\info\caprifol.rtf

00004: present; eglandular and glandular (the former usually simple unicellular, the latter with uniseriate stalk and multicellular head in most genera, peltate in \i{}Diervilla\i0{} and \i{}Symphoricarpos\i0{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{} \fs21\fi2\b{}Axial (stem, wood) anatomy. \b0\fi0\fs22{}Secretory cavities as distinct from secretory cells with unidentified contents, absent. Cork cambium present; initially superficial. Nodes uni**lacunar** (rarely), or tri-**lacunar**. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood typically ring porous, or semi-ring porous. The vessels very small to small; exclusively solitary. The vessel end-walls scalariform, or simple, or scalariform and simple. The vessels without vestured pits; commonly with spiral thicken

C:\Users\joshir\Downloads\angiodata\info\caricace.rtf

00004: y. \b0\fi0\fs22{}Nodes tri-**lacunar**, or multi**lacunar**. Primary vascular tissues comprising a ring of bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays wide.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The vessel end-walls simple. The vessels without vestured pits. The axial xylem without wood fibres. \b{}The secondary phloem\b0{} \b{}stratified into hard (fibrous) and soft (parenchymatous) zones\b0{}. Included phloem absent.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{} \fs21\fi2\b{}Reproductive type, pollination. \b0\fi0\fs22{}Unisexual flowers present. Plants monoecious, or dioecious, or andromonoecious, or gynomoecious, or polygamomoecious (? usually dioecious or monoecious, but sometimes with some perfect flowers). Gynoecium of male flowers vestigial, or absent.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{} \fs21\fi2\b{}Inflorescence, floral, fruit and seed morpho

C:\Users\joshir\Downloads\angiodata\info\carpinac.rtf

00003: e lateral nerves)\b0{}. Domatia occurring in the family (from two genera); manifested as hair tufts.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{} \fs21\fi2\b{}Leaf anatomy. \b0\fi0\fs22{} \i{}The leaf lamina\i0{} dorsiventral. Stomata mainly confined to one surface (abaxial); anomocytic. Hairs present; eglandular and glandular (the former unicellular and/or uniseriate, the latter variously spherical, ellipsoidal and disc-shaped). Minor leaf veins without phloem transfer cells (\i{}Carpinus\i0{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{} \fs21\fi2\b{}Axial (stem, wood) anatomy. \b0\fi0\fs22{}Cork cambium present; arising in the outer cortex. Nodes tri-**lacunar**. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood ring porous to diffuse porous. The vessels sm

\b0{\b{narrow\b0{}}.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}}The wood ring porous to diffuse porous. The vessels small (typically very small, sometimes extremely so); exclusively solitary (in some genera), or radially paired to in radial multiples (in others). The vessel end-walls scalariform, or simple. The vessels without vested pits; with spiral thickening, or without spiral thickening. The axial xylem with tracheids,

C:\Users\joshir\Downloads\angiodata\info\cercidip.rtf

00003: The mesophyll containing crystals. The crystals druses, or solitary-prismatic. Minor leaf veins without phloem transfer cells.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}}\fs21\fi2\b{}}Axial (stem, wood) anatomy. \b0\fi0\fs22{}}\i{}}Young stems\i0{}} with solid internodes. Pith homogeneous (comprising thick-walled cells which are smaller around the periphery). Cork cambium present; initially deep-seated to initially superficial (in the outer cortex). Nodes tri-**lacunar**. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}}The wood diffuse porous. The vessels very small (and angular); solitary, radially paired, and in radial multiples. The vessel end-walls scalariform (with numerous cross bars). The vessels with spiral thickening. The axial xylem with fibre tracheids; without septate fibres. The fibres without spiral thick

C:\Users\joshir\Downloads\angiodata\info\chenopod.rtf

00005: ambium present, or absent; when present, initially deep-seated, or initially superficial. Nodes uni**lacunar**. Primary vascular tissues comprising a ring of bundles; collateral (?). Internal phloem absent. Cortical bundles absent. Medullary bundles present, or absent (ostensibly common, but supposedly representing leaf traces laid down before the onset of secondary thickening), or absent. Secondary thickening developing from a conventional cambial ring (rarely?), or anomalous (nearly always). The anomalous secondary thickening usually via concentric cambia (these comprising rings or arcs, generating numerous vascular bundles in spirals, in rings or distributed irregularly).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}}The wood semi-ring porous (occasionally), or diffuse porous. The vessels small (sometimes extremely so); in radial multiples, or clustered, or in tangential arcs (typically in groups or clusters internal to the phloem strands). The vessel end-walls simple. The vessels with spiral thickening (comm

C:\Users\joshir\Downloads\angiodata\info\chlorant.rtf

00003: nt. Lamina with secretory cavities, or without secretory cavities. Secretory cavities when present, containing mucilage. The mesophyll with spherical etherial oil cells; without crystals. Minor leaf veins without phloem transfer cells (\i{}}Chloranthus\i0{}}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}}\fs21\fi2\b{}}Axial (stem, wood) anatomy. \b0\fi0\fs22{}}Young stems usually cylindrical; with solid internodes. Secretory cavities present, or absent; when present, with mucilage. Nodes uni**lacunar** (clearly, in \i{}}Ascarina\i0{}} and \i{}}Hedyosmum\i0{}}), or tri-**lacunar** (or interpretable as a modification of such, in other genera); exhibiting on either side a trace which divides, contributing the outermost lateral traces to each of the opposite leaves (e.g., in \i{}}Chloranthus\i0{}} and \i{}}Sarcandra\i0{}}), or without split-lateral traces. Primary vascular tissues in a cylinder, without separate bundles; collateral. Secondary thickening developing from a conventional cambial ring. The axial xylem with vessels, or wi

C:\Users\joshir\Downloads\angiodata\info\circaeas.rtf

00003: ically spinulose dentate.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}}\fs21\fi2\b{}}Leaf anatomy. \b0\fi0\fs22{}}Stomata present; mainly confined to one surface (abaxial); small, anomocytic. Midrib conspicuous. Main veins embedded.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}}\fs21\fi2\b{}}Axial (stem, wood) anatomy. \b0\fi0\fs22{}}Nodes uni**lacunar**. Primary vascular tissues diarch; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening almost absent, or developing from a conventional cambial ring (if detectable, slight, with only a small amount of secondary xylem and phloem at either side).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}}The vessel end-walls simple.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}}\fs21\fi2\b{}}Reproductive type, pollination. \b0\fi0\fs22{}}\b{}}Fertile flowers\b0{}} \b{}}hermaphrodite\b0{}}. Unisexual flowers absent. Plants hermaphrodite. Floral nectaries absent.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}}\fs21\fi2\b{}}Inflorescen

C:\Users\joshir\Downloads\angiodata\info\cistacea.rtf

00004: air within its base, cf. \i{}}Combretaceae\i0{}}). Complex hairs commonly present (apparently representing tufts of the peculiar double type with their associated bases sunken in the epidermis), or absent; commonly peltate, or stellate, or capitate. Adaxial hypodermis absent. The mesophyll containing crystals. The crystals commonly druses. Minor leaf veins with phloem transfer cells (\i{}}Helianthemum\i0{}}), or without phloem transfer cells (\i{}}Cistus\i0{}}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}}\fs21\fi2\b{}}Axial (stem, wood) anatomy. \b0\fi0\fs22{}}Young stems cylindrical, or tetragonal; with solid internodes. Cork cambium present; initially superficial. \b{}}Nodes\b0{}} \b{}}uni**lacunar**\b0{}}. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays when present, narrow.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}}The w

C:\Users\joshir\Downloads\angiodata\info\clethrac.rtf

00003: e surface (abaxial); anomocytic, anisocytic, and paracytic (mixed, but mostly paracytic). Hairs present. Complex hairs usually present; stellate. Lamina without secretory cavities. Cystoliths present, or absent. The mesophyll containing crystals. The crystals mostly druses. Minor leaf veins without phloem transfer

cells. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\f2\b\} Axial (stem, wood) anatomy. \b0\fo\fs22\} Pith very heterogeneous. Secretory cavities absent. Cork cambium present; initially deep-seated. Nodes unilacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow, or mixed wide and narrow. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\} The wood diffuse porous. The vessels moderately small; exclusively solitary. The vessel end-walls oblique; scalariform. The vessels without vested pits; with sp

C:\Users\joshir\Downloads\angiodata\info\combreta.rtf

00004: ecretory cavities. Secretory cavities containing mucilage. The mesophyll with sclerenchymatous idioblasts (as fibres extending from the veins), or without sclerenchymatous idioblasts; containing crystals. The crystals almost exclusively druses. Minor leaf veins without phloem transfer cells (\i\}Combretum\i0\}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\f2\b\} Axial (stem, wood) anatomy. \b0\fo\fs22\} Secretory cavities present (e.g., canals in \i\}\i\}Terminalia\i0\}\i0\}), or absent; with mucilage. Cork cambium present; initially deep-seated, or initially superficial. \b\}Nodes\b0\} \b\}unilacunar\b0\}. Primary vascular tissues in a cylinder, without separate bundles; collateral, or bicollateral. Internal phloem present, or absent. Secondary thickening developing from a conventional cambial ring, or anomalous. The anomalous secondary thickening from a single cambial ring. Primary medullary rays narrow. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\} The wood ring porous to diffuse porous. The vesse

C:\Users\joshir\Downloads\angiodata\info\composit.rtf

00007: ng stems\i0\} with solid internodes, or with spongy internodes, or with hollow internodes. Pith with diaphragms, or without diaphragms. Secretory cavities present (commonly), or absent; when present, generally with resin, or with latex. Cork cambium present, or absent (with interxylary cork recorded, e.g. in \i\}Artemisia\i0\}). Nodes unilacunar, or tri-lacunar, or multilacunar; exhibiting on either side a trace which divides, contributing the outermost lateral traces to each of the opposite leaves (rarely - e.g., in \i\}Argyroxiphium\i0\}), or without split-lateral traces. Primary vascular tissues in a cylinder, without separate bundles (in woody forms), or comprising a ring of bundles (generally, in the familiar herbaceous forms), or comprising two or more rings of bundles; generally collateral. Internal phloem present (very rarely, but recorded in \i\}Lactuca\i0\} and \i\}Launea\i0\}), or absent. Cortical bundles present (commonly, in various configurations), or absent. Medullary bundles present (not uncomm

C:\Users\joshir\Downloads\angiodata\info\connarac.rtf

00003: ral. Mucilaginous epidermis present, or absent. \b\}Stomata\b0\} mainly confined to one surface (abaxial); \b\}paracytic (commonly), or cyclocytic, or diacytic (rarely)\b0\}. Hairs of numerous kinds present (in the family, variously unicellular with one or two arms, sympodially branched, or tufted); mostly eglandular (with glandular forms mostly confined to floral parts). Adaxial hypodermis present, or absent. Lamina with secretory cavities, or without secretory cavities. Secretory cavities when present, containing mucilage, or containing resin. The mesophyll containing crystals, or without crystals. The crystals where recorded, solitary-prismatic. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\f2\b\} Axial (stem, wood) anatomy. \b0\fo\fs22\} Secretory cavities present, or absent; with mucilage. Cork cambium present; initially superficial. Nodes tri-lacunar to multilacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medull

C:\Users\joshir\Downloads\angiodata\info\convolvu.rtf

00004: omocytic, or anomocytic and paracytic\b0\}. Hairs present (commonly represented by 2-armed trichomes, Y- or T-shaped forms, and forms with one to several short stalk cells and a long terminal one: see illustration); eglandular and glandular. Adaxial hypodermis present (but incomplete), or absent (usually). The mesophyll with sclerenchymatous idioblasts, or without sclerenchymatous idioblasts; containing crystals. The crystals druses and solitary-prismatic. Minor leaf veins without phloem transfer cells (\i\}Convolvulus\i0\}, \i\}Ipomaea\i0\}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\f2\b\} Axial (stem, wood) anatomy. \b0\fo\fs22\} Pith with diaphragms, or without diaphragms. Cork cambium present; initially superficial. Nodes unilacunar. \b\}Primary vascular tissues\b0\} at least usually in a cylinder, without separate bundles; \b\}bicollateral\b0\}. \b\}Internal phloem\b0\} \b\}present\b0\}. Cortical bundles absent. Medullary bundles present (by development of xylem associated with the intraxylary

C:\Users\joshir\Downloads\angiodata\info\coriaria.rtf

00003: ered palisade). Stomata present; on both surfaces (but mostly abaxial); paracytic. Minor leaf veins without phloem transfer cells. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\f2\b\} Axial (stem, wood) anatomy. \b0\fo\fs22\} Secretory cavities absent. Cork cambium present; initially superficial. Nodes unilacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays wide. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\} The wood ring porous to diffuse porous. The vessels small; solitary, or radially paired to in radial multiples, or clustered, or in tangential arcs. The vessel end-walls simple. The vessels without vested pits; without spiral thickening. The axial xylem with libriform fibres; without septate fibres. The fibres without spiral thickening. The parenchyma paratracheal. The secondary phloem not stratified (

C:\Users\joshir\Downloads\angiodata\info\cornacea.rtf

00004: f0\fs22{}Secretory cavities absent. Cork cambium present; initially superficial. \b{}Nodes\b0{} \b{}tri-lacunar\b0{}. Secondary thickening developing from a conventional cambial ring.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The vessel end-walls scalariform. The vessels without vested pits. The axial xylem with tracheids; with fibre tracheids; with libriform fibres. The parenchyma apotracheal.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Reproductive type, pollination. \b0\fs22{}Unisexual flowers present, or absent. Plants hermaphrodite (usually), or dioecious (e.g. \i{}C. volkensii\i0{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Inflorescence, floral, fruit and seed morphology. \b0\fs22{}Flowers aggregated in inflorescences; in cymes, in heads, in corymbs, and in umbels. \b{}The ultimate inflorescence units\b0{} \b{}cymose\b0{}. \b{}Inflorescences\b0{} terminal, or axillary; \b{}usually in cymes, cymose corymbs, panicles or umbels, in racemes of panicles, or

walls simple, or scalariform and simple. The axial xylem with fibre tracheids; with libriform fibres (in addition to fibre tracheids), or without libriform fibres. Included phloem absent. The wood not storied. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Reproductive type, pollination. \b0\fo\fs22{}Unisexual flowers absent. Plants hermaphrodite. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Inflorescence, floral, fruit and seed morphology. \b0\fo\fs22{}Flowers solitary, or aggregated in inflorescences; when aggregated, in racemes. The ultimate inflorescence units racemose. \b{}}Flowers\b0{} \b{}}bra

C:\Users\joshir\Downloads\angiodata\info\dillenia.rtf

00004: esophyll with sclerenchymatous idioblasts, or without sclerenchymatous idioblasts. Minor leaf veins without phloem transfer cells (\i{}}Dillenia\i0{}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{} \i{}}Young stems\i0{} with solid internodes. Pith with diaphragms (occasionally), or without diaphragms. Cork cambium present; initially deep-seated (usually), or initially superficial. Nodes unil**lacunar**, or tri-**lacunar**, or penta-**lacunar** to multil**lacunar** (?). Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Secondary thickening developing from a conventional cambial ring, or anomalous (rarely?). The anomalous secondary thickening when present, via concentric cambia (\i{}}Dolioscarpus\i0{}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood ring porous to diffuse porous. The vessels medium (usually), or large (in the lianes); solitary (except for ostensible tangential pairs due to overlapping ends). The vessel

C:\Users\joshir\Downloads\angiodata\info\dipsacac.rtf

00004: nor leaf veins with phloem transfer cells (\i{}}Cephalaria\i0{}, \i{}}Dipsacus\i0{}, \i{}}Knautia\i0{}, \i{}}Pterocarpus\i0{}, \i{}}Scabiosa\i0{}, \i{}}Succisella\i0{}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{}Young stems cylindrical, or tetragonal; often with hollow internodes. Secretory cavities absent. Cork cambium present; initially deep-seated (usually), or initially superficial. Nodes tri-**lacunar**, or multil**lacunar**. Primary vascular tissues in a cylinder, without separate bundles (or the initial bundles soon linking); collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring (resulting in early linking of the initial vascular bundles by phloem and prosenchymatous elements). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The vessel end-walls simple (usually), or scalariform and simple. The vessels without vestured pits; with spiral thickening (often), or wit

C:\Users\joshir\Downloads\angiodata\info\dipteroc.rtf

00004: atomy. \b0\fo\fs22{}Secretory cavities always present (as canals, in the pith); with resin, or with resin and with mucilage. Cork cambium present; initially superficial. Nodes tri-**lacunar**, or penta-**lacunar**. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles present (very commonly, concentric or moon-shaped, each with a resin canal in the xylem), or absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood diffuse porous. The vessels small to large; solitary, or radially paired, or in radial multiples, or clustered, or in tangential arcs. The vessel end-walls horizontal, or horizontal to oblique; simple. The vessels consistently with vestured pits; without spiral thickening. The axial xylem with tracheids; commonly with vasicentric tracheids, or without vasicentric tracheids; with fibre tracheids; without septate fibres. The fibres without spiral

C:\Users\joshir\Downloads\angiodata\info\ebenacea.rtf

00003: anatomy. \b0\fo\fs22{} \i{}}The leaf lamina\i0{} dorsiventral (usually), or bifacial. \b{}}Stomata\b0{} usually mainly confined to one surface (abaxial); \b{}}anomocytic\b0{}. Hairs present (mostly unicellular, occasionally 2-armed, occasionally in tufts); eglandular and glandular (the latter comprising a curved, uniseriate stalk and a few-celled head). Adaxial hypodermis present (rarely), or absent. Lamina without secretory cavities (but secretory cells with probably tanniniferous contents common). The mesophyll with sclerenchymatous idioblasts (especially in \i{}}Diospyros\i0{}), or without sclerenchymatous idioblasts; usually containing crystals. The crystals druses, or solitary-prismatic (but mostly solitary). Minor leaf veins without phloem transfer cells (\i{}}Diospyros\i0{}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{}Cork cambium present; initially deep-seated, or initially superficial. Nodes unil**lacunar**, or tri-**lacunar**. Primary vascular tissues in a c

C:\Users\joshir\Downloads\angiodata\info\elaegna.rtf

00003: ut crystal sand. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Leaf anatomy. \b0\fo\fs22{} \i{}}The leaf lamina\i0{} typically dorsiventral (but the abaxial mesophyll may tend to palisade-like). Stomata mainly confined to one surface (abaxial); anomocytic. Hairs present (in abundance, covering leaves and shoots); glandular; multicellular. \b{}}Complex hairs\b0{} present; \b{}}usually short- but sometimes long-stalked \b0{} \b{}}peltate, or stellate (the plants scaly)\b0{}. The mesophyll containing crystals. The crystals raphides and solitary-prismatic (with various types of acicular crystals and sand predominating, and no druses). Minor leaf veins without phloem transfer cells (\i{}}Elaeagnus\i0{}, \i{}}Hippophaë\i0{}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{}Cork cambium present; initially superficial. Nodes unil**lacunar**. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles abse

C:\Users\joshir\Downloads\angiodata\info\elaecar.rtf

00003: r persistent. Leaf development not graminaceous. Domatia occurring in the family (found in numerous *Elaeocarpus* and *Sloanea* species); manifested as pits, or pockets, or hair tufts (but mostly pockets in *Elaeocarpus*, hair tufts in *Sloanea*). Leaf anatomy. The leaf lamina usually dorsiventral. Hydathodes present (occasionally), or absent. Mucilaginous epidermis commonly present. Stomata usually mainly confined to one surface (the lower). Lamina without secretory cavities. Minor leaf veins without phloem transfer cells. Axial (stem, wood) anatomy. Pith usually somewhat heterogeneous. Secretory cavities absent (? at least, without mucilage canals or cavities, by contrast with *Tiliaceae*). Cork cambium present; initially superficial. Nodes tri-lacunar. Primary vascular tissues in a cylinder,

C:\Users\joshir\Downloads\angiodata\info\empetrac.rtf

00003: The leaf lamina dorsiventral. Mucilaginous epidermis present. Stomata present; mainly confined to one surface (abaxial); anomocytic. Hairs present (confined to the entrance to central leaf cavity, see illustration); eglandular and glandular (the former unicellular, simple-elongate and forming a tangled mass confined to and obstructing the leaf cavity; the latter comprising uni- or pluricellular, ellipsoidal heads on short, unicellular or unisetate stalks). Complex hairs absent. The mesophyll containing crystals, or without crystals (absent or rare in *E. nigrum*). The crystals when seen, druses. Minor leaf veins without phloem transfer cells. Axial (stem, wood) anatomy. Young stems cylindrical. Cork cambium present; initially deep-seated. Nodes unilacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary

