

# Glossary

Adapted from Retief & Herman (1997) and Leistner (2000).

ABBREVIATIONS: *adj.*, adjective; *adv.*, adverb; *e.g.*, for example; *esp.*, especially; *i.e.*, that is; *pl.*, plural; *sing.*, singular; *syn.*, synonym; *vb.*, verb.

## A

**a-** (*prefix*): without, lacking.

**abaxial**: applied to the side or surface, facing away from the **axis** or stem (compare **adaxial**).

**achene**: a small, dry fruit, not splitting when ripe, formed from a **superior ovary** of one **carpel** and containing a single seed, with the seed coat free from the fruit wall, as in *Clematis* (Ranunculaceae) (compare **cypsela**).

**actinomorphic**: applied to flowers that are radially symmetrical, i.e. capable of being bisected into similar halves in more than one vertical plane, forming mirror images (= **regular**) (compare **irregular**, **zygomorphic**).

**acroscopic**: facing apically, towards the tip.

**acumen**: a long, tapering point.

**acuminate**: narrowing gradually to a point.

**acute**: having a sharp and rather abrupt point, usually applied to a **leaf apex**.

**adaxial**: applied to the side, facing the stem or **axis** (compare **abaxial**).

**adnate**: fused to an organ of a different kind, e.g. an ovary to the **calyx tube**.

**adventitious**: applied to plant organs produced in an unusual or **irregular** position, or at an unusual time of development, as in adventitious buds, roots, or shoots.

**alien**: a plant introduced to a region by man; often having become naturalised in the wild.

**alternate**: of leaves that are arranged in a zig-zag pattern (alternate) along the **axis** or **rachis** (compare to **opposite**).

**amphibious**: living both on land and in water.

**amplexicaul**: stem-clasping, as when the base of the leaf is dilated and embraces the stem.

**androecium**: the **stamens** and accessories of one flower.

**androgynophore**: an elongated stalk bearing both the male (*andro-*) and female (*gyno-*) parts of the flower.

**androphore**: a stalk bearing the **androecium**.

**angiosperm**: a seed-bearing plant whose **ovules**, and hence seeds, develop within an **ovary** (compare **gymnosperm**).

**anterior** (applied to **floral** organs): in a position most remote from the **axis** (compare **posterior/posticous**).

**anthelmintic**: (a medicine) acting against parasitic (esp. intestinal) worms.

**anther**: the male, pollen-bearing organ in a flower, borne on a stalk-like **filament**.

**anthesis**: period during which the flower is open.

**anticous/antical**: applied to that which is most remote or turned away from the **axis**; occasionally employed for **introrse**, as applied to **anthers**.

**antrorse**: bent or directed towards the **apex** or forward (compare **retroverse**).

**apex** or **apical**: the tip, or distal end of an organ, usually of a leaf or fruit.

**apicule/apiculum/apiculus** (*adj.* **apiculate**): a short point.

**apud**: in the publication of.

**areolate**: divided into distinct spaces.

**aril**: a fleshy, coloured covering on a seed, evolved mainly to attract birds and insects, which then distribute the seed.

**aristate**: a sharp, slender bristle or **awn**, sometimes borne on a leaf tip or teeth of a leaf margin.

**armed**: bearing **spines**, **prickles** or **thorns**.

**asymmetric**: unequal.

**attenuate**: drawn out into a long, narrow point.

**auricle** (*adj.* **auricled/auriculate**): an ear-like lobe or appendage at the base of a leaf or other organ.

**awn**: a long, sharp bristle, usually borne at the tip of a leaf or on the edge of a **calyx**: see also **aristate** and **bristle-tip**.

**axil**: the angle between a leaf surface and the stem that bears it; also the angle between a leaf **midrib** and the side or **lateral veins**.

**axis** (of an **inflorescence**): that part of the stem or branch on which the individual flowers are borne.

## B

**bacterial nodule**: a dark, often raised spot in a leaf, which houses symbiotic bacteria that fix atmospheric nitrogen to the benefit of the plant.

**barbed**: with rigid points or lateral bristles pointing backwards.

**barbellate**: shortly **barbed**.

**basal**: at the base.

**berry**: a many-seeded, fleshy fruit.

**bi-coloured**: of two colours, usually applied to a leaf that is dark green above and much paler below.

**bifid**: cleft into two parts for about half the length.

**bilabiate**: **2-lipped**, as when two or three lobes of a **calyx** or **corolla** stand separate as an upper **lip** from the others forming a lower **lip**.

**bilobed**: with two lobes.

**bipinnate** (= **2-pinnate**): of a **compound** leaf that is twice-divided, i.e. each segment or **pinna** is again divided.

**bipinnatifid**: said of a pinnate leaf in which the leaflets are pinnatifid or incised (cut) about half-way to the **midrib** of the leaflet; also termed **bipinnatifidly compound**:

**bipinnatifidly compound**: see **bipinnatifid**.

**biseriate**: arranged in two rows or **whorls**.

**blade**: the flattened part of a leaf.

**brachyblast**: a very short branch of limited growth, bearing leaves and sometimes flowers and fruit; also termed a **spur**.

**bract**: a small, atypical or modified leaf situated at the base of a flower, or on a flower stalk or **pedicel**.

**bracteole**: a small **bract**.

**bristle-tip**: see **awn**.

**bud**: an undeveloped shoot that can give rise to a branch or flower.

**bulbous-based**: with an inflated base.

**bullate**: having a blistered or puckered surface; (of a leaf surface): prominently raised, like a bubble, between the veins.