C:\Users\joshir\Downloads\angiodata\info\epacrida.rtf

00004: *Andersonia* and *Dracophyllum*; anomocytic (most *Epacridoideae*), or paracytic (*Richeoideae*), or cyclocytic (some *Epacridoideae*-*Cosmelieae*). Hairs absent, or present (but then inconspicuous, infrequent, and uniform, by contrast with the diversity exhibited by the *Ericaceae*); if present, exclusively eglandular; unicellular. Unicellular hairs simple. Complex hairs absent. Adaxial hypodermis present, or absent. Lamina without secretory cavities. The mesophyll containing crystals. The crystals druses and solitary-prismatic. Midrib usually not conspicuous. Main veins vertically transcurrent, or embedded. Minor leaf veins without phloem transfer cells. Axial (stem, wood) anatomy. Secretory cavities absent. Cork cambium present to absent (in that a distinct phellogen is not always clearly defined); initially deep-seated. Nodes unilacunar (mostly), or tri-lacunar to multilacunar (*Draco*

C:\Users\joshir\Downloads\angiodata\info\ericacea.rtf

00005: mbium present (though not always well defined); initially deep-seated (usually), or initially superficial (e.g. *Agapetes*). Nodes unilacunar (usually), or tri-lacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Secondary thickening developing from a conventional cambial ring (often developing very slowly). Primary medullary rays generally narrow, or mixed wide and narrow. The wood ring porous, or semi-ring porous (commonly), or diffuse porous. The vessels typically very small; solitary (often, more or less exclusively), or radially paired, or in radial multiples, or clustered, or in tangential arcs. The vessel end-walls scalariform, or scalariform and simple, or simple. The vessels without vested pits; with spiral thickening, or without spiral thickening. The axial xylem with tracheids, or without tracheids; without vasicentric tracheids; with fibre tracheids (comm

C:\Users\joshir\Downloads\angiodata\info\erythrox.rtf

00003: hing; simple. Lamina entire; pinnately veined. Leaves stipulate. Stipules interpetiolar (rarely), or intrapetiolar; often caducous. Lamina margins entire. Leaf development not graminaceous. Leaf anatomy. The leaf lamina dorsiventral to centric. Mucilaginous epidermis present, or absent. Stomata mainly confined to one surface (the lower); paracytic. The mesophyll with sclerenchymatous idioblasts (commonly), or without sclerenchymatous idioblasts; containing crystals. The crystals solitary-prismatic. Axial (stem, wood) anatomy. Cork cambium present; initially superficial. Nodes unilacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles present (in young stems). Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary

C:\Users\joshir\Downloads\angiodata\info\escallon.rtf

00004: na without secretory cavities. Minor leaf veins without phloem transfer cells. Axial (stem, wood) anatomy. Pith somewhat spongy or becoming hollow. Secretory cavities absent. Cork cambium present; initially deep-seated, or initially superficial. Nodes unilacunar, or tri-lacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays tending to be mixed wide and narrow. The wood semi-ring porous, or

diffuse porous\{b\}. The vessels small (typically), or medium to large (in \{i\}Polyosma\i0\}). \{b\}The vessel end-walls\{b\} \{b\}scalariform (typically), or reticulately perforated and scalariform\{b\}. The vessels without vestured pits; with spiral thickening (rarely), or without

C:\Users\joshir\Downloads\angiodata\info\eucommia.rtf

00003: ne surface (abaxial); anomocytic.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fs2\}\b\}Axial (stem, wood) anatomy. \b0\fs22\}\i\}Young stems\i0\} with solid internodes. Pith more or less homogeneous (the peripheral cells being thicker walled). Cork cambium present; initially superficial. Nodes unilacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Secondary thickening developing from a conventional cambial ring.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\b\}The wood\{b\} \{b\}semi-ring porous\{b\}. The vessels very to extremely small; solitary and radially paired (but mostly solitary). The vessel end-walls oblique; simple. The vessels with spiral thickening. The axial xylem with tracheids. The parenchyma apotracheal; wood not storied. Tyloses present (rare), or absent.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fs2\}\b\}Reproductive type, pollination. \b0\fs22\}Unisexual flowers present. Plants dioecious. Pollination anemophilous.\par\pard\plain\qj

C:\Users\joshir\Downloads\angiodata\info\eucryphi.rtf

00003: ta present; mainly confined to one surface (abaxial); where recorded, paracytic. Hairs present (infrequent); eglandular; short, thick-walled, unicellular. Unicellular hairs simple. Complex hairs absent. Lamina without secretory cavities. The mesophyll containing crystals. The crystals druses and solitary-prismatic. Minor leaf veins without phloem transfer cells.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fs2\}\b\}Axial (stem, wood) anatomy. \b0\fs22\}Pith characteristically quadrangular, heterogeneous. Secretory cavities absent. Cork cambium present; initially superficial. Nodes tri-lacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}The wood semi-ring porous to diffuse porous. The vessels very to moderately small; solitary, radially paired, in radial multiples, and clustered (bu

C:\Users\joshir\Downloads\angiodata\info\euphorbi.rtf

00005: 22\}\fs21\fs2\}\b\}Leaf anatomy. \b0\fs22\}\i\}The leaf lamina\i0\} dorsiventral, or bifacial, or centric. Mucilaginous epidermis present, or absent. Stomata mainly confined to one surface, or on both surfaces; anomocytic, or anisocytic, or paracytic. Hairs of numerous kinds present (in the family: see illustrations); eglandular and glandular. Urticating hairs present (in a few lianes), or absent. \{b\}Lamina\{b\} \{b\}without secretory cavities\{b\}. The mesophyll with sclerenchymatous idioblasts, or without sclerenchymatous idioblasts. Minor leaf veins without phloem transfer cells (\i\}Euphorbia\i0\}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fs2\}\b\}Axial (stem, wood) anatomy. \b0\fs22\}Cork cambium present; initially deep-seated (rarely), or initially superficial. Nodes unilacunar, or tri-lacunar. Primary vascular tissues in a cylinder, without separate bundles (commonly), or comprising a ring of bundles (e.g., in succulent Euphorbias); collateral, or bicollateral. Internal phloem present (in

C:\Users\joshir\Downloads\angiodata\info\eupomati.rtf

00003: thout secretory cavities. The mesophyll with spherical etherial oil cells, or without etherial oil cells (?). Minor leaf veins without phloem transfer cells (1 genus).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fs2\}\b\}Axial (stem, wood) anatomy. \b0\fs22\}\i\}Young stems\i0\} with solid internodes. Pith heterogeneous (of large, thin-walled cells and scattered stone cells). Nodes penta-lacunar, or multilacunar (with five or more traces). Primary vascular tissues in a cylinder, without separate bundles to comprising a ring of bundles (traversed by relatively broad rays); collateral. Secondary thickening developing from a conventional cambial ring. Primary medullary rays mixed wide and narrow.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}The wood diffuse porous. The vessels small; solitary, radially paired, and in radial multiples. The vessel end-walls oblique; scalariform. The vessels without spiral thickening. The axial xylem with fibre tracheids; including septate fibres. The fibres without spi

C:\Users\joshir\Downloads\angiodata\info\euptelea.rtf

00003: 0\fi340\fs22\}\fs21\fs2\}\b\}Axial (stem, wood) anatomy. \b0\fs22\}\i\}Young stems\i0\} with solid internodes. Pith homogeneous (of relatively thick-walled cells). Cork cambium present; initially deep-seated. Nodes unilacunar (with 79 traces). Internal phloem absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays 13 cells wide.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}The wood diffuse porous. The vessels small; solitary. The vessel end-walls oblique; scalariform, or reticulately perforated. The vessels without spiral thickening. The axial xylem with tracheids; without septate fibres. The fibres without spiral thickening. The parenchyma apotracheal (in terminal bands). Included phloem absent. The wood not storied.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fs2\}\b\}Reproductive type, pollination. \b0\fs22\}Unisexual flowers present, or absent. Plants hermaphrodite, or andromonoecious. Floral nectaries absent. Pollination anemophilous.\par\pard\p

C:\Users\joshir\Downloads\angiodata\info\fagaceae.rtf

00004: rmis present (rarely), or absent. Lamina without secretory cavities. The mesophyll containing crystals. The crystals druses and solitary-prismatic. Minor leaf veins without phloem transfer cells (\i\}Nothofagus\i0\}, \i\}Quercus\i0\}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fs2\}\b\}Axial (stem, wood) anatomy. \b0\fs22\}Secretory cavities absent. Cork cambium present; initially superficial. Nodes tri-lacunar. \{b\}Primary

vascular tissues in a cylinder, without separate bundles (but the xylem sometimes dissected by broad, lignified primary rays); collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays wide, or mixed wide and narrow, or narrow. The wood ring porous, or semi-ring porous, or diffuse porous. The vessels small to medium, or large (sometimes more than 200 microns when diffuse porous); variously solitary, or

C:\Users\josh\Downloads\angiodata\info\flacourt.rtf

00004: mainly confined to one surface (usually, abaxial), or on both surfaces; anomocytic, or paracytic. Hairs present (variously simple unicellular, tufted, 2-armed, stellate, peltate, uniseriate-eglandular or -glandular). Adaxial hypodermis present, or absent. Cystoliths present (*Homalium*), or absent. The mesophyll sometimes with secretory cavities containing resin; with sclerenchymatous idioblasts, or without sclerenchymatous idioblasts. Minor leaf veins without phloem transfer cells. Axial (stem, wood) anatomy. Pith homogeneous, or heterogeneous. Cork cambium present; initially superficial. Nodes tri-lacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow (not widening in the phloem).

C:\Users\josh\Downloads\angiodata\info\fouquier.rtf

00003: iduous (often ephemeral, produced after rain); small; alternate; fleshy; petiolate; non-sheathing; simple. Lamina entire; pinnately veined. Leaves exstipulate. Leaf anatomy. The leaf lamina dorsiventral, or bifacial. Mucilaginous epidermis present. Stomata present; on both surfaces; anomocytic. Minor leaf veins without phloem transfer cells. Axial (stem, wood) anatomy. Pith with diaphragms, or without diaphragms. Nodes unilacunar (with one trace). Primary vascular tissues in a cylinder, without separate bundles, or comprising a ring of bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. The wood ring porous to semi-ring porous. The vessels very small; in *Fouquiera* solitary, rad

C:\Users\josh\Downloads\angiodata\info\fumariac.rtf

00003: posite); spiral; petiolate; non-sheathing; simple, or compound; when compound, ternate, or pinnate, or bipinnate, or multiply compound; when pinnate, imparipinnate. Lamina when simple, usually dissected; when simple, pinnatifid, or palmatifid, or much-divided; pinnately veined. Leaves exstipulate; leaf development not graminaceous. General anatomy. Plants with laticifers. Leaf anatomy. Hairs present, or absent; unicellular. Minor leaf veins without phloem transfer cells (*Corydalis*), *Dicentra*, *Fumaria*. Axial (stem, wood) anatomy. Young stems commonly with hollow internodes. Nodes unilacunar (usually), or tri-lacunar. Primary vascular tissues comprising a ring of bundles; collateral. Cortical bundles absent. Medullary bundles absent. Secondary thickening absen

C:\Users\josh\Downloads\angiodata\info\garryace.rtf

00003: Plants with crystal sand (in the pith mesophyll of young leaves), or without crystal sand. Plants with silica bodies, or without silica bodies. Leaf anatomy. The leaf lamina dorsiventral (with several palisade layers). Stomata present; mainly confined to one surface (abaxial, protected by beak-like extensions from guard or subsidiary cells); paracytic. Hairs present; exclusively eglandular; not 2-armed, unicellular (frequently forming a felt abaxially). Adaxial hypodermis present (often), or absent. Lamina without secretory cavities. The mesophyll with sclerenchymatous idioblasts (supporting the palisades). Minor leaf veins without phloem transfer cells. Axial (stem, wood) anatomy. Young stems tetragonal (the twigs 4-angled). Secretory cavities absent. Cork cambium present; initially superficial. Nodes tri-lacunar. Primary

C:\Users\josh\Downloads\angiodata\info\gentiana.rtf

00004: Leaf anatomy. The leaf lamina dorsiventral, or bifacial. Abaxial epidermis commonly papillose. Mucilaginous epidermis present, or absent. Stomata present; anomocytic (commonly), or anisocytic. Hairs infrequent, but sometimes manifest as uniseriate, bicellular or unicellular trichomes or shaggy hairs. Adaxial hypodermis present (sometimes mucilaginous), or absent. Lamina without secretory cavities. The mesophyll containing mucilage cells (or even consisting of mucilaginous cells), or not containing mucilage cells; containing crystals, or without crystals (and rarely with crystal sand). The crystals druses, or solitary-prismatic. Minor leaf veins without phloem transfer cells (4 genera). Axial (stem, wood) anatomy. Young stems cylindrical, or oval in section. Nodes unilacunar, or tri-lacunar, or multilacunar; exhibiting on either side a trace which divides, contributing the outermost la

C:\Users\josh\Downloads\angiodata\info\geraniac.rtf

00004: dular and glandular; unicellular and multicellular (the glandular types with uniseriate stalks and spherical, multicellular heads). \b{}Lamina\b{} \b{}without secretory cavities\b{}. Minor leaf veins with phloem transfer cells (\i{}Erodium\i{}, \i{}Geranium\i{}), or without phloem transfer cells (\i{}Erodium\i{}, \i{}Geranium\i{}, \i{}Pelargonium\i{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fs2\b{}Axial (stem, wood) anatomy. \b0\fs22\fs21\fs2\b{}Pith usually homogeneous (of thin walled parenchyma). Cork cambium present; initially superficial (and in the bizarre \i{}Sarcocaulon\i{}, giving rise to several layers of easily detachable cork, the cells resin-filled). Nodes tri-**lacunar**. Primary vascular tissues in a cylinder, without separate bundles (e.g., in \i{}Erodium\i{} and shrubby species of \i{}Pelargonium\i{}), or comprising a ring of bundles, or comprising two or more rings of bundles (often exhibiting a pericyclic ring of sclerosed tissue, the bundles in herbaceous species widely separated

C:\Users\joshr\Downloads\angiodata\info\gesneria.rtf

00005: vities present (in a few genera), or absent; when present, with oil, or with resin. Cork cambium present; initially deep-seated, or initially superficial. Nodes uni**lacunar**, or tri-**lacunar**, or penta-**lacunar**; exhibiting on either side a trace which divides, contributing the outermost lateral traces to each of the opposite leaves (exemplified in species of \i{}Alloplectus\i{}, \i{}Cyrtandra\i{}, \i{}Didymocarpus\i{}, \i{}Drymonia\i{}, \i{}Didissandra\i{} and \i{}Hemiboea\i{}), or without split-lateral traces. Primary vascular tissues usually ultimately in a cylinder, without separate bundles (the bundles generally becoming united by interfascicular prosenchymatous elements); collateral. \b{}Internal phloem\b{} \b{}absent\b{}. Cortical bundles present (a single one, in the stem ridge of \i{}Rhynchoglossum obliquum\i{}), or absent. Medullary bundles present (e.g. \i{}Monophyllaea\i{}, \i{}Rhynchoglossum\i{}), or absent. Secondary thickening developing from a conventional cambial ring.\par\pard\plain\qj

C:\Users\joshr\Downloads\angiodata\info\gisekiac.rtf

00003: l. Stomata present; anomocytic. \b{}Cystoliths\b{} \b{}present\b{}.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fs2\b{}Axial (stem, wood) anatomy. \b0\fs22\fs21\fs2\b{}Nodes uni**lacunar**. Secondary thickening developing from a conventional cambial ring.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fs2\b{}The vessel end-walls simple.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fs2\b{}Reproductive type, pollination. \b0\fs22\fs21\fs2\b{}Fertile flowers\b{} \b{}functionally male, or functionally female\b{}. Unisexual flowers present. Plants dioecious.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fs2\b{}Inflorescence, floral, fruit and seed morphology. \b0\fs22\fs21\fs2\b{}Flowers aggregated in inflorescences; in cymes. The ultimate inflorescence units cymose. Inflorescences axillary; loose to dense axillary cymes. Flowers bracteate; bracteolate; pedicellate to sessile, small; regular. Floral receptacle with neither androphore nor gynophore. Free hypanthium absent.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fs2\b{}Reproductive type, pollination.

C:\Users\joshr\Downloads\angiodata\info\globular.rtf

00003: sent; eglandular and glandular (the glandular hairs with a short stalk cell, and a head partitioned vertically into 2(4) cells); multicellular. \b{}The mesophyll\b{} \b{}with sclerenchymatous idioblasts\b{}. Minor leaf veins with phloem transfer cells (\i{}Globularia\i{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fs2\b{}Axial (stem, wood) anatomy. \b0\fs22\fs21\fs2\b{}Nodes uni**lacunar**. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays lacking.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fs2\b{}The vessel end-walls simple. The axial xylem with libriform fibres. Included phloem absent.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fs2\b{}Reproductive type, pollination. \b0\fs22\fs21\fs2\b{}Unisexual flowers absent. Plants hermaphrodite.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fs2\b{}Inflorescence, floral, fruit and seed morphology. \b0\fs22\fs21\fs2\b{}Flowers ag

C:\Users\joshr\Downloads\angiodata\info\gomorteg.rtf

00003: ambium present; initially superficial. Nodes uni**lacunar** (with two traces). Internal phloem absent. Secondary thickening developing from a conventional cambial ring.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fs2\b{}The vessel end-walls scalariform. The axial xylem with tracheids. The parenchyma apotracheal. Included phloem absent.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fs2\b{}Reproductive type, pollination. \b0\fs22\fs21\fs2\b{}Unisexual flowers absent. Plants hermaphrodite.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fs2\b{}Inflorescence, floral, fruit and seed morphology. \b0\fs22\fs21\fs2\b{}Flowers aggregated in inflorescences; in racemes. The ultimate inflorescence units racemose. Inflorescences terminal and axillary; racemes. \b{}Flowers\b{} (bi-) bracteolate; rather small to medium-sized; regular; \b{}partially acyclic\b{}. The perianth acyclic and the androecium acyclic (spiralised). Free hypanthium absent.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fs2\b{}Perianth\i{} sepaline; (5)7(9);

C:\Users\joshr\Downloads\angiodata\info\goodenia.rtf

00004: renchymatous idioblasts\b{}; containing crystals (but usually relatively few). The crystals druses and solitary-prismatic. Main veins seldom accompanied by sclerenchyma. Minor leaf veins without phloem transfer cells (\i{}Goodenia\i{}, \i{}Lechenaultia\i{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\fs21\fs2\b{}Axial (stem, wood) anatomy. \b0\fs22\fs21\fs2\b{}Secretory cavities absent. Cork cambium present; initially deep-seated, or initially superficial. Nodes uni**lacunar**, or tri-**lacunar**, or penta-**lacunar**. Primary vascular tissues in a cylinder, without separate bundles (in the woodier forms), or comprising a ring of bundles (most herbaceous species,

especially of *Goodenia*, having poorly developed vascular bundles, depending for support on a cylinder of thick-walled sclerenchyma); collateral. Internal phloem absent. Medullary bundles present (sometimes, representing leaf traces), or absent. Secondary thickening absent (in some herbs?), or developing from a conventional cambial ring, or anomalous. The

C:\Users\joshir\Downloads\angiodata\info\greyiace.rtf

00003: *tate*. Leaf anatomy. Stomata present; anomocytic. The mesophyll containing crystals. The crystals raphides, or raphides and druses. Minor leaf veins without phloem transfer cells. Axial (stem, wood) anatomy. Nodes multilacunar. Internal phloem absent. Secondary thickening developing from a conventional cambial ring. The axial xylem with vessels. The vessel end-walls simple. The axial xylem with libriform fibres. The parenchyma scanty paratracheal (and a few diffusely scattered cells). Included phloem absent. Reproductive type, pollination. Unisexual flowers absent. Plants hermaphrodite. Inflorescence, floral, fruit and seed morphology. Flowers aggregated in inflorescences;

C:\Users\joshir\Downloads\angiodata\info\griselin.rtf

00003: prolonged upwards into a short, ligule-like process). Vegetative buds scaly. General anatomy. Plants without crystal sand. Leaf anatomy. The leaf lamina dorsiventral (the palisade 2-layered). Stomata present; mainly confined to one surface (the lower); cyclocytic. Hairs absent (leaves glabrous). Adaxial hypodermis present. Lamina without secretory cavities. The mesophyll with sclerenchymatous idioblasts; containing crystals. The crystals druses (numerous). Minor leaf veins without phloem transfer cells. Axial (stem, wood) anatomy. Secretory cavities absent. Cork cambium present; initially superficial. Nodes trilacunar, or multilacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bu

C:\Users\joshir\Downloads\angiodata\info\grossula.rtf

00004: *sensu lato*. Hairs present; eglandular and glandular; unicellular and multicellular. Complex hairs present (the hairs mostly unicellular, but shaggy trichomes with multiseriate stalks of variable lengths and spherical or peltate heads also occur). The mesophyll containing crystals, or without crystals (? - druses being common in the petioles). Minor leaf veins without phloem transfer cells (1 species). Axial (stem, wood) anatomy. Pith often stellate in outline, homogeneous, or heterogeneous. Secretory cavities absent. Cork cambium present; initially deep-seated. Nodes unilacunar, or trilacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. The wood ring porous (at least sometimes), or semi-ring porous to diffuse porous. T

C:\Users\joshir\Downloads\angiodata\info\grubbiac.rtf

00003: *rface* (abaxial); anomocytic. Hairs present; exclusively eglandular; unicellular. Unicellular hairs simple (sometimes with verrucose thickenings). Complex hairs absent. Axial (stem, wood) anatomy. Cork cambium present; initially superficial. Nodes trilacunar. Secondary thickening developing from a conventional cambial ring. The vessel end-walls oblique; scalariform. The axial xylem with tracheids; with fibre tracheids. The parenchyma scanty, diffuse. Root anatomy. Lateral roots without a conspicuous endodermis. Reproductive type, pollination. Unisexual flowers absent. Plants hermaphrodite. Inflorescence, floral, fruit and seed morphology. Flowers aggregated in inflorescences

C:\Users\joshir\Downloads\angiodata\info\guttifer.rtf

00005: *k* cambium present; initially deep-seated, or initially superficial. Nodes unilacunar. Primary vascular tissues comprising a ring of bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring (mostly), or anomalous (? of the foraminate type, reported in *Endodesmia*). Primary medullary rays narrow. The wood diffuse porous (to no more than slightly ring porous in *Hypericum*). The vessels small to medium; solitary, or radially paired, or in radial multiples, or in tangential arcs. The vessel end-walls simple, or scalariform and simple. The vessels without vested pits. The axial xylem with tracheids (usually), or without tracheids (?); very commonly with vasicentric tracheids, or without vasicentric tracheids; with fibre tracheids, or without fibre tracheids; with libriform fibres, or without libriform fibres; including septate fi

C:\Users\joshir\Downloads\angiodata\info\gyrocarp.rtf

00003: ial); anomocytic. Hairs present; exclusively eglandular; unicellular. Unicellular hairs simple. Complex hairs absent. Adaxial hypodermis present, or absent. Lamina without secretory cavities. \b{}Cystoliths\b{} \b{}present (spherical in \i{}Gyrocarpus\i{}), radiately branched in \i{}Sparattanthelium\i{})\b{}. The mesophyll with spherical etherial oil cells; not containing mucilage cells; containing crystals. The crystals small, acicular.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22{}Secretory cavities absent. Cork cambium present; initially superficial. Nodes unilacunar (with two traces). Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood diffuse porous. The vessels medium; mostly solitary, or radially paired, in radial multiples, a

C:\Users\joshr\Downloads\angiodata\info\hamameli.rtf

00004: r leaf veins without phloem transfer cells (\i{}Disanthus\i{}), \i{}Parrotia\i{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22{}Secretory cavities absent. Cork cambium present; initially superficial. Nodes tri-lacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow (uni- or biseriate).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood diffuse porous. The vessels small; solitary (commonly, exclusively), or solitary, radially paired, and in radial multiples. The vessel end-walls scalariform, or reticulately perforated and scalariform. The vessels without vested pits; with spiral thickening, or without spiral thickening. The axial xylem with tracheids, or without tracheids; without vasicentric tracheids; with fibre tracheids (usually), or without fibre

C:\Users\joshr\Downloads\angiodata\info\helwingi.rtf

00003: \fs22{}\fs21\f2\b{}General anatomy. \b0\fo\fs22{}Plants without crystal sand.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Leaf anatomy. \b0\fo\fs22{}\i{}The leaf lamina\i{} dorsiventral (but the palisade scarcely differentiated). Stomata present; mainly confined to one surface (abaxial); anomocytic. Hairs absent (leaves glabrous). Lamina without secretory cavities. The mesophyll without crystals. Main veins embedded. Minor leaf veins without phloem transfer cells.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22{}Secretory cavities absent. Nodes unilacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood diffuse porous. The vessel end-walls scalariform. The axial xylem without fibre trach

C:\Users\joshr\Downloads\angiodata\info\hernandi.rtf

00003: \fi340\fs22{}\fs21\f2\b{}Leaf anatomy. \b0\fo\fs22{}\i{}The leaf lamina\i{} mostly dorsiventral. Stomata present; mainly confined to one surface (abaxial); mostly paracytic. Hairs present; eglandular (usually exclusively, then nearly always unicellular and lignified, occasionally bracket-shaped), or eglandular and glandular (at least in \i{}Illigera\i{}), the glands having unicellular stalks and bicellular heads). Complex hairs absent. Adaxial hypodermis present, or absent. Lamina with secretory cavities, or without secretory cavities. Secretory cavities containing oil, or containing mucilage. Cystoliths seemingly absent (?). The mesophyll always with spherical etherial oil cells; containing mucilage cells (in \i{}Hernandia\i{}), or not containing mucilage cells.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22{}Cork cambium present; at least in \i{}Hernandia\i{}, initially deep-seated (towards the outside of the primary cortex). Nodes unilacunar (with three

C:\Users\joshr\Downloads\angiodata\info\himantan.rtf

00003: side). Hairs present. Complex hairs present (dense, on the under-surface); peltate (fimbriate). The mesophyll with spherical etherial oil cells.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22{}\i{}Young stems\i{} with solid internodes. Pith with diaphragms to without diaphragms (with groups of stone cells tending to form transverse diaphragms); heterogeneous. Cork cambium present; initially superficial. \b{}Nodes\b{} \b{}tri-lacunar, or bilacunar (? - but with three traces, according to Lammers \i{}et al.\i{} 1986)\b{}. Primary vascular tissues comprising a ring of bundles (at first), or in a cylinder, without separate bundles (subsequently); collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays mostly only one cell wide.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood diffuse porous. The vessels medium; solitary, radially paired

C:\Users\joshr\Downloads\angiodata\info\hippocas.rtf

00003: crenate, or serrate. Vegetative buds scaly (and usually sticky). Domatia occurring in the family; manifested as hair tufts.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Leaf anatomy. \b0\fo\fs22{}\i{}The leaf lamina\i{} dorsiventral. Hairs present; unicellular and multicellular. Unicellular hairs simple. Multicellular hairs uniseriate. Complex hairs absent. The mesophyll containing crystals. The crystals druses and solitary-prismatic. Main veins vertically transcurrent, or embedded. Minor leaf veins with phloem transfer cells (\i{}Aesculus\i{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22{}Cork cambium present. Nodes tri-lacunar, or multi-lacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent.

Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow (uniseriate only, or some biseriate in \i{}Billi

C:\Users\joshir\Downloads\angiodata\info\huaceae.rtf

00003: xial (stem, wood) anatomy. \b0\fo\fs22{}Secretory cavities absent. Nodes tri-**lacunar**. Internal phloem absent. Secondary thickening developing from a conventional cambial ring.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The vessel end-walls oblique; simple, or scalariform and simple. The vessels without vested pits. The parenchyma paratracheal. Included phloem absent.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Reproductive type, pollination. \b0\fo\fs22{}Unisexual flowers absent. Plants hermaphrodite.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Inflorescence, floral, fruit and seed morphology. \b0\fo\fs22{}b{}Flowers\b0{} solitary, or aggregated in inflorescences; when solitary, axillary; \b{}when aggregated, \b0{}b{}in fascicles (these few flowered)\b0{}. Inflorescences axillary. Flowers small; calyptrate, or not calyptrate; regular; cyclic; tetracyclic. Free hypanthium absent. Hypogynous disk absent.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\i{}Perianth\i0{

C:\Users\joshir\Downloads\angiodata\info\hugoniaceae.rtf

00003: ytic. \b{}The mesophyll\b0{} \b{}with sclerenchymatous idioblasts\b0{}.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22{}Nodes tri-**lacunar**. Primary vascular tissues in a cylinder, without separate bundles; collateral. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood diffuse porous. The vessels medium; solitary, radially paired, and in radial multiples. The vessel end-walls scalariform and simple, or scalariform, or simple. The vessels without vested pits; without spiral thickening. The axial xylem with tracheids; with vasicentric tracheids; with fibre tracheids; without septate fibres. The fibres without spiral thickening. The parenchyma apotracheal (confluent); wood not storied.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Reproductive type, pollination. \b0\fo\fs22{}b{}Fertile flowers\b0{} \b{}hermaphrodite\b0{}. Unisexual flowers absen

C:\Users\joshir\Downloads\angiodata\info\hydrophy.rtf

00004: esophyll containing crystals (but infrequent). The crystals druses. Minor leaf veins with phloem transfer cells (5 genera), or without phloem transfer cells (\i{}Wigandia\i0{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22{}Cork cambium present; initially superficial. Nodes uni**lacunar**. Primary vascular tissues variously in a cylinder, without separate bundles, or comprising a ring of bundles; collateral. \b{}Internal phloem\b0{} \b{}absent\b0{}. Cortical bundles absent. Medullary bundles absent. Secondary thickening absent (sometimes?), or developing from a conventional cambial ring.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood semi-ring porous, or diffuse porous. The vessel end-walls simple. The vessels without spiral thickening. The axial xylem with tracheids, or without tracheids; without vasicentric tracheids; with fibre tracheids; without septate fibres. The fibres without spiral thickening. \b{}The parenchyma\b0{} \b{}apotracheal (diffuse

C:\Users\joshir\Downloads\angiodata\info\icacinaceae.rtf

00004: mis present, or absent. Stomata anomocytic, or anisocytic, or paracytic. Hairs of assorted unicellular and multicellular forms present. Urticating hairs present (e.g., in \i{}Phytocrene\i0{}), or absent. Lamina with secretory cavities, or without secretory cavities. Secretory cavities when present, containing latex. The mesophyll with sclerenchymatous idioblasts, or without sclerenchymatous idioblasts. Minor leaf veins without phloem transfer cells (\i{}Cassinopsis\i0{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22{}The cortex containing cristarque cells, or without cristarque cells. Secretory cavities present, or absent; when present, with latex. Cork cambium present; initially superficial. Nodes variously uni**lacunar**, or tri-**lacunar**. Primary vascular tissues in a cylinder, without separate bundles, or comprising a ring of bundles, or comprising two or more rings of bundles, or consisting of scattered bundles (?); collateral, or bicollateral (recorded in

C:\Users\joshir\Downloads\angiodata\info\idiosper.rtf

00003: tomy. \b0\fo\fs22{}Nodes uni**lacunar** (with a single trace). Cortical bundles present (when young with four inverted vascular bundles in the pericycle or cortex). Secondary thickening developing from a conventional cambial ring (?).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The vessel end-walls scalariform.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Reproductive type, pollination. \b0\fo\fs22{}Unisexual flowers absent. Plants hermaphrodite.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Inflorescence, floral, fruit and seed morphology. \b0\fo\fs22{}Flowers solitary, or aggregated in inflorescences (in 13 flowered inflorescences). Inflorescences terminal, or axillary. \b{}Flowers\b0{} bracteate (the peduncle with several decussate bracts); regular; \b{}acyclic\b0{}. The perianth acyclic and the androecium acyclic, or the perianth acyclic, the androecium acyclic, and the gynoecium acyclic. Floral receptacle markedly hollowed. Free hypanthium present.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The

C:\Users\joshir\Downloads\angiodata\info\illiciaceae.rtf

00003: na\i0{} dorsiventral. Stomata present; mainly confined to one surface (abaxial); anomocytic (occasionally), or paracytic (usually). \b{}The mesophyll\b0{} \b{}with spherical etherial oil cells\b0{}. Minor leaf veins without phloem transfer cells.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood)

anatomy. \b0f0fs22{\i{}}Young stems\i0{} with solid internodes. Pith homogeneous (but with the central cells thinner-walled). Nodes unilacunar (with one trace). Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340fs22{}The wood diffuse porous. The vessels very to moderately small; solitary. The vessel end-walls reticulately perforated and scalariform. The axial xylem with tracheids; including septate fibres. The parenchyma sparse paratracheal. Included phloem absent. The wood not storied. Tyloses pres

C:\Users\joshir\Downloads\angiodata\info\juglanda.rtf

00004: ins without phloem transfer cells

(\i{}}Juglans\i0{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340fs22{\fs21\f2\b{}}Axial (stem, wood) anatomy. \b0f0fs22{}Pith with diaphragms, or without diaphragms. Secretory cavities absent (but often with scattered secretory cells). Cork cambium present; initially superficial. Nodes tri-lacunar, or multilacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340fs22{}The wood diffuse porous, or ring porous to semi-ring porous. The vessels usually medium (or slightly larger); in various arrangements, but usually mostly solitary. The vessel end-walls simple, or scalariform and simple. The vessels without vested pits; with spiral thickening, or without spiral thickening. The axial xylem with tracheids, or without tracheids; without vasi

C:\Users\joshir\Downloads\angiodata\info\julianac.rtf

00003: onfined to one surface (abaxial); anomocytic. Hairs present (often forming a dense covering on both leaf surfaces); eglandular, or glandular (the latter always present, variously shaped); unicellular and multicellular. Adaxial hypodermis absent. Lamina with secretory cavities (in the phloem). Secretory cavities containing resin (the juice supposedly not latex, though milky); schizogenous. The mesophyll containing crystals. The crystals exclusively druses.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340fs22{\fs21\f2\b{}}Axial (stem, wood) anatomy. \b0f0fs22{}Secretory cavities present (in cortex, phloem and pith); with resin (with thick, milky juice). Cork cambium present; initially superficial. Nodes tri-lacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays mixed wide and narrow.\par\pard\plain\qj\s22\sb0\sa0\li0\fi

C:\Users\joshir\Downloads\angiodata\info\labiatae.rtf

00005: loem transfer cells (8 genera).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340fs22{\fs21\f2\b{}}Axial (stem, wood) anatomy. \b0f0fs22{\b{}}Young stems\b0{} \b{}usually \b0{}\b{}tetragonal\b0{}; with solid internodes, or with spongy internodes, or with hollow internodes. Pith with crystalline inclusions, or without crystalline inclusions. Secretory cavities absent. Cork cambium present; initially deep-seated, or initially superficial. Nodes unilacunar (with 1 or 2 traces). Primary vascular tissues at first comprising a ring of bundles (four, one in each corner of the stem), or in a cylinder, without separate bundles (subsequently); collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays wide, or mixed wide and narrow, or narrow.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340fs22{}The wood semi-ring porous, or diffuse porous. The vessels small (sometimes extremely so); solitary (rarely, e.g. \i{}}Hosl

C:\Users\joshir\Downloads\angiodata\info\lactorid.rtf

00003: therial oil cells.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340fs22{\fs21\f2\b{}}Axial (stem, wood) anatomy. \b0f0fs22{}Nodes unilacunar (with two traces). Primary vascular tissues comprising a ring of bundles (separated by rays 23 cells wide); collateral. Internal phloem absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays wide (and high).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340fs22{}The wood diffuse porous. The vessels small; solitary, radially paired, and in radial multiples. The vessel end-walls horizontal; simple. The vessels without spiral thickening. The axial xylem with fibre tracheids; with libriform fibres; without septate fibres. The parenchyma diffuse to apotracheal. Included phloem absent. The wood not storied.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340fs22{\fs21\f2\b{}}Reproductive type, pollination. \b0f0fs22{}Unisexual flowers present. \b{}Plants\b0{} \b{}polygamodioecious\b0{}.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340fs22{\fs21\f2\b{}}Inflo

C:\Users\joshir\Downloads\angiodata\info\lardizab.rtf

00003: nulate. Leaves usually exstipulate.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340fs22{\fs21\f2\b{}}General anatomy. \b0f0fs22{}Plants with laticifers (\i{}}Decaisnea\i0{}), or without laticifers. The laticifers of \i{}}Decaisnea\i0{} only in the fruits.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340fs22{\fs21\f2\b{}}Leaf anatomy. \b0f0fs22{}Abaxial epidermis usually papillose, or not papillose (\i{}}Holboellia\i0{}). Stomata present; anomocytic. Adaxial hypodermis present (usually), or absent (\i{}}Holboellia\i0{}). The mesophyll containing crystals. The crystals druses (rarely), or solitary-prismatic (usually). Minor leaf veins without phloem transfer cells (\i{}}Holboellia\i0{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340fs22{\fs21\f2\b{}}Axial (stem, wood) anatomy. \b0f0fs22{\i{}}Young stems\i0{} with solid internodes. Pith homogeneous (the peripheral cells sometimes thicker-walled). Cork cambium present; initially superficial. Nodes tri-lacunar. Primary vascular tissues comprising a ring of bundles; collateral.

C:\Users\joshir\Downloads\angiodata\info\lauracea.rtf

00004: s). Minor leaf veins without phloem transfer cells (*Cinnamomum*, *Laurus*, *Persea*). Axial (stem, wood) anatomy. Cork cambium present (generally becoming active late); initially superficial (usually), or initially deep-seated. Nodes **unilacunar** (with two or three traces). Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow (usually), or mixed wide and narrow. The wood ring porous (rarely, e.g. sometimes in *Sassafras*), or diffuse porous. The vessels small (in a few species), or medium (mostly); solitary, radially paired, and in radial multiples, or in tangential arcs (mostly solitary and in numerous small radial multiples, but multiples of 4 or more cells and oblique ro

C:\Users\joshir\Downloads\angiodata\info\lecythid.rtf

00003: ar. General anatomy. Plants with silica bodies. Leaf anatomy. The leaf lamina dorsiventral. Stomata mainly confined to one surface (abaxial, usually), or on both surfaces; usually **anisocytic**. Hairs present; eglandular; simple, unicellular, or multicellular. Unicellular hairs simple (occasionally tufted). Adaxial hypodermis usually absent. Lamina without secretory cavities. The mesophyll containing crystals. The crystals druses and solitary-prismatic. Axial (stem, wood) anatomy. Cork cambium present; initially superficial. Nodes **unilacunar**. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles present (these usually conventionally orientated). Medullary bundles absent. Secondary thickening developing fro

C:\Users\joshir\Downloads\angiodata\info\legumino.rtf

00006: *Albizia*, *Adenanthera*, *Dichrostachys*, *Enterolobium*, *Leucaena*, *Pithecellobium*, *Prosopis* and *Wallaceodendron*. Axial (stem, wood) anatomy. Secretory cavities present, or absent. Cork cambium present (usually), or absent; initially deep-seated, or initially superficial. Nodes **tri-lacunar**, or penta-lacunar. Primary vascular tissues in a cylinder, without separate bundles, or comprising a ring of bundles. Internal phloem absent. Cortical bundles present, or absent. Medullary bundles absent. Secondary thickening absent, or developing from a conventional cambial ring, or anomalous. The anomalous secondary thickening when present, via concentric cambia (e.g. *Koompassia*, *Derris*, *Mucuna*, *Wisteria*). The vessel end-walls simple. The vessels with vested pits, or without vested pits. The axial xy

C:\Users\joshir\Downloads\angiodata\info\leitneri.rtf

00003: dorsiventral. Stomata present; anomocytic. Hairs present; eglandular and glandular (the former simple, uniseriate, often with bulbous bases, sometimes paired with bases sunken; the latter with biseriate stalks and clavate rather than capitate); multicellular. Unicellular hairs simple. Lamina with secretory cavities. Secretory cavities containing resin (in the veins, also in the petioles); schizogenous (epithelium-lined). The mesophyll containing crystals. The crystals druses. Axial (stem, wood) anatomy. Secretory cavities present; with resin (in the pith). Cork cambium present; initially superficial. Nodes **tri-lacunar**. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow (uniseriate, or a few biseriate).

C:\Users\joshir\Downloads\angiodata\info\linaceae.rtf

00004: taining cristarque cells, or without cristarque cells. Nodes **tri-lacunar**. Primary vascular tissues in a cylinder, without separate bundles, or comprising a ring of bundles (then the bundles distinct but close together); collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow. The wood diffuse porous. The vessels medium; usually exclusively solitary. The vessel end-walls exclusively or predominantly simple. The vessels without vested pits; without spiral thickening. The axial xylem with tracheids; commonly with vasicentric tracheids; with fibre tracheids; without libriform fibres; without septate fibres. The fibres without spiral thickening. The parenchyma apotracheal, or paratracheal, or apotracheal and paratracheal (often difficult to classify); wood not storied. Tyloses usually absent.

C:\Users\joshir\Downloads\angiodata\info\loganiac.rtf

00004: e another, or conrescent; with colleters, or without colleters; often much reduced. Plants without crystal sand. Leaf anatomy. The leaf lamina dorsiventral, or bifacial. Extra-floral nectaries absent. Mucilaginous epidermis present, or absent. Hairs present, or absent; eglandular. Complex hairs absent. The mesophyll with sclerenchymatous idioblasts, or without sclerenchymatous idioblasts. Axial (stem, wood) anatomy. Young stems cylindrical. Secretory cavities absent. Cork cambium present; initially superficial. Nodes **unilacunar** (with 1several traces), or **tri-lacunar**, or **multi-lacunar**. Primary vascular

idioblasts\{b0\}; containing crystals. The crystals raphides. Minor leaf veins without phloem transfer cells (\{i\}Norantea\i0\}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\f2\b\}Axial (stem, wood) anatomy. \b0\fo\fs22\}\i\}Young stems\i0\} with solid internodes. Pith homogeneous, or heterogeneous (consisting of thin-walled cells, often often with branched idioblasts interspersed). Cork cambium present; initially superficial. Nodes unilacunar. Primary vascular tissues in a cyli

C:\Users\josh\Downloads\angiodata\info\medusagy.rtf

00003: mesophyll containing mucilage cells; without sclerenchymatous idioblasts; containing crystals (around the midrib and main vascular bundles). The crystals druses. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\f2\b\}Axial (stem, wood) anatomy. \b0\fo\fs22\}The cortex without cristarque cells. Secretory cavities absent. Cork cambium present; initially superficial (subepidermally). \b\}Nodes\b0\} \b\}multi\lacunar\b0\}. Primary vascular tissues in a cylinder, without separate bundles to comprising a ring of bundles; collateral. Internal phloem absent. Cortical bundles present. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring, or anomalous (?). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}The wood diffuse porous. The vessels small; mostly solitary. The vessel end-walls simple. The vessels without vested pits; without spiral thickening. The secondary phloem stratified into hard (fibrous) and soft (parenchymatous) zones. Included phloem absent. \par\pard\plain\

C:\Users\josh\Downloads\angiodata\info\melastom.rtf

00004: ate, or clavate, or capitate (often shaggy). Lamina without secretory cavities. The mesophyll with sclerenchymatous idioblasts (commonly), or without sclerenchymatous idioblasts; containing crystals. The crystals druses (mostly), or raphides (occasionally). Main veins vertically transcurrent, or embedded. Minor leaf veins without phloem transfer cells (\{i\}Heterocentron\i0\}, \{i\}Medinilla\i0\}, \{i\}Tibouchina\i0\}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\f2\b\}Axial (stem, wood) anatomy. \b0\fo\fs22\}Young stems often tetragonal. The cortex containing cristarque cells (Osbeckieae), or without cristarque cells. Secretory cavities absent (but secretory cells with undetermined contents common). Cork cambium present; initially deep-seated, or initially superficial. Nodes unilacunar. Primary vascular tissues in a cylinder, without separate bundles; bicollateral. \b\}Internal phloem\b0\} \b\}seemingly universally \b0\}\b\}present\b0\}. Cortical bundles present (often), or absent. Medullary bundles pr

C:\Users\josh\Downloads\angiodata\info\meliaceae.rtf

00005: erficial. \b\}Nodes\b0\} \b\}mostly \b0\}\b\}penta-lacunar\b0\}. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}The wood diffuse porous (usually), or ring porous to semi-ring porous. The vessels from very small to medium, or large; radially paired to in radial multiples, or clustered, or in tangential arcs. The vessel end-walls simple. The vessels without vested pits. The axial xylem with tracheids, or without tracheids (?); without vasicentric tracheids; with fibre tracheids, or without fibre tracheids; with libriform fibres, or without libriform fibres; including septate fibres, or without septate fibres. The fibres without spiral thickening. The parenchyma apotracheal, or paratracheal. The secondary phloem stratified into hard (fibrous) and soft (parenchymatous) zones, or not stratified.

C:\Users\josh\Downloads\angiodata\info\melianth.rtf

00003: is absent. Stomata present; mainly confined to one surface (abaxial); anomocytic. Hairs present (at least sometimes), or absent (?). Complex hairs stellate (in \{i\}Melianthus\i0\}), or peltate. The mesophyll containing crystals. The crystals solitary-prismatic (notably styloids, often on the boundary between palisade and mesophyll). Minor leaf veins without phloem transfer cells (\{i\}Bersama\i0\}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\f2\b\}Axial (stem, wood) anatomy. \b0\fo\fs22\}Secretory cavities absent. Cork cambium present; initially deep-seated. \b\}Nodes\b0\} \b\}multi\lacunar\b0\}. Primary vascular tissues comprising a ring of bundles (at first, these widely separated), or comprising a ring of bundles (later); collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles present (these concentric, each consisting of a central strand of phloem surrounded by a ring of fibres, rarely with a few isolated vessels: see illustration). Secondary thickening developing from a con

C:\Users\josh\Downloads\angiodata\info\memecyla.rtf

00003: \b\}paracytic (at least in \{i\}Memecylon\i0\})\b0\}. Lamina without secretory cavities. The mesophyll with sclerenchymatous idioblasts, or without sclerenchymatous idioblasts; containing crystals. The crystals druses and solitary-prismatic (often with styloids). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\f2\b\}Axial (stem, wood) anatomy. \b0\fo\fs22\}Young stems cylindrical, or oval in section. Secretory cavities absent. Cork cambium present; initially deep-seated, or initially superficial. Nodes unilacunar. Primary vascular tissues in a cylinder, without separate bundles; often bicollateral. \b\}Internal phloem\b0\} \b\}present\b0\}. Cortical bundles absent (always? 2 genera listed by Metcalfe and Chalk 1950). Medullary bundles absent (at least from the 2 genera listed by Metcalfe and Chalk 1950). Secondary thickening developing from a conventional cambial ring, or anomalous. The anomalous secondary thickening from a single cambial ring. Primary medullary rays wide, or mixed wide and narrow, o

C:\Users\josh\Downloads\angiodata\info\menisper.rtf

00004: hin transverse septa), or without diaphragms; homogeneous to heterogeneous. Cork cambium present; initially deep-seated, or initially superficial. Nodes tri-lacunar. Primary vascular tissues comprising a ring of

bundles (the bundles in young stems distinct in stem sections even to the unaided eye); collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening anomalous (usually), or developing from a conventional cambial ring. The anomalous secondary thickening when manifest, mostly via concentric cambia (but often eccentric, see illustration). Primary medullary rays wide. The axial xylem with vessels. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{ }The wood diffuse porous. The vessels small to medium; solitary, radially paired, and in radial multiples (but mostly solitary). The vessel end-walls horizontal to oblique (slightly oblique); simple. The vessels without spiral thickening. The axial xylem with tracheids; without septate fibres. The fibres without spiral t

C:\Users\joshir\Downloads\angiodata\info\menyanth.rtf

00003: sa0\li0\fi340\fs22\{ }\fs21\f2\b\{ }Leaf anatomy. \b0\fo\fs22\{ }\i\{ }The leaf lamina\i0\{ } dorsiventral, or bifacial (isobilateral). Hydathodes present. Stomata present; on both surfaces (usually), or mainly confined to one surface (then adaxial, on floating leaves of \i\{ }Nymphoides\i0\{ }); anomocytic. The mesophyll with sclerenchymatous idioblasts (in three of the genera), or without sclerenchymatous idioblasts; without crystals. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{ }\fs21\f2\b\{ }Axial (stem, wood) anatomy. \b0\fo\fs22\{ }Nodes tri-**lacunar**, or penta-**lacunar**. \b\{ }Primary vascular tissues\b0\{ } \b\{ }comprising a ring of bundles\b0\{ }; except sometimes in cortical bundles collateral. Internal phloem absent. Cortical bundles present (in \i\{ }Nymphoides\i0\{ } and \i\{ }Villarsia\i0\{ }, sometimes inversely orientated), or absent. Medullary bundles absent. Secondary thickening absent, or developing from a conventional cambial ring. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{ }The vessel end-walls simple, or scalariform an

C:\Users\joshir\Downloads\angiodata\info\mimosoid.rtf

00005: 0\sa0\li0\fi340\fs22\{ }\fs21\f2\b\{ }Axial (stem, wood) anatomy. \b0\fo\fs22\{ }Secretory cavities present, or absent. Cork cambium present (usually), or absent; initially deep-seated, or initially superficial. Nodes tri-**lacunar**, or penta-**lacunar**. Primary vascular tissues in a cylinder, without separate bundles, or comprising a ring of bundles. Internal phloem absent. Cortical bundles present, or absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{ }The vessel end-walls simple. The vessels with vestured pits, or without vestured pits (?). The axial xylem at least sometimes including septate fibres, or without septate fibres. The parenchyma apotracheal, or paratracheal (?). The secondary phloem stratified into hard (fibrous) and soft (parenchymatous) zones, or not stratified (?). Included phloem present, or absent (?). \b\{ }The wood\b0\{ } \b\{ }storied, or partially storied (VPI)\b0\{ }. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{ }

C:\Users\joshir\Downloads\angiodata\info\mollugin.rtf

00003: , or exstipulate. Stipules caducous, or persistent. Leaf development not gramineaceous. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{ }\fs21\f2\b\{ }Leaf anatomy. \b0\fo\fs22\{ }\i\{ }The leaf lamina\i0\{ } dorsiventral, or bifacial, or centric. Stomata present; anomocytic. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{ }\fs21\f2\b\{ }Axial (stem, wood) anatomy. \b0\fo\fs22\{ }\b\{ }Nodes\b0\{ } \b\{ }uni**lacunar**\b0\{ }. Internal phloem absent. \b\{ }Secondary thickening\b0\{ } \b\{ }anomalous\b0\{ }. The anomalous secondary thickening via concentric cambia. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{ }The vessel end-walls simple. Included phloem absent. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{ }\fs21\f2\b\{ }Reproductive type, pollination. \b0\fo\fs22\{ }Unisexual flowers present, or absent. Plants hermaphrodite (usually), or monoecious. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{ }\fs21\f2\b\{ }Inflorescence, floral, fruit and seed morphology. \b0\fo\fs22\{ }Flowers solitary, or aggregated in inflorescences; when aggregated, i

C:\Users\joshir\Downloads\angiodata\info\monimiac.rtf

00004: 2\b\{ }Axial (stem, wood) anatomy. \b0\fo\fs22\{ }Cork cambium present; initially superficial. Nodes uni**lacunar** (with one to several traces). Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow, or wide (expanded distally in \i\{ }Peumus\i0\{ }). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{ }The wood diffuse porous. The vessels small, or small to medium; solitary, radially paired, and in radial multiples (mostly solitary, but always with a few small radial multiples). The vessel end-walls slightly to very oblique; scalariform, or reticulately perforated, or simple (rarely). The vessels without vestured pits; with spiral thickening, or without spiral thickening. The axial xylem with tracheids; with fibre tracheids, or without fibre tracheids; with libriform fibres, or without libriform fibres; seemingly always including sept

C:\Users\joshir\Downloads\angiodata\info\monotrop.rtf

00003: ulvinate. Lamina entire; with greatly reduced vascular tissue. Leaves exstipulate. Lamina margins entire. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{ }\fs21\f2\b\{ }Leaf anatomy. \b0\fo\fs22\{ }Stomata present, or absent; when present, mainly confined to one surface (abaxial). Hairs present; eglandular and glandular; unicellular and multicellular (with unicellular non-glandular, and stalked and shaggy glandular forms recorded). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{ }\fs21\f2\b\{ }Axial (stem, wood) anatomy. \b0\fo\fs22\{ }Nodes uni**lacunar**. Primary vascular tissues in a cylinder, without separate bundles, or comprising a ring of bundles; collateral. Secondary thickening absent, or developing from a conventional cambial ring (if present, slight: the vascular system always reduced, variously comprising a ring of closed bundles embedded in prosenchymatous ground tissue or with or without a sheath of fibres). The axial xylem without vessels. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{ }The axial xylem with tr

C:\Users\joshr\Downloads\angiodata\info\moraceae.rtf

00005: es tri-**lacunar**, or penta-**lacunar**. Primary vascular tissues in a cylinder, without separate bundles, or comprising a ring of bundles (usually traversed by wide primary rays, which sometimes broaden in the phloem as the secondary cylinder develops); collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ The wood ring porous to diffuse porous. The vessels large (usually medium sized); variously arranged, but often predominantly solitary. The vessel end-walls simple. The vessels without vested pits; with spiral thickening, or without spiral thickening. The axial xylem with fibre tracheids to without fibre tracheids; with libriform fibres (the fibres typically with small simple pits, but sometimes the pits exhibit slight borders); at least sometimes including septate fibres, or without septate fibres. The fibres without spiral thickening. \b\ The parenchyma\b\ \b\typ

C:\Users\joshr\Downloads\angiodata\info\myoporac.rtf

00004: ; schizogenous (epithelium lined). The mesophyll containing crystals. The crystals druses, or druses and solitary-prismatic. Minor leaf veins without phloem transfer cells (\i\Myoporum\i\}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ \fs21\f2\b\ Axial (stem, wood) anatomy. \b0\fs22\ Young stems cylindrical. Secretory cavities in primary cortex or pith present (usually, epithelium-lined), or absent (\i\Ofelia\i\}); with resin, or with oil. \b\Cork cambium\b\ present; \b\initially superficial\b\}. Nodes unil**lacunar**. Primary vascular tissues of \i\Myoporum\i\} in a cylinder, without separate bundles; collateral (usually), or bicollateral (\i\Ofelia\i\}). Internal phloem present (developing at a late stage as small strands, only in \i\Ofelia\i\}), or absent (usually). Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ The wood diffuse porous. The vessels small; solitary (rarely), or radially paired, or

C:\Users\joshr\Downloads\angiodata\info\myricace.rtf

00003: \pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ \fs21\f2\b\ Leaf anatomy. \b0\fs22\ \i\ The leaf lamina\i\} dorsiventral, or dorsiventral to bifacial (tending to isobilateral in \i\M. gale\i\}). Stomata present; mainly confined to one surface (abaxial); anomocytic. Hairs present; eglandular and glandular; unicellular and multicellular. Complex hairs present; peltate (mostly with characteristic, peltate glands secreting aromatic, waxy material). Adaxial hypodermis present, or absent. Minor leaf veins without phloem transfer cells (\i\Myrica\i\}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ \fs21\f2\b\ Axial (stem, wood) anatomy. \b0\fs22\ Cork cambium present; initially superficial. Nodes tri-**lacunar**, or unil**lacunar** (rarely). Primary vascular tissues comprising a ring of bundles (in the form of a lobed ring of slightly separated bundles); collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. \b\Secondary thickening\b\ developing from a conventional cambial ring\

C:\Users\joshr\Downloads\angiodata\info\myristic.rtf

00003: , paracytic. Hairs present (in considerable diversity, but mostly interpretable as uniseriate, sympodially branched trichomes: see illustration); seemingly all eglandular; multicellular. Multicellular hairs uniseriate; branched. Complex hairs absent. Lamina usually with secretory cavities. Secretory cavities containing oil. The mesophyll with spherical etherial oil cells (at least, usually with spherical secretory cells having yellow, red or brown, liquid or crystalline contents); with sclerenchymatous idioblasts, or without sclerenchymatous idioblasts; containing crystals. The crystals solitary-prismatic (typically acicular), or druses and solitary-prismatic. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ \fs21\f2\b\ Axial (stem, wood) anatomy. \b0\fs22\ Pith with diaphragms, or without diaphragms. Cork cambium present; initially superficial. Nodes unil**lacunar** (with three traces), or bil**lacunar** (? - according to Lammers \i\et al.\i\ 1986). Primary vascular tissues in a cylinder, without

C:\Users\joshr\Downloads\angiodata\info\myrsinac.rtf

00004: phloem transfer cells (\i\Ardisia\i\}, \i\Suttonia\i\} (= \i\Rapanea\i\}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ \fs21\f2\b\ Axial (stem, wood) anatomy. \b0\fs22\ Secretory cavities commonly present; with resin (yellow or reddish-brown). Cork cambium present; initially superficial. Nodes unil**lacunar**. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays generally narrow (?). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ The wood diffuse porous (mostly), or semi-ring porous. The vessels moderately small; in radial multiples (commonly, of 34 cells), or clustered (these irregular), or in tangential arcs. The vessel end-walls simple (usually, exclusively), or scalariform and simple (occasionally in some genera). The vessels without vested pits; with spiral thickening (rarely), or without spiral thickening.

C:\Users\joshr\Downloads\angiodata\info\myrtaceae.rtf

00004: r bifacial, or dorsiventral and bifacial (e.g. in \i\Eucalyptus\i\}, \i\Eugenia\i\} species with both vertical isobilateral leaves and horizontal dorsiventral leaves), or centric. Mucilaginous epidermis present, or absent. Stomata mainly confined to one surface, or on both surfaces (commonly, in edgewise-orientated leaves); anomocytic (usually), or paracytic. Hairs present; exclusively eglandular; sometimes ostensibly multicellular (then 2-chambered), or unicellular (usually). Unicellular hairs branched (sometimes tending to be 2-armed), or simple. Lamina with secretory cavities. Secretory cavities containing oil. Minor leaf veins without phloem transfer cells (6 genera). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\ \fs21\f2\b\ Axial (stem, wood) anatomy.

\b0\f0\fs22{}Cork cambium present; initially deep-seated, or initially superficial. Nodes typically unilacunar. \b{}Primary vascular tissues\b0{} in a cylinder, without separate bundles; \b{}very commonly \b{}bicollateral\b0{}. \b{}Internal phlo

C:\Users\josh\Downloads\angiodata\info\nyctagin.rtf

00003: ; pinnately veined; cross-venulate. Leaves

exstipulate.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}General anatomy. \b0\f0\fs22{}Plants with crystal sand, or without crystal sand.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Leaf anatomy. \b0\f0\fs22{}\i{}The leaf lamina\b0{} dorsiventral, or bifacial. Hairs present; eglandular and glandular; mostly multicellular. Multicellular hairs uniseriate; branched (e.g., in \i{}Pisonia\b0{}), or simple. Complex hairs present (in \i{}Leucaster\b0{}), or absent; stellate. The mesophyll usually containing crystals. The crystals raphides, or druses, or solitary-prismatic (but usually raphides or these mixed with styloids, druses seemingly rare). Minor leaf veins without phloem transfer cells (\i{}Bougainvillea\b0{}, \i{}Oxybaphus\b0{}, \i{}Pisonia\b0{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\f0\fs22{}Cork cambium present; nearly always initially superficial. Nodes unilacunar. Primary v

C:\Users\josh\Downloads\angiodata\info\nyssacea.rtf

00003: mina\b0{} dorsiventral (with a single palisade layer). Mucilaginous epidermis present. Stomata present; mainly confined to one surface (abaxial); at least in \i{}Nyssa\b0{}, paracytic. Hairs present; glandular, or eglandular and glandular (? - not of the unicellular and 2armed type common in \i{}Cornaceae\b0{}), the glandular hairs unicellular). \b{}The mesophyll\b0{} \b{}with sclerenchymatous idioblasts (these traversing the width of the lamina)\b0{}; containing crystals. The crystals druses (only, in \i{}Nyssa\b0{}), or druses and solitary-prismatic (\i{}Camptotheca\b0{}). Main veins vertically transcurrent (via thin walled parenchyma).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\f0\fs22{}Pith with diaphragms. Secretory cavities absent. Cork cambium present; initially superficial (where observed, in \i{}Nyssa\b0{}). Nodes tri-lacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. M

C:\Users\josh\Downloads\angiodata\info\oceanopa.rtf

00004: ed secretory cells with dark-staining contents (interpreted as myrosin cells by Schmid \i{}et al\b0{})., in several rows abaxial to the midvein). The mesophyll containing mucilage cells (and seemingly the epidermis as well); seemingly without crystals. Midrib conspicuous.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\f0\fs22{}Young stems cylindrical; with solid internodes. Secretory cavities present (the pith containing a single, large secretory canal); with mucilage (?). Nodes unilacunar. Primary vascular tissues comprising a ring of bundles; collateral. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood diffuse porous. The vessel end-walls oblique; simple. The vessels without vestured pits. The axial xylem without fibre tracheids; with libriform fibres (and vasicentric tracheids). The parenchyma apotracheal and paratracheal (with apotracheal bands recorded o

C:\Users\josh\Downloads\angiodata\info\ochracea.rtf

00004: tous idioblasts; usually containing crystals. The crystals druses (mostly), or solitary-prismatic (not uncommonly). Minor leaf veins without phloem transfer cells (\i{}Ochna\b0{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\f0\fs22{}The cortex containing cristarque cells (commonly), or without cristarque cells. Secretory cavities present (commonly with sacs or passages or sometimes secretory cells in cortex or pith); with mucilage. Cork cambium present; initially superficial. Nodes tri-lacunar, or multilacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. \b{}Cortical bundles\b0{} \b{}nearly always \b{}present\b0{}. Medullary bundles present (sometimes), or absent. Secondary thickening developing from a conventional cambial ring.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood diffuse porous. The vessels small (mostly), or medium to large (in a few genera); solitary, or radially paired to in radial multiples, or in

C:\Users\josh\Downloads\angiodata\info\olacacea.rtf

00004: ntral (usually), or centric (rarely). Stomata variously mainly confined to one surface, or on both surfaces; paracytic (rarely), or anomocytic (?). Hairs present (mostly simple, but dendritic forms recorded in Couleae). Lamina with secretory cavities (in Coulieae), or without secretory cavities. \b{}Secretory cavities\b0{} \b{}containing resin\b0{}; schizogenous. The mesophyll with sclerenchymatous idioblasts (spicular fibres), or without sclerenchymatous idioblasts.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\f0\fs22{}Secretory cavities present (Coulieae), or absent; with resin. Cork cambium present; initially superficial. Nodes unilacunar, or tri-lacunar, or multilacunar (rarely). \b{}Primary vascular tissues\b0{} \b{}collateral\b0{}. Secondary thickening developing from a conventional cambial ring.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood diffuse porous. The vessels small (to very small), or medium; solitary, or solitary, radially paired, and i

C:\Users\josh\Downloads\angiodata\info\oleaceae.rtf

00004: sisting for the most part of peltate trichomes, which are sometimes glandular and may appear as transparent or sunken dots in the leaves); eglandular, or glandular. Complex hairs present; usually peltate (each comprising a unicellular stalk and an apical shield with exclusively vertical divisions). Adaxial hypodermis present (rarely), or absent. Cystoliths present (in \i{}Nyctanthes\b0{}?), or absent. The mesophyll with sclerenchymatous

idioblasts (often), or without sclerenchymatous idioblasts; containing crystals. The crystals solitary-prismatic (these small and acicular, in epidermis and/or mesophyll). Minor leaf veins without phloem transfer cells (7 genera). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fi2\b\} Axial (stem, wood) anatomy. \b0\fi0\fs22\} Pith homogeneous, or heterogeneous. Secretory cavities absent. Cork cambium present; initially deep-seated (rarely), or initially superficial. \b\} Nodes\b0\} \b\} unilacunar\b0\}. \b\} Primary vascular tissues\b0\} in a cylinder, without separate bundles

C:\Users\josh\Downloads\angiodata\info\oliniace.rtf

00003: I containing crystals. The crystals solitary-prismatic. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fi2\b\} Axial (stem, wood) anatomy. \b0\fi0\fs22\} Young stems cylindrical, or tetragonal. Cork cambium present; initially superficial. Nodes unilacunar. Primary vascular tissues in a cylinder, without separate bundles; bicollateral. \b\} Internal phloem\b0\} \b\} present\b0\}. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\} The wood diffuse porous. The vessels small; radially paired and in radial multiples (in numerous small multiples). The vessel end-walls oblique; simple. The vessels with vestured pits. The axial xylem without tracheids; without fibre tracheids; with libriform fibres; including septate fibres. The fibres without spiral thickening. The parenchyma scanty paratracheal. The secondary phloem not stratified. Included phloem absent. The wood not storied. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs

C:\Users\josh\Downloads\angiodata\info\onagrace.rtf

00004: ut secretory cavities. The mesophyll without sclerenchymatous idioblasts; containing crystals. The crystals raphides (very commonly, these sometimes accompanied or replaced by mucilage), or druses, or raphides and druses. Minor leaf veins without phloem transfer cells (6 genera). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fi2\b\} Axial (stem, wood) anatomy. \b0\fi0\fs22\} Pith often becoming hollow. Cork cambium present; initially deep-seated. Nodes unilacunar. Primary vascular tissues in a cylinder, without separate bundles; usually bicollateral. \b\} Internal phloem\b0\} \b\} usually\b0\} \b\} present\b0\}. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring, or anomalous. The anomalous secondary thickening via concentric cambia (?), or from a single cambial ring. Primary medullary rays narrow. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\} The wood diffuse porous. The vessels very to moderately small; solitary, radially paired, in radial m

C:\Users\josh\Downloads\angiodata\info\oncothec.rtf

00003: ifacial). Stomata present; mainly confined to one surface (abaxial); anomocytic, or paracytic, or tetracytic (nearly anomocytic, tending to the others). Adaxial hypodermis present. The mesophyll with sclerenchymatous idioblasts; containing crystals. The crystals druses. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fi2\b\} Axial (stem, wood) anatomy. \b0\fi0\fs22\} Cork cambium present; initially superficial (in the outer cortex). Nodes penta-lacunar. Secondary thickening developing from a conventional cambial ring. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\} The vessel end-walls oblique; exclusively scalariform. The axial xylem with tracheids, or without tracheids (the latter according to Carpenter and Dickison); with fibre tracheids (according to Carpenter and Dickison). The parenchyma apotracheal and paratracheal (diffuse to diffuse in aggregates, and scanty). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fi2\b\} Reproductive type, pollination. \b0\fi0\fs22\} Unisexual flowers absent. Plants her

C:\Users\josh\Downloads\angiodata\info\orobanch.rtf

00004: clerenchymatous idioblasts (in \i\} Conopholis\i0\}), or without sclerenchymatous idioblasts. Minor leaf veins without phloem transfer cells (\i\} Lathraea\i0\}, \i\} Orobanche\i0\}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fi2\b\} Axial (stem, wood) anatomy. \b0\fi0\fs22\} Cork cambium probably absent. Nodes unilacunar. Primary vascular tissues in a cylinder, without separate bundles (in that the phloem only sometimes forms a ring), or comprising a ring of bundles, or comprising two or more rings of bundles (sometimes exhibiting an inner ring of bundles); collateral. Medullary bundles present (if the inner ring be thus interpreted), or absent. Secondary thickening absent, or developing from a conventional cambial ring (? - the vascular system very reduced). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\} The vessel end-walls simple. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fi2\b\} Reproductive type, pollination. \b0\fi0\fs22\} Unisexual flowers absent. Plants hermaphrodite. Pollination entomop

C:\Users\josh\Downloads\angiodata\info\oxalidac.rtf

00004: transfer cells (\i\} Oxalis\i0\}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fi2\b\} Axial (stem, wood) anatomy. \b0\fi0\fs22\} Cork cambium present, or absent (?); initially superficial. Nodes tri-lacunar. Primary vascular tissues in a cylinder, without separate bundles (in older stems), or comprising a ring of bundles (the bundles collateral, the stems usually with a conspicuous ring of pericyclic sclerenchyma, cf. \i\} Geraniaceae\i0\}); collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening absent, or developing from a conventional cambial ring. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\} The vessel end-walls simple. The axial xylem with libriform fibres; at least sometimes including septate fibres, or without septate fibres (?). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fi2\b\} Reproductive type, pollination. \b0\fi0\fs22\} \b\} Fertile flowers\b0\} \b\} hermaphrodite\b0\}. Unisexual flowers absent. Plants hermaphrodite (often with addit

C:\Users\josh\Downloads\angiodata\info\paeoniac.rtf

00003: nt; anomocytic. The mesophyll containing crystals. The crystals druses. Minor leaf veins without phloem transfer cells (\i{}Paeonia\i{}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{\i{}}Nodes tri-**lacunar**, or penta-**lacunar**. Cortical bundles present. Secondary thickening developing from a conventional cambial ring. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}The vessel end-walls oblique; scalariform, or scalariform and simple. The parenchyma very scarce apotracheal (limited to a few cells among the fibres). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Reproductive type, pollination. \b0\fo\fs22{\i{}}Unisexual flowers absent. Plants hermaphrodite. Pollination entomophilous; commonly via diptera. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Inflorescence, floral, fruit and seed morphology. \b0\fo\fs22{\i{}}Flowers aggregated in inflorescences (these few flowered), or solitary. Inflorescences or solitary flowers terminal. \b{}}Flowers\

C:\Users\joshir\Downloads\angiodata\info\papavera.rtf

00004: fs22{\i{}}The leaf lamina\i{} usually dorsiventral. Hydathodes present (occasionally), or absent. Stomata mainly confined to one surface, or on both surfaces; anomocytic. Hairs present, or absent (scanty, unicellular, uniseriate, biseriate or multiseriate, sometimes shaggy); eglandular; unicellular, or multicellular. Multicellular hairs uniseriate, or multiseriate; branched, or simple. Minor leaf veins without phloem transfer cells (\i{}Meconopsis\i{}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{\i{}}Young stems\i{} commonly with hollow internodes. Nodes uni**lacunar**, or tri-**lacunar**. Primary vascular tissues comprising a ring of bundles (mostly), or comprising two or more rings of bundles (occasionally, e.g. often in \i{}Papaver\i{}); collateral. Cortical bundles absent. Medullary bundles absent. Secondary thickening absent (commonly), or developing from a conventional cambial ring. Primary medullary rays wide. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340

C:\Users\joshir\Downloads\angiodata\info\papilion.rtf

00005: ifacial, or centric. Mucilaginous epidermis present, or absent. Stomata anomocytic, or paracytic, or anisocytic, or tetracytic, or cyclocytic. Hairs of numerous kinds present (in the subfamily). Urticating hairs absent (but present on calyces and pods of \i{}Mucuna\i{}). Lamina with secretory cavities, or without secretory cavities. Secretory cavities containing oil, or containing mucilage, or containing resin. The mesophyll containing mucilage cells, or not containing mucilage cells; with sclerenchymatous idioblasts (occasionally?), or without sclerenchymatous idioblasts. Minor leaf veins with phloem transfer cells, or without phloem transfer cells (Watson and Gunning 1981). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{\i{}}Secretory cavities present, or absent. Cork cambium present (usually), or absent; initially deep-seated, or initially superficial. \b{}}Nodes\b0{\i{}} tri-**lacunar**, or penta-**lacunar**\b0{\i{}}. Primary vascular tissues in a cylinder, without sepa

C:\Users\joshir\Downloads\angiodata\info\paracryp.rtf

00003: ned to one surface (abaxial); anomocytic. Hairs present; unicellular. Unicellular hairs simple. Adaxial hypodermis absent. The mesophyll with sclerenchymatous idioblasts (thin walled brachysclereids); containing crystals (as scattered styloids). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{\i{}}Cork cambium present; initially superficial. Nodes tri-**lacunar**. Primary vascular tissues in a cylinder, without separate bundles. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}The vessel end-walls very oblique; scalariform (with very numerous cross-bars). The axial xylem with tracheids; with fibre tracheids. The parenchyma scanty paratracheal, or apotracheal. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Reproductive type, pollination. \b0\fo\fs22{\i{}}Unisexual flowers present, or absent. Plants hermaphrodite, or andromonoecious. \par\pard\plain\qj\s22\sb0\sa0\

C:\Users\joshir\Downloads\angiodata\info\passiflo.rtf

00004: chymatous idioblasts; containing crystals. The crystals raphides and solitary-prismatic. Minor leaf veins without phloem transfer cells (\i{}Passiflora\i{}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{\i{}}Secretory cavities present (e.g., in \i{}Adenia\i{}), containing tannin), or absent (but tanniferous cells common). Cork cambium present; initially superficial. \b{}}Nodes\b0{\i{}} tri-**lacunar**\b0{\i{}}. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring, or anomalous (rarely). The anomalous secondary thickening in \i{}Adesmia\i{}), via concentric cambia. Primary medullary rays wide, or mixed wide and narrow, or narrow. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}The wood semi-ring porous to diffuse porous. The vessels very variable in size, small to large; variously solitary, or radially pa

C:\Users\joshir\Downloads\angiodata\info\penaeace.rtf

00003: l, or centric. Stomata present, or absent (infrequent); when present, mainly confined to one surface (abaxial), or on both surfaces; anomocytic, or anisocytic (sometimes with peg-like projections into the subsidiaries, see illustration). Hairs present, or absent (rare); when present, eglandular; unicellular. Unicellular hairs simple. Complex hairs absent. The mesophyll with sclerenchymatous idioblasts (see illustration); containing crystals, or without crystals. The crystals when found, druses. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{\i{}}Cork cambium in \i{}Penaea\i{}), present; initially deep-seated (in the pericycle). Nodes uni**lacunar**. Primary vascular tissues in a cylinder, without separate bundles; bicollateral. \b{}}Internal phloem\b0{\i{}} \b{}}universally \b0{\i{}}\b{}}present\b0{\i{}}. Cortical bundles present, or absent. Secondary

thickening developing from a conventional cambial ring. Primary medullary rays narrow.

C:\Users\joshir\Downloads\angiodata\info\pennanti.rtf

00003: lobed). Leaf development not

graminaceous.

Stomata paracytic. Hairs present. Multicellular hairs uniseriate.

Axial (stem, wood) anatomy. Secondary thickening developing from a conventional cambial ring. Primary medullary rays wide. The vessel end-walls commonly reticulately perforated, or scalariform (with thin and numerous bars).

Reproductive type, pollination.

Unisexual flowers present, or absent. Plants hermaphrodite, or dioecious, or polygamomonoecious. Female flowers with staminodes, or without staminodes. Gynoecium of male flowers pistillodial, or vestigial, or absent.

C:\Users\joshir\Downloads\angiodata\info\penthora.rtf

00002: epn

Key First

Lead;

Penthoraceae Van Tiegh.

Habit and leaf form.

Leaves alternate; petiolate, or sessile; simple. Lamina entire; lanceolate; pinnately veined; attenuate to the base.

Leaves exstipulate. Lamina margins serrate. Axial (stem, wood) anatomy. Nodes unilacunar. Secondary thickening absent, or developing from a conventional cambial ring, or anomalous (?).

C:\Users\joshir\Downloads\angiodata\info\peperomi.rtf

00004: Axial (stem, wood) anatomy. Cork cambium present; initially superficial. Nodes penta-lacunar, or multilacunar (with five or more traces). Primary vascular tissues disposed monocot-like, and consisting of scattered bundles (see illustration), or comprising two or more rings of bundles; collateral. Internal phloem absent. Medullary bundles present. Secondary thickening developing from a conventional cambial ring, or anomalous. The anomalous secondary thickening from a single cambial ring. The vessel end-walls scalariform, or simple. The axial xylem without fibre tracheids; with libriform fibres; including septate fibres, or without septate fibres.

Reproductive type, pollination.

Unisexual flowers absent. Plants hermaphrodite. Inflorescence, floral, fruit and seed morphology.

C:\Users\joshir\Downloads\angiodata\info\periploc.rtf

00003: margins entire.

Plants with laticifers (non-articulated, branched or not).

Leaf anatomy. Stomata paracytic, or anomocytic, or anisocytic. Lamina with secretory cavities (laticifers accompanying the veins). Secretory cavities containing latex. Minor leaf veins without phloem transfer cells

Axial (stem, wood) anatomy.

Secretory cavities present. Nodes unilacunar (the petiolar trace single, gutter-shaped). Primary vascular tissues bicollateral. Internal phloem present. Secondary thickening developing from a conventional cambial ring, or anomalous. The anomalous secondary thickening via concentric cambia, or from a single cambial ring (?). The parenchyma apotracheal (predominantly, in Periploca), or parat

C:\Users\joshir\Downloads\angiodata\info\physenac.rtf

00003: Axial (stem, wood) anatomy. Cork cambium present; initially superficial (subepidermal).

Nodes unilacunar. Primary vascular tissues in a cylinder, without separate bundles. Secondary thickening developing from a conventional cambial ring. The wood diffuse porous. The vessel end-walls more or less horizontal; simple. The vessels without vested pits. The axial xylem with tracheids; without fibre tracheids (the pits no more than slightly bordered); with libriform fibres. The parenchyma paratracheal (aliform, or confluent and unilateral); wood not storied.

Reproductive type, pollination.

Unisexual flowers present. Plants dioecious.

Gynoecium of male flowers pistillodial to vestigial. Pollination

anemophilous. Inflorescence, floral, fruit and seed morphology.

C:\Users\joshir\Downloads\angiodata\info\phytolac.rtf

00004: e; simple. Complex hairs absent. Adaxial hypodermis present (occasionally), or absent. The mesophyll containing crystals, or without crystals. The crystals when present, raphides, or solitary-prismatic (styloids). Minor leaf veins without phloem transfer cells (\i{}Phytolacca\i{}), \i{}Rivina\i{}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{\i{}Young stems\i{}} with solid internodes to with hollow internodes. Pith with diaphragms, or without diaphragms. Cork cambium present; initially superficial. \b{}Nodes\b{} \b{}uni**lacunar**\b{}. Primary vascular tissues comprising a ring of bundles, or comprising two or more rings of bundles; collateral. Internal phloem absent. \b{}Cortical bundles\b{} \b{}absent\b{}. Secondary thickening developing from a conventional cambial ring, or anomalous (commonly). The anomalous secondary thickening when present, via concentric cambia (resulting in successive zones of of vascular bundles embedded in secondary ground tiss

C:\Users\joshir\Downloads\angiodata\info\piperace.rtf

00004: prismatic (acicular). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{\i{}Cork cambium present; initially superficial. Nodes tri-**lacunar** to multi**lacunar** (with three to five or more traces). \b{}Primary vascular tissues\b{} \b{}disposed monocot-like, and \b{}consisting of scattered bundles, or comprising two or more rings of bundles\b{}; collateral. Internal phloem absent. Medullary bundles present. Secondary thickening developing from a conventional cambial ring to anomalous (see illustration). The anomalous secondary thickening from a single cambial ring. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}The vessel end-walls scalariform, or simple. The axial xylem without fibre tracheids; with libriform fibres; including septate fibres, or without septate fibres. The parenchyma paratracheal. Included phloem absent. The wood storied to not storied. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Reproductive type, pollination. \b0\fo\fs22{\i{}Uni

C:\Users\joshir\Downloads\angiodata\info\pittospo.rtf

00004: t phloem transfer cells (\i{}Pittosporum\i{}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{\i{}Secretory cavities present (in secondary phloem, and sometimes in the secondary cortex); with resin. Cork cambium present; initially superficial. Nodes uni**lacunar** (occasionally), or tri-**lacunar** (usually). Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}The wood diffuse porous. The vessels very to moderately small; solitary, radially paired, in radial multiples, clustered, and in tangential arcs. The vessel end-walls oblique; simple. The vessels without vested pits; with spiral thickening. The axial xylem with fibre tracheids, or without fibre tracheids; with libriform fibres, or without libriform fibres; including septate fibres (but the septa som

C:\Users\joshir\Downloads\angiodata\info\plantagi.rtf

00004: ular (only, in \i{}Littorella\i{}), or eglandular and glandular. Minor leaf veins with phloem transfer cells (\i{}Littorella\i{}), \i{}Plantago\i{}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{\i{}Cork cambium present (in rhizomes), or absent; initially deep-seated, or initially superficial. Nodes uni**lacunar**, or tri-**lacunar**, or multi**lacunar**. Primary vascular tissues in a cylinder, without separate bundles, or comprising a ring of bundles. Medullary bundles present, or absent. Secondary thickening absent, or developing from a conventional cambial ring. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}The vessels (at least in \i{}Plantago fernandezia\i{}) small; solitary, radially paired, and in radial multiples (the multiples in long radial lines). The vessel end-walls simple. The axial xylem with tracheids (according to Solereder); without fibre tracheids; with libriform fibres. The parenchyma absent or extremely sparse; wood partially storied (VI), or no

C:\Users\joshir\Downloads\angiodata\info\platanac.rtf

00004: erficial (the bark scaling off in large flakes, leaving the trunk smooth). Nodes multi**lacunar** (7). Primary vascular tissues comprising a ring of bundles (the xylem being dissected by broad rays, the widened ends of which separate the groups of phloem); collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays wide, or wide and mixed wide and narrow. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}The vessels moderately small; mainly solitary and in radial to tangential pairs and threes. The vessel end-walls scalariform and simple. The vessels without vested pits. The axial xylem with fibre tracheids; without libriform fibres; without septate fibres. The fibres without spiral thickening. The parenchyma apotracheal (diffuse or in uniseriate bands). Included phloem absent. The wood not storied. Tyloses present (often), or absent. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Repr

C:\Users\joshir\Downloads\angiodata\info\plumbagi.rtf

00004: lar hairs as well, these additional to the peculiar epidermal glands). \b{}The mesophyll\b{} \b{}with sclerenchymatous idioblasts\b{}; containing crystals (but these very rare), or without crystals. The crystals when recorded, druses, or solitary-prismatic. Minor leaf veins with phloem transfer cells (found in 7 genera). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{\i{}Secretory cavities absent (but secretory cells with assumed tanniniferous contents or plumbagin common). Cork cambium present; initially superficial. Nodes tri-**lacunar**. Primary vascular tissues comprising a ring of bundles; collateral. Internal phloem absent. Cortical bundles present (often), or absent. Medullary bundles present (sometimes inversely orientated or centric), or absent. Secondary thickening developing from a

conventional cambial ring, or anomalous (often). The anomalous secondary thickening when present, via concentric cambia, or from a single cambial ring.

C:\Users\joshir\Downloads\angiodata\info\polemoni.rtf

00004: y deep-seated, or initially superficial. Nodes unilacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. The anomalous secondary thickening generally absent. The vessel end-walls simple, or scalariform and simple (with few cross bars). The vessels without vested pits. The axial xylem with tracheids, or without tracheids (?); with libriform fibres. Included phloem absent. The wood partially storied (VPI), or not storied (?). Reproductive type, pollination. Unisexual flowers absent. Plants hermaphrodite. Inflorescence, floral, fruit and seed morphology. Flowers solitary (sometimes), or aggregated in inflorescences; when aggregated

C:\Users\joshir\Downloads\angiodata\info\polygala.rtf

00004: becoming uniseriate). Complex hairs absent. Adaxial hypodermis absent (nearly always), or present (in *Moutabea*). Lamina with secretory cavities (*Polygala erioptera*), or without secretory cavities. Secretory cavities when present, containing oil; lysigenous. The mesophyll usually containing crystals, or without crystals (e.g., none recorded in *Bredemeyera*). The crystals solitary-prismatic, or druses and solitary-prismatic. Minor leaf veins without phloem transfer cells (*Polygala*). Axial (stem, wood) anatomy. Cork cambium present; initially superficial. Nodes unilacunar. Primary vascular tissues in a cylinder, without separate bundles (mostly), or comprising a ring of bundles (in a few *Polygala* species); collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring (often, but the interfascicular cambium som

C:\Users\joshir\Downloads\angiodata\info\polygona.rtf

00005: Cork cambium present; initially deep-seated, or initially superficial. Nodes penta-lacunar to multilacunar (mostly), or tri-lacunar (e.g., in climbing *Polygonum* and dioecious *Rumex* species). Primary vascular tissues at first comprising a ring of bundles, or in a cylinder, without separate bundles (i.e., soon becoming a continuous cylinder in woodier forms as secondary xylem develops); collateral (mostly), or bicollateral. Internal phloem probably nearly always absent. Cortical bundles present (sometimes, see illustration), or absent. Medullary bundles present (rather commonly, e.g. in *Rumex*, see illustration), or absent. Secondary thickening absent, or developing from a conventional cambial ring, or anomalous. The anomalous secondary thickening when present, via concentric cambia (variously resulting in interfascicular phloem strands in *Emex*, and semicircular groups of vascular bundles in the cortex of *Caligonum* spp.). Primary medullary rays wide.

C:\Users\joshir\Downloads\angiodata\info\portulac.rtf

00004: IIs; usually containing crystals. The crystals raphides, or druses, or solitary-prismatic. Minor leaf veins without phloem transfer cells (*Calandrina*, *Lewisia*, *Montia*). Axial (stem, wood) anatomy. Nodes unilacunar. Primary vascular tissues comprising a ring of bundles (usually), or in a cylinder, without separate bundles; at least usually collateral. Internal phloem dubiously present (e.g. in *Montia*), or absent. Medullary bundles absent. Secondary thickening absent, or developing from a conventional cambial ring. Primary medullary rays wide, or narrow. The wood diffuse porous. The vessels small; solitary, or radially paired, or in radial multiples. The vessel end-walls simple. The vessels with spiral thickening, or without spiral thickening. The axial xylem without fibre tracheids; with libriform fibres. Included phloem absent.

C:\Users\joshir\Downloads\angiodata\info\primulac.rtf

00004: and glandular; mostly multicellular. Multicellular hairs uniseriate; branched and simple. Lamina with secretory cavities (commonly), or without secretory cavities. Secretory cavities sometimes containing resin (with red crystalline contents), or containing mucilage; schizogenous, or lysigenous. The mesophyll generally without crystals. Minor leaf veins with phloem transfer cells (variably so, in *Anagallis* only), or without phloem transfer cells (*Anagallis*, *Auricula*, *Cyclamen*, *Dodecatheon*, *Glaux*, *Lysimachia*, *Primula*, *Samolus*, *Sodanella*). Axial (stem, wood) anatomy. Secretory cavities present, or absent; with resin, or with mucilage (? - cf. the leaves). Cork cambium present, or absent (cork rarely developed); when present, initially deep-seated, or initially superficial. Nodes unilacunar. Primary vascular tissues variously in a cylinder, without separ

C:\Users\joshir\Downloads\angiodata\info\proteace.rtf

00005: corded in *Hakea* and *Grevillea*). Adaxial hypodermis present (sometimes with an abaxial one as well), or absent. Lamina with secretory cavities (rarely), or without secretory cavities. The mesophyll with sclerenchymatous idioblasts (commonly, branched or unbranched), or without sclerenchymatous idioblasts; containing crystals, or without crystals (rather infrequent). The crystals when present, druses, or solitary-prismatic. Minor leaf veins without phloem transfer cells (*Grevillea*, *Lomatia*),

\i{}Telopea\i0{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22{}Secretory cavities absent. Cork cambium present; initially deep-seated (rarely), or initially superficial. \b{}Nodes\b0{} \b{}tri-**lacunar**\b0{}. Primary vascular tissues in sufficiently young stems comprising a ring of bundles (the circle of closely placed but individually distinct bundles more or less sinuous); collateral. Internal phloem absent. Cortical bundles present (

C:\Users\joshir\Downloads\angiodata\info\pteroste.rtf

00003: \b0\fo\fs22{}\i{}The leaf lamina\i0{} dorsiventral. Hydathodes present (marginal). Mucilaginous epidermis absent. Stomata present; mainly confined to one surface, or mainly confined to one surface and on both surfaces (mainly abaxial); anomocytic. Hairs present; eglandular and glandular; unicellular and multicellular. Complex hairs present; peltate and clavate (or conical). Adaxial hypodermis absent. Lamina without secretory cavities. The mesophyll containing crystals (around the veins, and sometimes in the palisade). The crystals mainly druses.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22{}Secretory cavities absent. Cork cambium present. Nodes tri-**lacunar**. Secondary thickening developing from a conventional cambial ring. The axial xylem with vessels (many of them fibriform).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood diffuse porous. The vessel end-walls oblique (mostly), or horizontal (in the widest elements with simple perforations); sc

C:\Users\joshir\Downloads\angiodata\info\punicace.rtf

00003: ain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Leaf anatomy. \b0\fo\fs22{}\i{}The leaf lamina\i0{} dorsiventral. Epidermis with crystal idioblasts (these containing large, solitary crystals, on the boundary between palisade and spongy mesophyll). Stomata present; mainly confined to one surface (abaxial); anomocytic. Lamina without secretory cavities. The mesophyll without sclerenchymatous idioblasts; containing crystals. The crystals druses and solitary-prismatic. Minor leaf veins without phloem transfer cells.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22{}Young stems tetragonal (with four wings, which are soon lost). Cork cambium present; initially deep-seated. Nodes uni**lacunar**. Primary vascular tissues in a cylinder, without separate bundles; bicollateral. \b{}Internal phloem\b0{} \b{}present\b0{}. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow.\par\pard

C:\Users\joshir\Downloads\angiodata\info\pyrolace.rtf

00003: leaves; sympodially rhizomatous. Leaves unless much reduced, persistent; alternate, or opposite, or whorled; flat; petiolate; non-sheathing; simple; epulvinate. Lamina entire; one-veined, or pinnately veined (unless much reduced). Leaves exstipulate. Lamina margins entire, or crenate, or serrate, or dentate. Leaf development not graminaceous.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Leaf anatomy. \b0\fo\fs22{}Minor leaf veins without phloem transfer cells (\i{}Pyrola\i0{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22{}Nodes uni**lacunar**. Secondary thickening absent, or developing from a conventional cambial ring (?). The axial xylem with vessels, or without vessels (?).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Reproductive type, pollination. \b0\fo\fs22{}Unisexual flowers absent. Plants hermaphrodite.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Inflorescence, floral, fruit and seed morphology. \b0\fo\

C:\Users\joshir\Downloads\angiodata\info\quiinace.rtf

00003: (abaxial); paracytic. Hairs very infrequent. Lamina with secretory cavities (?), or without secretory cavities (but common in the petioles). Secretory cavities where present, containing mucilage; lysigenous. The mesophyll containing crystals. The crystals druses and solitary-prismatic.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22{}\i{}Young stems\i0{} with solid internodes. \b{}The cortex\b0{} \b{}containing cristarque cells\b0{}. Pith homogeneous. \b{}Nodes\b0{} \b{}tri-**lacunar**\b0{}. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow (uniseriate).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood diffuse porous. The vessels fairly small; solitary and radially paired, or in tangential arcs (but usually solitary with a few radial pairs). The vessel end-wall **00007:** spermic\b0{}; conspicuously hairy (usually, tomentose), or not conspicuously hairy (\i{}Froesia\i0{}). Embryo well differentiated. Cotyledons 2 (thick). Embryo straight.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Seedling. \b0\fo\fs22{}Germination cryptocotylar.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Physiology, phytochemistry. \b0\fo\fs22{}Not cyanogenic.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Geography, cytology. \b0\fo\fs22{}Neotropical. Tropical. Tropical South America.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Taxonomy. \b0\fo\fs22{}Subclass Dicotyledonae; Crassinucelli (? stipules, polypetalous, etc.). Dahlgrens Superorder Theiflorae; Theales. Cronquists Subclass Dilleniidae; Theales. APG III core angiosperms; core eudicot; Superorder Rosanae; fabid. APG IV Order Malpighiales (as a synonym of \i{}Ochnaceae\i0{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}Species 50. Genera 4; \i{}Froesia\i0{}, \i{}**Lacunaria**\i0{}, \i{}Q

C:\Users\joshir\Downloads\angiodata\info\ranuncul.rtf

00004: sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Leaf anatomy. \b0\fo\fs22{}Hydathodes present (occasionally), or

absent. Minor leaf veins without phloem transfer cells (*Helleborus*, *Ranunculus*). Axial (stem, wood) anatomy. Young stems with solid internodes, or with hollow internodes. Pith homogeneous, or heterogeneous. Cork cambium present, or absent. Nodes **unilacunar** (rarely), or **tri-lacunar** to **multilacunar**. Primary vascular tissues comprising a ring of bundles, or comprising two or more rings of bundles, or consisting of scattered bundles; collateral. Secondary thickening absent (commonly), or developing from a conventional cambial ring. The axial xylem with vessels with libriform fibres. The vessels in *Clematis*, clustered, or in tangential arcs. The vessel end-walls simple (at least usually). The axial xylem with fibre tracheids; with libriform fibres, or without libriform fibres.

C:\Users\joshir\Downloads\angiodata\info\resedace.rtf

00003: fid, or palmatifid (sometimes trifid); one-veined, or pinnately veined. Leaves stipulate. Stipules intrapetiolar; free of one another; represented by glands. Leaf development not graminaceous. Leaf anatomy. The leaf lamina without clear differentiation into palisade and spongy mesophyll, bifacial to centric (see illustration). Mucilaginous epidermis present, or absent. Stomata present; anomocytic (sometimes accompanied by myrosin cells). Hairs present; eglandular; unicellular. The mesophyll generally without crystals. Minor leaf veins without phloem transfer cells (*Reseda*). Axial (stem, wood) anatomy. Young stems with solid internodes, or with hollow internodes. Nodes **unilacunar**. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary

C:\Users\joshir\Downloads\angiodata\info\rhabdode.rtf

00003: tty bodies). Secretory cavities containing resin; lysigenous. The mesophyll with sclerenchymatous idioblasts (traversed by fibre-like, simple or branched sclereids representing prolongations from the vein ends, and many of the mesophyll cells with silicified walls). Axial (stem, wood) anatomy. Nodes **multilacunar**. Internal phloem absent. Secondary thickening developing from a conventional cambial ring (*R. macrophyllum* only), or anomalous (the others). The anomalous secondary thickening via concentric cambia. The vessel end-walls simple. The axial xylem with tracheids; with fibre tracheids. The parenchyma largely apotracheal, or paratracheal (then very scanty-diffuse). The secondary phloem stratified into hard (fibrous) and soft (parenchymatous) zones, or not stratified (?). Included phloem present. Reprod

C:\Users\joshir\Downloads\angiodata\info\rhamnace.rtf

00004: riate; mostly simple. Complex hairs present (notably among Australian genera), or absent; when present, stellate. Adaxial hypodermis present, or absent. Lamina with secretory cavities, or without secretory cavities. Secretory cavities when present, containing mucilage. The mesophyll commonly containing mucilage cells; containing crystals. The crystals druses, or solitary-prismatic (or acicular styloids, in *Gouania*). Minor leaf veins without phloem transfer cells (*Ceanothus*, *Pomaderris*). Axial (stem, wood) anatomy. Secretory cavities present, or absent; with mucilage. Cork cambium present; initially superficial. Nodes **tri-lacunar**. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow.

C:\Users\joshir\Downloads\angiodata\info\rhizopho.rtf

00004: Axial (stem, wood) anatomy. Cork cambium present; initially superficial. Nodes **tri-lacunar**, or penta-lacunar, or **multilacunar**; exhibiting on either side a trace which divides, contributing the outermost lateral traces to each of the opposite leaves (in *Bruguiera*, *Cassipourea* and *Rhizophora* spp.), or without split-lateral traces (in other *Rhizophora* spp.). Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays wide, or mixed wide and narrow, or narrow (?). The wood diffuse porous. The vessels small, or medium; solitary, or radially paired, or in radial multiples, or clustered. The vessel end-walls scalariform, or simple, or scalariform and simple. The vessels without vested pits; without spiral thickening. The axial xylem with tracheids; with fibre

C:\Users\joshir\Downloads\angiodata\info\rhynchoc.rtf

00003: Axial (stem, wood) anatomy. Young stems cylindrical, or flattened. Nodes **unilacunar** (with one trace). Secondary thickening developing from a conventional cambial ring. The vessel end-walls oblique; simple. The vessels with vested pits. The axial xylem without fibre tracheids; with libriform fibres; including septate fibres. The parenchyma scanty paratracheal (to vasicentric). Reproductive type, pollination. Unisexual flowers absent. Plants hermaphrodite. Inflorescence, floral, fruit and seed morphology. Flowers aggregated in inflorescences; in panicles. Inflorescences terminal and axillary; anthotelic panicles. Flowers regular; 6 merous. Free hypanthium present.

Hypogynous disk absent. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{i\}\b\}Perianth\b0\}\i0\} with

C:\Users\joshir\Downloads\angiodata\info\rosaceae.rtf

00005: g both herbaceous and woody). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fi2\b\}Axial (stem, wood) anatomy. \b0\fi0\fs22\}\Pith with diaphragms (occasionally), or without diaphragms; homogeneous, or heterogeneous. Cork cambium present, or absent (?); initially deep-seated, or initially superficial. Nodes tri-**lacunar** (usually), or unil**lacunar**, or penta-**lacunar** to multil**lacunar**. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. \b\}Secondary thickening\b0\}\b\}developing from a conventional cambial ring\b0\}. The axial xylem with vessels. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\The vessel end-walls simple (nearly always), or scalariform and simple. The vessels without vestured pits. The axial xylem with tracheids (mostly), or without tracheids (Prunoideae); including septate fibres (rarely), or without septate fibres. The parenchyma typically apotracheal, or apotracheal and paratracheal (there being some scanty-paratracheal recorded in a few genera). Included phloem abse

C:\Users\joshir\Downloads\angiodata\info\rubiaceae.rtf

00005: (usually), or without crystals. The crystals raphides, or druses, or solitary-prismatic (raphides present in Rubioideae, absent from Cinchonoideae and Guettardoideae). Minor leaf veins with phloem transfer cells (5 genera \i\}Asperula\i0\}, \i\}Galium\i0\}, \i\}Phuopsis\i0\}, \i\}Rubia\i0\}, \i\}Sherardia\i0\}), or without phloem transfer cells (20 genera, e.g. \i\}Coprosma\i0\}, \i\}Cinchona\i0\}, \i\}Coffea\i0\}, \i\}Gardenia\i0\}, \i\}Hoffmannia\i0\}, \i\}Ixora\i0\}, \i\}Pavetta\i0\}, \i\}Randia\i0\}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fi2\b\}Axial (stem, wood) anatomy. \b0\fi0\fs22\}\Young stems commonly polygonal or corrugated in section. Cork cambium present, or absent (e.g. in \i\}Galieae\i0\}); when present, initially deep-seated, or initially superficial. Nodes variously unil**lacunar**, or tri-**lacunar**; exhibiting on either side a trace which divides, contributing the outermost lateral traces to each of the opposite leaves (e.g., in \i\}Coussarea\i0\} and \i\}Fameaea\i0\}), or without s

C:\Users\joshir\Downloads\angiodata\info\rutaceae.rtf

00005: us. The mesophyll with sclerenchymatous idioblasts, or without sclerenchymatous idioblasts; commonly containing crystals. The crystals raphides, or solitary-prismatic. Minor leaf veins without phloem transfer cells (5 genera). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fi2\b\}Axial (stem, wood) anatomy. \b0\fi0\fs22\}\Secretory cavities very often present (but sometimes replaced by secretory cells); with oil. Cork cambium present; initially superficial. \b\}Nodes\b0\}\b\}unil**lacunar**, or tri-**lacunar**\b0\}. Primary vascular tissues in a cylinder, without separate bundles (mostly), or in a cylinder, without separate bundles to comprising a ring of bundles (a few with relatively broad primary rays in very young stems); collateral. Internal phloem absent. Cortical bundles present (e.g., in \i\}Eriostemon\i0\}), or absent. Secondary thickening developing from a conventional cambial ring. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\The wood variously ring porous, or semi-ring porous, or diffuse porous. The

C:\Users\joshir\Downloads\angiodata\info\salicace.rtf

00005: \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fi2\b\}Axial (stem, wood) anatomy. \b0\fi0\fs22\}\Young stems cylindrical. Secretory cavities absent. Cork cambium present; initially superficial. Nodes tri-**lacunar**. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. \b\}Secondary thickening\b0\}\b\}developing from a conventional cambial ring\b0\}. Primary medullary rays narrow. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\The wood ring porous to diffuse porous. The vessels fairly small. The vessel end-walls simple. The vessels without vestured pits; without spiral thickening. The axial xylem without fibre tracheids; with libriform fibres; including septate fibres, or without septate fibres. The fibres without spiral thickening. The parenchyma apotracheal (exclusively terminal). The secondary phloem commonly containing crystalliferous fibres, stratified into hard (fibrous) and soft (parenchymatous) zones,

C:\Users\joshir\Downloads\angiodata\info\sambucac.rtf

00004: tri-**lacunar**, or penta-**lacunar**, or multil**lacunar**; exhibiting on either side a trace which divides, contributing the outermost lateral traces to each of the opposite leaves (at least in \i\}S. nigra\i0\} and \i\}S. ebulus\i0\}: see illustration), or without split-lateral traces (?). Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\The wood semi-ring porous, or diffuse porous. The vessels small; radially paired, in radial multiples, and in tangential arcs. The vessel end-walls simple, or scalariform and simple. The vessels without vestured pits; with spiral thickening (slight), or without spiral thickening. The axial xylem without tracheids; with libriform fibres. The fibres with spiral thickening. The parenchyma scanty paratracheal; wood partially storied (VP). Tyloses present (often abundant), or

C:\Users\joshir\Downloads\angiodata\info\santalac.rtf

00004: rficial. Nodes unil**lacunar**. Secondary thickening developing from a conventional cambial ring. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\The vessel end-walls simple. The vessels without vestured pits. The axial xylem with tracheids; often with vasicentric tracheids; with fibre tracheids. The parenchyma apotracheal, or paratracheal. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fi2\b\}Reproductive type, pollination. \b0\fi0\fs22\}\Unisexual flowers present, or absent. Plants hermaphrodite, or monoecious, or dioecious. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fi2\b\}Inflorescence, floral, fruit and seed morphology. \b0\fi0\fs22\}\Flowers solitary, or aggregated in inflorescences; when aggregated, in cymes, or in

racemes, or in spikes, or in heads, or in fascicles. The ultimate inflorescence units cymose, or racemose. Inflorescences terminal, or axillary; variously spikes, racemes or heads, the flowers solitary in the bract axils or forming cymes of three. \b{}Flowers\b0{} bracteate; small; r

C:\Users\joshir\Downloads\angiodata\info\sapindac.rtf

00005: , \i{}Melicocca\i0{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22{}Secretory cavities absent (i.e., no resin canals). Cork cambium present; initially superficial (usually), or initially deep-seated (e.g. \i{}Dodonaea\i0{}).\b{}Nodes\b0{} \b{}tri-lacunar\b0{}. Primary vascular tissues in a cylinder, without separate bundles, or comprising two or more rings of bundles (only in lianes \i{}Serjania\i0{} and \i{}Paulinia\i0{}); collateral. Internal phloem absent. Secondary thickening developing from a conventional cambial ring, or anomalous (in lianes: see illustration). The anomalous secondary thickening of lianes via concentric cambia, or from a single cambial ring (sometimes involving development of separate xylem masses, and in \i{}Serjania\i0{} and \i{}Paulinia\i0{} very peculiar, where ridged stems result from the activity of fascicular cambia in the several rings of permanently separate vascular bundles). Primary medullary rays in normal forms with a

C:\Users\joshir\Downloads\angiodata\info\sapotace.rtf

00004: sophyll with sclerenchymatous idioblasts (commonly), or without sclerenchymatous idioblasts; containing crystals. The crystals druses, or solitary-prismatic (or in the form of crystal sand). Minor leaf veins without phloem transfer cells (\i{}Chrysophyllum\i0{}), \i{}Pouteria\i0{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22{}Cork cambium present; initially superficial. Nodes tri-lacunar (usually), or unilacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. \b{}Secondary thickening\b0{} \b{}developing from a conventional cambial ring\b0{}. Primary medullary rays narrow.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The vessels small to large; commonly solitary, radially paired, in radial multiples, and in tangential arcs. The vessel end-walls simple. The vessels without vested pits. The axial xylem with tracheids, or without tracheids (?); often with vasicentric tracheids; with fibre tracheids, or without fibre trachei

C:\Users\joshir\Downloads\angiodata\info\sarcolae.rtf

00004: i-lacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow (exclusively uniseriate).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood diffuse porous. The vessels medium; exclusively solitary. The vessel end-walls simple. The vessels with vested pits (sometimes), or without vested pits (?); without spiral thickening. The axial xylem with tracheids; without vasicentric tracheids; without fibre tracheids; without septate fibres. The fibres fairly thick walled, without spiral thickening. The parenchyma apotracheal (diffuse). \b{}The secondary phloem\b0{} \b{}stratified into hard (fibrous) and soft (parenchymatous) zones\b0{}. Included phloem absent. The wood not storied.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Reproductive type, pollination. \b0\fo\fs22{}Unisexual flowers

C:\Users\joshir\Downloads\angiodata\info\sargento.rtf

00003: natomy. \b0\fo\fs22{}\i{}Young stems\i0{} with solid internodes. Pith parenchymatous, but with a group of sclerosed cells at the centre. Cork cambium present; initially deep-seated (in the inner pericycle). Nodes tri-lacunar. Primary vascular tissues comprising a ring of bundles (four large bundles, and eight smaller ones alternating with them towards the outside). Internal phloem absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring, or anomalous (?). Primary medullary rays wide.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The vessels up to 200 microns. The vessel end-walls simple. The axial xylem with tracheids; with fibre tracheids (these in radial rows, the pits circular with crossed apertures).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Reproductive type, pollination. \b0\fo\fs22{}Unisexual flowers present. Plants dioecious. Female flowers with staminodes (six). Gynoecium of male flowers vestigial. Floral nectaries present. Nectar secretion

C:\Users\joshir\Downloads\angiodata\info\saxifrag.rtf

00004: ually \b0{}\b{}anomocytic\b0{}. Hairs of various forms present; eglandular and glandular. The mesophyll containing crystals (rarely), or without crystals. The crystals when present, druses. Minor leaf veins without phloem transfer cells (\i{}Chrysosplenium\i0{}), \i{}Saxifraga\i0{}), \i{}Tiarella\i0{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22{}Secretory cavities absent. Cork cambium present; initially superficial. Nodes tri-lacunar (usually), or multilacunar (e.g. \i{}Astilbe\i0{}). Primary vascular tissues in a cylinder, without separate bundles, or comprising a ring of bundles; collateral. Cortical bundles present, or absent. Medullary bundles present, or absent. Secondary thickening absent, or developing from a conventional cambial ring.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The vessel end-walls simple.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}\fs21\f2\b{}Reproductive type, pollination. \b0\fo\fs22{}Unisexual flowers absent. Plants h

C:\Users\joshir\Downloads\angiodata\info\schisand.rtf

00003: dentate (more often, or at least

denticulate). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\f2\b\} Leaf anatomy. \b0\fo\fs22\} Mucilaginous epidermis present. Stomata present; mixed anomocytic and paracytic (and laterocytic). Hairs present, or absent. The mesophyll with spherical etherial oil cells; usually containing mucilage cells. Minor leaf veins without phloem transfer cells (\i\}Schisandra\i0\}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\f2\b\} Axial (stem, wood) anatomy. \b0\fo\fs22\}\i\} Young stems\i0\} with solid internodes. Pith more or less homogeneous (the central cells thinner walled). Cork cambium present; initially superficial. Nodes unilacunar (with three traces). Primary vascular tissues collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\} The wood diffuse porous. The vessels large; solitary. The v

C:\Users\joshr\Downloads\angiodata\info\scrophul.rtf

00006: leaf veins with phloem transfer cells (9 genera, e.g. \i\}Antirrhinum\i0\}, \i\}Rhinanthus\i0\}), or without phloem transfer cells (16 genera, e.g. \i\}Pedicularis\i0\}, \i\}Scrophularia\i0\}, \i\}Verbascum\i0\}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\f2\b\} Axial (stem, wood) anatomy. \b0\fo\fs22\} Pith with diaphragms, or without diaphragms. Cork cambium present, or absent (may herbaceous forms lacking cork); when present, initially deep-seated, or initially superficial. Nodes unilacunar. \b\} Primary vascular tissues\b0\} usually in a cylinder, without separate bundles; \b\} collateral\b0\}. \b\} Internal phloem\b0\} \b\} absent (i.e., unlike \i\}Solanaceae\i0\})\b0\}. Secondary thickening absent (sometimes?), or developing from a conventional cambial ring (usually). Primary medullary rays commonly absent in herbaceous genera. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\} The wood ring porous to diffuse porous. The vessels small to large (but typically small and sometimes extremely so, rarely l

C:\Users\joshr\Downloads\angiodata\info\scyphost.rtf

00003: emingly absent. The mesophyll containing crystals. The crystals druses. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\f2\b\} Axial (stem, wood) anatomy. \b0\fo\fs22\} Young stems tetragonal. Cork cambium present; initially superficial. Nodes tri-lacunar. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\} The vessel end-walls very oblique; simple. The axial xylem with fibre tracheids; with libriform fibres; including septate fibres (these finely, transversely septate). The parenchyma paratracheal (but represented only by occasional cells almost absent). The secondary phloem not stratified. Included phloem absent. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\f2\b\} Reproductive type, pollination. \b0\fo\fs22\} Unisexual flowers present. Plants dioecious. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\f2\b\} Inflorescence, floral, fruit and seed morphology. \b0\fo\fs22\} Flowers aggregated in inf

C:\Users\joshr\Downloads\angiodata\info\setchell.rtf

00003: eined; rounded at the base (and abruptly contracted into the peglike petiole). Leaves exstipulate. Lamina margins entire; flat. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\f2\b\} Leaf anatomy. \b0\fo\fs22\}\i\} The leaf lamina\i0\} dorsiventral to bifacial (with adaxial and abaxial palisades). Stomata on both surfaces; anomocytic. \b\} Hairs\b0\} \b\} present (the leaves canescent-strigose pubescent, the hairs T-shaped, Malpighian type)\b0\}; eglanular; unicellular (though embedded in multicellular bases). Complex hairs absent. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\f2\b\} Axial (stem, wood) anatomy. \b0\fo\fs22\} Cork cambium present; initially superficial. Nodes unilacunar. Primary vascular tissues in a cylinder, without separate bundles. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow (all uniseriate). The axial xylem with vessels (these mostly solitary). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\} The wood semi-ring porous to diffu

C:\Users\joshr\Downloads\angiodata\info\simaroub.rtf

00004: paracytic (e.g. \i\}Castela\i0\}). Hairs present (of assorted kinds, but mostly simple or uniseriate and sclerenchymatous); eglanular, or glandular. Adaxial hypodermis present (occasionally), or absent. Lamina without secretory cavities (except \i\}Harrisonia\i0\}). The mesophyll with spherical etherial oil cells, or without etherial oil cells; with sclerenchymatous idioblasts (very commonly), or without sclerenchymatous idioblasts (?); usually containing crystals. The crystals druses, or solitary-prismatic. Minor leaf veins without phloem transfer cells (\i\}Ailanthus\i0\}, \i\}Quassia\i0\}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\f2\b\} Axial (stem, wood) anatomy. \b0\fo\fs22\} The cortex containing cristarque cells, or without cristarque cells. Secretory cavities present (in the pith). Cork cambium present; initially superficial. Nodes tri-lacunar, or multi-lacunar (7). Primary vascular tissues in a cylinder, without separate bundles; collateral. Secondary thickening developing from a conventi

C:\Users\joshr\Downloads\angiodata\info\siparuna.rtf

00003: b0\fo\fs22\}\i\} The leaf lamina\i0\} dorsiventral. Stomata present; paracytic. Hairs present. Complex hairs present, or absent; when present, stellate (or scalelike). Adaxial hypodermis present, or absent. The mesophyll with spherical etherial oil cells; not containing mucilage cells. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\f2\b\} Axial (stem, wood) anatomy. \b0\fo\fs22\} Cork cambium present; initially superficial. Nodes unilacunar (with several traces). Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays mixed wide and narrow. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\} The wood diffuse porous. The vessels small; often in radial multiples. The vessel end-walls scalariform and simple. The vessels without vested pits. The axial xylem without

fibre tracheids; with libriform fibres; without septate fibres. T

C:\Users\joshir\Downloads\angiodata\info\solanace.rtf

00005: bium present; initially deep-seated, or initially superficial. Nodes uni**lacunar** (with 2 or 3 traces). \b{}Primary vascular tissues\b{} in a cylinder, without separate bundles; \b{}bicollateral\b{}. \b{}Internal phloem\b{} \b{}universally \b{}present (as strands, or a continuous ring)\b{}. Secondary thickening developing from a conventional cambial ring (usually), or anomalous. The anomalous secondary thickening when present, via concentric cambia, or from a single cambial ring (?). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{ }\fs21\f2\b{}The wood ring porous to semi-ring porous, or diffuse porous. The vessel end-walls simple. The vessels without vestured pits; with spiral thickening, or without spiral thickening. The axial xylem with tracheids, or without tracheids; with fibre tracheids (rarely), or without fibre tracheids; with libriform fibres, or without libriform fibres; including septate fibres (rarely), or without septate fibres. The parenchyma apotracheal, or paratracheal. Included phloem present (occ

C:\Users\joshir\Downloads\angiodata\info\stachyur.rtf

00003: nt; mainly confined to one surface (abaxial); anomocytic. The mesophyll without sclerenchymatous idioblasts; containing crystals. The crystals druses. Minor leaf veins without phloem transfer cells. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{ }\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22\{ }\i{}Young stems\i{} with solid internodes. Pith homogeneous (of thin walled parenchyma). Secretory cavities absent. Cork cambium present; initially superficial. Nodes tri-**lacunar**. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{ }\fs21\f2\b{}The wood diffuse porous. The vessels very small; exclusively solitary. The vessel end-walls oblique; scalariform, or reticulately perforated and scalariform. The vessels without vestured pits; with spiral thickening. The axial xylem with tracheids; with fibre tracheids; without

C:\Users\joshir\Downloads\angiodata\info\staphyle.rtf

00003: mina pinnately veined; cross-venulate. \b{}Leaves\b{} \b{}stipulate\b{}. Stipules caducous. Lamina margins usually serrate, or dentate. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{ }\fs21\f2\b{}Leaf anatomy. \b0\fo\fs22\{ }\i{}The leaf lamina\i{} dorsiventral. Mucilaginous epidermis present, or absent. \b{}Stomata\b{} present; mainly confined to one surface (abaxial); \b{}anisocytic\b{}. Hairs present; eglandular. \b{}Lamina\b{} \b{}without secretory cavities\b{}. The mesophyll containing crystals. The crystals druses. Minor leaf veins without phloem transfer cells (\i{}Staphylea\i{}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{ }\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22\{ }\i{}Pith with diaphragms, or without diaphragms. Secretory cavities absent. Cork cambium present; initially superficial (sometimes in the epidermis itself). Nodes tri-**lacunar**. Primary vascular tissues in a cylinder, without separate bundles, or comprising a ring of bundles (at a very early stage); collateral. Internal phloem

C:\Users\joshir\Downloads\angiodata\info\stemonur.rtf

00003: -shaped\b{}. Leaf development not graminaceous. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{ }\fs21\f2\b{}Leaf anatomy. \b0\fo\fs22\{ }\i{}Hydathodes present (occasionally?), or absent. Mucilaginous epidermis present, or absent (?). Stomata anomocytic, or anisocytic. Hairs of assorted unicellular and multicellular forms, present (?). Lamina with secretory cavities, or without secretory cavities (?). Secretory cavities if present, containing latex. The mesophyll with sclerenchymatous idioblasts, or without sclerenchymatous idioblasts. \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{ }\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22\{ }\i{}The cortex containing cristarque cells, or without cristarque cells (?). Secretory cavities present, or absent; when present, with latex. Cork cambium present; initially superficial. Nodes variously uni**lacunar**, or tri-**lacunar** (?). Primary vascular tissues in a cylinder, without separate bundles, or comprising a ring of bundles, or comprising two or more rings of bundles, or consisti

C:\Users\joshir\Downloads\angiodata\info\sterculi.rtf

00004: he lower); anomocytic (usually), or paracytic (\i{}Reevesia\i{}). Hairs of numerous kinds present (in the family); eglandular and glandular; unicellular and multicellular. Complex hairs present; predominantly peltate and stellate (cf. \i{}Bombacaceae\i{} and \i{}Malvaceae\i{}). Adaxial hypodermis present, or absent. Lamina with secretory cavities, or without secretory cavities. Secretory cavities containing mucilage. The mesophyll containing mucilage cells (commonly, more widely distributed than canals), or not containing mucilage cells; containing crystals. The crystals druses, or solitary-prismatic. Minor leaf veins without phloem transfer cells (\i{}Fremontodendron\i{}, \i{}Sterculia\i{}). \par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{ }\fs21\f2\b{}Axial (stem, wood) anatomy. \b0\fo\fs22\{ }\i{}Secretory cavities present (schizogenous and/or lysigenous), or absent; with mucilage. Cork cambium present; initially superficial. Nodes tri-**lacunar**. Primary vascular tissues in a cylinder, without separate bundles,

C:\Users\joshir\Downloads\angiodata\info\styracac.rtf

00003: ar\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\{ }\fs21\f2\b{}Leaf anatomy. \b0\fo\fs22\{ }\i{}The leaf lamina\i{} dorsiventral. \b{}Stomata\b{} present; mainly confined to one surface (abaxial); \b{}anomocytic\b{}. Hairs present (often with a conspicuous indumentum of stellate or scale-like hairs); multicellular. \b{}Complex hairs\b{} \b{}usually \b{}present (usually brown or rufous)\b{}; peltate, or stellate. \b{}Cystoliths\b{} \b{}absent\b{}. Minor leaf veins without phloem transfer cells

(\i{\Styrax\i0}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{}Secretory cavities present, or absent; when present, with resin. \b{}}Cork cambium\b0{} present; \b{}}initially deep-seated\b0{}. \b{}}Nodes\b0{} \b{}}unilacunar\b0{}. Primary vascular tissues in a cylinder, without separate bundles. \b{}}Internal phloem\b0{} \b{}}absent\b0{}. Secondary thickening developing from a conventional cambial ring. Primary medullary rays mixed wide and narrow, or narrow.\par\par

C:\Users\joshir\Downloads\angiodata\info\symplocrta.rtf

00003: e leaf through a rosette of epidermal cells). \b{}}Stomata\b0{} present; mainly confined to one surface (abaxial); \b{}}generally \b0{} \b{}}paracytic\b0{}. \b{}}Lamina\b0{} \b{}}without secretory cavities\b0{}.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{}Cork cambium present; initially superficial. Nodes unilacunar. Secondary thickening developing from a conventional cambial ring.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood diffuse porous. The vessels small; solitary. The vessel end-walls scalariform, or reticulately perforated to scalariform (i.e., occasionally slightly reticulate). The vessels commonly with spiral thickening. The axial xylem with tracheids; without vasicentric tracheids; with fibre tracheids; without libriform fibres; without septate fibres. \b{}}The fibres\b0{} \b{}}often \b0{} \b{}}with spiral thickening\b0{}. The parenchyma apotracheal; wood not storied.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\2\b{}}Reproductive ty

C:\Users\joshir\Downloads\angiodata\info\tapiscia.rtf

00003: 0\sa0\li0\fi340\fs22{\fs21\2\b{}}Leaf anatomy. \b0\fo\fs22{\i{}}The leaf lamina\i0{} dorsiventral. Mucilaginous epidermis present, or absent. Stomata present. Hairs present; eglandular.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{}Cork cambium present. \b{}}Nodes\b0{} \b{}}tri-lacunar\b0{}. Secondary thickening developing from a conventional cambial ring.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The vessel end-walls oblique; scalariform.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\2\b{}}Reproductive type, pollination. \b0\fo\fs22{}Unisexual flowers present, or absent. Plants hermaphrodite, or monoecious, or dioecious, or polygamomonocious.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\2\b{}}Inflorescence, floral, fruit and seed morphology. \b0\fo\fs22{\b{}}Flowers\b0{} aggregated in inflorescences; \b{}}in racemes, or in panicles\b0{}. Inflorescences terminal, or axillary; drooping panicles or racemes. Flowers small; regular; 5 m

C:\Users\joshir\Downloads\angiodata\info\tetracen.rtf

00003: cloctytic (laterocytic). The mesophyll without sclerenchymatous idioblasts (but with large, branched idioblasts secreting resin).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{\i{}}Young stems\i0{} with solid internodes. Pith homogeneous (of pitted, relatively thick-walled cells). Cork cambium present; initially superficial. Nodes tri-lacunar. Primary vascular tissues in a cylinder, without separate bundles (the rays 13 cells wide); collateral. Internal phloem absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays mixed wide and narrow. \b{}}The axial xylem\b0{} \b{}}without vessels\b0{}.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The axial xylem with tracheids; with fibre tracheids. The parenchyma apotracheal (diffuse). The secondary phloem stratified into hard (fibrous) and soft (parenchymatous) zones. Included phloem absent. The wood not storied.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\2\b{}}

C:\Users\joshir\Downloads\angiodata\info\tetramer.rtf

00003: anatomy. \b0\fo\fs22{}Plants with crystal sand, or without crystal sand.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\2\b{}}Leaf anatomy. \b0\fo\fs22{\i{}}The leaf lamina\i0{} dorsiventral. Extra-floral nectaries present. Stomata present; anomocytic and paracytic. Adaxial hypodermis present. \b{}}The mesophyll\b0{} \b{}}with sclerenchymatous idioblasts\b0{}; containing crystals. The crystals raphides (and commonly also with crystal sand).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{}Cork cambium present; initially deep-seated. \b{}}Nodes\b0{} \b{}}tri-lacunar\b0{}. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays wide.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood diffuse porous. The vessels large; solitary, radially paired, and in radial multipl

C:\Users\joshir\Downloads\angiodata\info\theaceae.rtf

00004: ransfer cells (4 genera).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{\i{}}Young stems\i0{} with solid internodes. Pith with diaphragms, or without diaphragms; homogeneous, or heterogeneous. Secretory cavities absent. Cork cambium present; initially deep-seated, or initially superficial. \b{}}Nodes\b0{} \b{}}unilacunar\b0{}. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{}The wood semi-ring porous to diffuse porous. The vessels very small to medium; predominantly or exclusively solitary. \b{}}The vessel end-walls\b0{} horizontal to oblique, or oblique; \b{}}scalariform (with numerous bars)\b0{}. The vessels with spiral thickening, or without spiral thickening. The axial xylem with tracheids, or without tracheids;

C:\Users\joshir\Downloads\angiodata\info\theophra.rtf

00004: nt; initially superficial. Nodes unilacunar. Primary vascular tissues in a cylinder, without separate bundles,

or comprising a ring of bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays wide, or mixed wide and narrow. The wood diffuse porous. The vessels very small; mostly solitary and radially paired. The vessel end-walls simple. The axial xylem without fibre tracheids; with libriform fibres; without septate fibres (or these very rare). The fibres without spiral thickening. The parenchyma very scanty paratracheal (or none). Included phloem absent. The wood not storied. Reproductive type, pollination. Unisexual flowers present, or absent. Plants hermaphrodite (usually), or polygamodioecious (*Clavija*). The vessel end-walls simple.

C:\Users\joshr\Downloads\angiodata\info\thymelae.rtf

00004: solitary-prismatic. Minor leaf veins without phloem transfer cells (*Daphne*, *Pimelea*). Cork cambium present; initially superficial. Nodes **unilacunar**. Primary vascular tissues in a cylinder, without separate bundles; bicollateral (mostly), or collateral (rarely). Internal phloem present (nearly always), or absent (e.g. in the moss-like *Drapetes* and the ericoid *Kelleria*). Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring (mostly), or anomalous (in forms with interxylary phloem). The anomalous secondary thickening when present, via concentric cambia, or from a single cambial ring. The wood semi-ring porous (*Dirca*, *Passerina*), or diffuse porous. The vessels small (typically, sometimes extremely so). The vessel end-walls simple.

C:\Users\joshr\Downloads\angiodata\info\tiliaceae.rtf

00004: cilaginous canals and/or cells; schizogenous, or lysigenous. The mesophyll usually containing mucilage cells. Minor leaf veins without phloem transfer cells (*Entelea*, *Sparmannia*). Axial (stem, wood) anatomy. Secretory cavities present (usually, in pith and cortex); with mucilage. Cork cambium present; initially superficial. Nodes **tri-lacunar**. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays wide, mixed wide and narrow, and narrow (the xylem ring more interrupted in some species than others). The wood semi-ring porous, or diffuse porous. The vessels small to medium; solitary, or radially paired to in radial multiples (commonly), or clustered. The vessel end-walls simple. The vessels without vested pits; with spiral thickening, or w

C:\Users\joshr\Downloads\angiodata\info\tremandr.rtf

00004: mogeneous to heterogeneous. Nodes **unilacunar**. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. Primary medullary rays narrow. The wood diffuse porous. The vessels very to extremely small; solitary, radially paired, and in radial multiples. The vessel end-walls simple (mostly), or scalariform and simple. The vessels without vested pits; with spiral thickening (sometimes), or without spiral thickening. The axial xylem with fibre tracheids, or without fibre tracheids; with libriform fibres; including septate fibres, or without septate fibres. The fibres without spiral thickening. The parenchyma scanty paratracheal (or absent); wood not storied. Reproductive type, pollination. Unisexual flowers absent. Plants hermaphrodite.

00009: 1 f2 b { } General remarks. The data compiled for this package have *Tremandraceae* differing from *Elaeocarpaceae* (q.v.) in the exstipulate leaves, the diplostemonous androecium with fewer stamens and 4-locular anthers, and seeds with a straight embryo; also in esoteric characters relying on limited sampling (**unilacunar** nodes, xylem with libriform fibres, no proanthocyanidins).

C:\Users\joshr\Downloads\angiodata\info\trimenia.rtf

00003: mesophyll with spherical etherial oil cells. Axial (stem, wood) anatomy. Cork cambium present; initially superficial. Nodes **unilacunar** (but with two traces). Secondary thickening developing from a conventional cambial ring. The vessel end-walls scalariform. The axial xylem with fibre tracheids. Reproductive type, pollination. Unisexual flowers present, or absent. Plants hermaphrodite, or polygamomonoecious, or polygamodioecious. Inflorescence, floral, fruit and seed morphology. Flowers aggregated in inflorescences; in cymes, or in racemes, or in panicles. The ultimate inflorescence units cymose. Inflorescences terminal, or axillary; racemes or panicles. Flowers bracteate; bracteolate (the numerous bracteoles passing imperceptibly int

C:\Users\joshr\Downloads\angiodata\info\trochode.rtf

00003: nt; each enclosed by a pair of horseshoe-shaped subsidiaries. Hairs absent. The mesophyll with sclerenchymatous idioblasts (these striking, diverse in form). Minor leaf veins without phloem transfer cells. Axial (stem, wood) anatomy. Pith heterogeneous (with thick-walled, heavily pitted secretory cells). Cork cambium present; initially superficial. Nodes **penta-lacunar** (Sinnott), or **unilacunar** to **multilacunar** (depending on leaf size?). Primary vascular tissues comprising a ring of bundles (at first, separated by rays 13 cells wide); collateral. Internal phloem absent.

Secondary thickening developing from a conventional cambial ring. Primary medullary rays mixed wide and narrow. The axial xylem without vessels. The axial xylem with tracheids (these forming most of the wood); with fibre tracheids. The fibres without spiral thickening. The parenchyma diffuse apotracheal. The s

C:\Users\joshir\Downloads\angiodata\info\tropaeol.rtf

00003: mple, or compound; when compound, palmate. Lamina when simple entire, or dissected; when simple/dissected, palmatifid; palmately veined; cross-venulate. Leaves stipulate, or exstipulate; leaf development not graminaceous. Mucilaginous epidermis present, or absent. Stomata present; mainly confined to one surface, or on both surfaces; anomocytic. Minor leaf veins without phloem transfer cells. Tropaeolum. Axial (stem, wood) anatomy. Cork cambium present, or absent; initially deep-seated. Nodes tri-lacunar. Primary vascular tissues comprising a ring of bundles, or in a cylinder, without separate bundles to comprising a ring of bundles (the separate bundles becoming joined via an interfascicular cambium); collateral. Secondary thickening absent, or developing from a conventional cambial ring (the interfascicular cambium sometim

C:\Users\joshir\Downloads\angiodata\info\ulmaceae.rtf

00004: tructures associated with hairs), or absent. The mesophyll containing mucilage cells (in several genera), or not containing mucilage cells; containing crystals. The crystals druses (common in mesophyll), or solitary-prismatic (sometimes around vascular bundles). Minor leaf veins without phloem transfer cells. Celtis, Zelkova. Axial (stem, wood) anatomy. Pith with diaphragms, or without diaphragms. Cork cambium present; initially superficial. Nodes tri-lacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. The wood ring porous to diffuse porous. The vessels in diffuse porous woods medium, or small and medium; variable in arrangement. The vessel end-walls horizontal; scalariform and simp

C:\Users\joshir\Downloads\angiodata\info\umbellif.rtf

00005: avities. Secretory cavities containing oil, containing mucilage, and containing resin (cf. those in the axes, the contents often mixed). The mesophyll not containing mucilage cells (secretory cells of any kind seemingly lacking); containing crystals, or without crystals (often). The crystals when present, generally druses. Minor leaf veins with phloem transfer cells. Eryngium, or without phloem transfer cells. Aegopodium, Sanicula, Smyrnium. Axial (stem, wood) anatomy. Young stems often with hollow internodes. Secretory cavities present; with oil, with resin, and with mucilage (as in the leaves, containing clear, turbid, milky white or yellow mixtures, in cortex, pericycle and phloem). Cork cambium present, or absent; when present, initially deep-seated, or initially superficial. Nodes multi-lacunar (usually), or tri-lacunar. Primary vascular ti

00013: ococarpum, Ammi, Ammodaucus, Ammoides, Ammoselinum, Anethum, Angelica, Anginon, Angosesele, Anisopoda, Anisoscadium, Anisotome, Annesorhiza, Anthriscus, Aphanopleura, Apiastrum, Apium, Apodicarpum, Arctopus, Arcuatopterus, Arracia, Artedia, Asciadium, Asteriscium, Astomaea, Astrantia, Astrodaucus, Astydamia, Athamanta, Aulacospermum, Autumnalia, Azilia, Azorella, Berula, Bifora, Bilacunaria, Bolax, Bonannia, Bowlesia, Bunium, Bupleurum, Cachrys, Calyptosciandium, Capnophyllum, Carlesia, Caropsis, Carum, Caulalis, Cenolophium, Centella, Cephalopodium, Chaeroph

C:\Users\joshir\Downloads\angiodata\info\urticace.rtf

00005: Young stems often tetragonal. Secretory cavities present, or absent; when present, with mucilage, or with latex. Cork cambium present; initially deep-seated, or initially superficial (usually). Nodes tri-lacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral (nearly always), or bicollateral (in Myriocarpa). Internal phloem present (Myriocarpa), or absent. Secondary thickening developing from a conventional cambial ring (usually), or anomalous (in Myriocarpa). The anomalous secondary thickening from a single cambial ring. Primary medullary rays narrow. The wood diffuse porous. The vessels small to large (but usually medium sized); solitary, radially paired, and in radial multiples (but often predominantly solitary). The vessel end-walls simple. The vessels without vested pits; with spiral thickening, or without spiral thickening. The axial xylem without fibre tracheids; with librif

C:\Users\joshir\Downloads\angiodata\info\valerian.rtf

00004: hyll without crystals (or very rare, but alcohol treatment sometimes reveals sphaerocrystalline masses perhaps representing inulin). Minor leaf veins with phloem transfer cells. Centranthus, Fedia, Valeriana, Valerianella. Axial (stem, wood) anatomy. Young stems with hollow internodes. Cork cambium present (rarely, e.g. in Centranthus), or absent; where found, initially deep-seated. Nodes tri-lacunar. Primary vascular

tissues\{b\} comprising a ring of bundles\{b\}; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring (the primary bundles soon becoming linked by prosenchymatous elements and a narrow ring of phloem).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}The wood diffuse porous. The vessels very small; in radial multiples (these long). The vessel end-walls rather oblique;

C:\Users\joshir\Downloads\angiodata\info\verbenac.rtf

00004: or paracytic (rarely, but observed in \{i\}Gmelina hystrix\i0\}). Hairs present (with numerous kinds represented in the family); eglandular and glandular. \{b\}Cystoliths\{b\} \{b\}present (rather frequently, especially associated with hair bases, and/or hair tips may also be calcified)\{b\}. The mesophyll with sclerenchymatous idioblasts, or without sclerenchymatous idioblasts; containing crystals. The crystals mostly solitary-prismatic (large and small needles and prisms being widely recorded, but druses go unmentioned). Minor leaf veins without phloem transfer cells (6 genera).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fi2\{b\}Axial (stem, wood) anatomy. \b0\fo\fs22\}Young stems tetragonal (often), or cylindrical, or oval in section. Cork cambium present; initially deep-seated (rarely, e.g., in \{i\}Lantana\i0\} and \{i\}Lippia\i0\}), or initially superficial (usually). Nodes unilacunar (1several traces). Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem ab

C:\Users\joshir\Downloads\angiodata\info\viburnac.rtf

00003: ometimes represented by glands. Lamina margins entire, or serrate, or dentate; flat. Vegetative buds scaly, or not scaly. Leaf development not graminaceous.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fi2\{b\}Leaf anatomy. \b0\fo\fs22\}\{i\}The leaf lamina\i0\} dorsiventral, or dorsiventral to bifacial. Extra-floral nectaries often present (on the petioles). Stomata anomocytic, or anomocytic and paracytic. Hairs present; eglandular and glandular (the former variously simple and unicellular or tufted, stellate, or peltate; the latter with uniseriate stalk and multicellular head). Complex hairs present, or absent; when present, peltate, or stellate. Minor leaf veins without phloem transfer cells.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fi2\{b\}Axial (stem, wood) anatomy. \b0\fo\fs22\}Cork cambium present; initially superficial. Nodes tri-lacunar (in the few species examined by L.W.). Secondary thickening developing from a conventional cambial ring.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}

C:\Users\joshir\Downloads\angiodata\info\violacea.rtf

00004: stems\i0\} with solid internodes, or with hollow internodes (often, in the herbs). \{b\}Nodes\{b\} \{b\}tri-lacunar\{b\}. Primary vascular tissues in a cylinder, without separate bundles, or comprising a ring of bundles; collateral. Secondary thickening developing from a conventional cambial ring.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}The wood semi-ring porous (rarely), or diffuse porous. The vessels very small (usually), or small to medium; solitary (mostly), or radially paired, or in radial multiples. The vessel end-walls scalariform, or simple, or scalariform and simple. The vessels with spiral thickening, or without spiral thickening. The axial xylem with fibre tracheids, or without fibre tracheids; with libriform fibres, or without libriform fibres; usually including septate fibres. The parenchyma sparse paratracheal (or absent); wood partially storied, or not storied. Tyloses present, or absent.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fi2\{b\}Reproductive type, pollination. \b0\fo\fs2

C:\Users\joshir\Downloads\angiodata\info\vitidace.rtf

00004: r centric. Leaves with pearl glands (commonly, these deciduous), or without pearl glands. Stomata present; anomocytic. The mesophyll containing mucilage cells (with or without raphides); containing crystals. The crystals raphides, druses, and solitary-prismatic. Minor leaf veins without phloem transfer cells (\{i\}Cissus\i0\}, \{i\}Vitis\i0\}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}\fs21\fi2\{b\}Axial (stem, wood) anatomy. \b0\fo\fs22\}Cork cambium present; initially deep-seated, or initially superficial. Nodes tri-lacunar, or penta-lacunar, or multilacunar (7). Primary vascular tissues comprising a ring of bundles; collateral. Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring, or anomalous. The anomalous secondary thickening occasionally via concentric cambia (\{i\}Tetrastigma\i0\}). Primary medullary rays wide (usually), or mixed wide and narrow.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}The wood ring por

C:\Users\joshir\Downloads\angiodata\info\vochysia.rtf

00004: nilacunar, or tri-lacunar. Primary vascular tissues collateral, or bicollateral. Internal phloem present (often, as strands or a continuous ring in the outer part of the pith), or absent. Cortical bundles absent. Medullary bundles absent. \{b\}Secondary thickening\{b\} \{b\}developing from a conventional cambial ring, or anomalous\{b\}. The anomalous secondary thickening when occurring, from a single cambial ring.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22\}The wood diffuse porous. The vessels medium to large; solitary, radially paired, and in radial multiples. The vessel end-walls slightly oblique, or horizontal; simple. The vessels with vestured pits, or without vestured pits; without spiral thickening. The axial xylem with fibre tracheids, or without fibre tracheids; with libriform fibres; including septate fibres (rarely), or without septate fibres. The fibres without spiral thickening. The parenchyma predominantly paratracheal (aliform and confluent). Included phloem present (commonly), or absent. The

C:\Users\joshir\Downloads\angiodata\info\winterac.rtf

00003: 21\fi2\{b\}Leaf anatomy. \b0\fo\fs22\}\{i\}The leaf lamina\i0\} dorsiventral. Stomata paracytic. Hairs

absent. The mesophyll with spherical etherial oil cells; with sclerenchymatous idioblasts. Foliar vessels absent. Minor leaf veins without phloem transfer cells

(\i{}Drimys\i{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{\i{}Young stems\i{} with solid internodes. Cork cambium present; initially superficial. Nodes tri-lacunar, or bilacunar (? - according to Lammers \i{}et al.\i{} 1986, but with three traces). Primary vascular tissues in a cylinder, without separate bundles; collateral. Internal phloem absent. Secondary thickening developing from a conventional cambial ring. \b{}The axial xylem\b{} \b{}without vessels\b{}.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}The wood diffuse porous. The axial xylem presumably with tracheids. The parenchyma diffuse or in fine lines, sometimes terminal. Included phloem absent. The wood not storied.\par\p

C:\Users\josh\Downloads\angiodata\info\xanthoph.rtf

00003: lar. Unicellular hairs simple. Multicellular hairs uniseriate. \b{}The mesophyll\b{} \b{}without crystals (? at least, not recorded)\b{}.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{\i{}Nodes uni-lacunar. Primary vascular tissues in a cylinder, without separate bundles; collateral (?). Internal phloem absent. Cortical bundles absent. Medullary bundles absent. Secondary thickening developing from a conventional cambial ring. The axial xylem with vessels.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}The wood diffuse porous. The vessels medium to large; solitary. The vessel end-walls simple. The axial xylem without fibre tracheids; with libriform fibres. The parenchyma apotracheal (sic: banded see Metcalfe and Chalk 1965). Included phloem absent. The wood not storied.\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Reproductive type, pollination. \b0\fo\fs22{\i{}Unisexual flowers absent. Plants hermaphrodite.\par\pard\plain\qj\s22\sb0\sa0\li0

C:\Users\josh\Downloads\angiodata\info\zygophyl.rtf

00005: }, \i{}Zygophyllum\i{}).\par\pard\plain\qj\s22\sb0\sa0\li0\fi340\fs22{\fs21\f2\b{}}Axial (stem, wood) anatomy. \b0\fo\fs22{\i{}Young stems\i{} with solid internodes (mostly), or with hollow internodes (in \i{}Zygophyllum fabago\i{}). Pith homogeneous (usually, consisting of thin-walled cells), or heterogeneous (sometimes containing stone cells). Secretory cavities absent. Cork cambium present; initially deep-seated, or initially superficial (usually). Nodes tri-lacunar (with the lateral gaps associated with a split trace and very closely opposed); commonly exhibiting on either side a trace which divides, contributing the outermost lateral traces to each of the opposite leaves (exemplified in five genera), or without split-lateral traces (?). Primary vascular tissues in a cylinder, without separate bundles, or comprising a ring of bundles (then comprising closely placed bundles). Internal phloem absent. Secondary thickening developing from a conventional cambial ring, or anomalous. \b{}Primary medullary r