**bundle sheath cells**: cells forming a sheath around the vascular bundles of many plant species.

**bushveld**: a colloquial term of South African origin to denote any vegetation type composed of both trees and grasses, often with shrubby thicket.

## C

**C-4 plants**: species that produce 4-carbon acids as the primary initial CO<sub>2</sub> fixation products. Most C-4 species are monocots, especially grasses and sedges, while more than 300 are dicots.

**caducous**: falling off early.

**callus** (*pl.* **calli**): a thickened part, such as the thickened extension at the base of the **lemma** at the point of its attachment to the **rachilla**.

**calyx**: the outer **whorl** of a flower, made up of a number of **sepals** (calyx lobes) that protect the flower in bud.

**calyx tube**: when the **sepals** are partly united, the lower portion is referred to as the tube and the upper free part as the **limb**, usually divided into calyx teeth, lobes, or segments (see also **hypanthium**).

**campanulate**: bell-shaped.

**cane**: the stems of large grasses and small palms.

**canescent**: grey-pubescent or **hoary**.

**canopy**: the branches and leaves of a tree, also known as the **crown**; a term usually applied to the top or upper layer of a forest.

**capitate**: (1) like the head of a pin, as the **stigma** of some flowers; (2) collected into compact, head-like clusters, as the inflorescences of Asteraceae.

**capitulum** (*pl.* **capitula**): a dense, head-like inflorescence usually of **sessile** flowers (see also **head**).

**capsule**: a dry fruit comprised of more than one **carpel**; may be **indehiscent** (not splitting open) or **dehiscent** (splitting open).

**carina** (*adj.* **carinal**): a keel; the two partially united **anterior** (lowest) petals of a **papilionaceous** flower, or the single, similar-shaped, **anterior** petal in many Polygalaceae.

**carinate:** keeled.

**carpel:** the single unit of a **compound pistil** (a flower bearing more than one style); also the units of a compound fruit.

**cataphyll:** small scale leaf, e.g. on **rhizomes** of flowering plants.

**catkin:** a dense, often pendulous **spike** of small, unisexual flowers with no conspicuous **perianth**.

**caudate:** abruptly ending in a long, tail-like tip or appendage.

**cauline:** arising from, or inserted onto the stem.

**choripetalous:** having separate and distinct petals (= **polypetalous**) (compare **gamopetalous**, **sympetalous**).

**ciliate:** of a leaf margin, fringed with hairs.

**circumscissile:** dehiscing as if cut circularly around an organ, often of a fruit capsule.

**cladode:** a flattened **photosynthetic** stem.

**clavate:** club-shaped or thickened towards the end.

**clustered:** arranged in a tight group, often apparently arising from one point.

**commissural:** of a joint or seam, such as that between two adhering sepals.

**commissure:** the faces of cohering **carpels** (e.g. in **Apiaceae**); the place of joining or meeting.

**compound:** made up of several similar parts, commonly applied to a leaf that is divided into leaflets; **double compound:** in a leaf, twice-divided or bi-pinnate. See also **simple**.

**compound umbel:** see **umbel**.

**concolor/concolorous:** of uniform colour (e.g. upper and lower leaf surface with the same colour) (compare **discolorous**).

**connate:** applied to parts of the same series, which are united so closely that they cannot be separated without tearing.

**coppice:** the young, vigorous shoots produced from the base of a tree trunk in response to it being damaged or felled, or from damaged roots; see also **sucker**.

**cordate:** of a leaf with a lobed or heart-shaped base.

**coriaceous:** firm, tough, of the consistence of leather.

**corn:** a tuberous bulb-like **rootstock**.

**corolla:** a collective term for the **petals** of a flower.

**corona:** a **crown**; (in the flower of some **Apocynaceae** and **Passifloraceae** and others): a circle of appendages between the **corolla** and **stamens**, often united in a ring or crown; in some members of the **Asclepiadoideae**—**Apocynaceae**, the corona consists of one or two (sometimes three) alternating rows, different in size and shape, the outer row nearest to the **corolla lobes**, the inner row nearest to the **staminal column**.

**corymb** (*adj.* **corymbose**): a flat-topped **racemose inflorescence** in which the branches or **pedicels** start from different points, but all reach to about the same level.

**crenate** (*noun* **crenation**) (of a margin): notched with **regular** blunt or rounded teeth; **scalloped**.

**crenulate:** crenate with very small teeth; minutely **scalloped**.

**crenate/crenateform:** biconcave, resembling the shape of the moon in its first or last quarters.

**crown:** see **canopy**.

**cuneate:** of a leaf base, which is wedge-shaped or like an inverted triangle.

**cupule/cupulum** (*pl.* **cupula**): a cup-shaped structure at the base of some fruits, formed by the fusion of **involucral bracts** at their bases, e.g. the acorn of oaks, a structure at the base of the fruits of some palms, the cup-shaped **involucre** of some **Asteraceae**; a series of free **trichomes apically** on **achenes** of **Asteraceae**, which become fused with age.

**cupuliform:** cup-shaped.

**cuspidate:** abruptly tipped with a sharp, rigid point.

**cuticle:** the thin outer skin of a leaf.

**cylindrical:** shaped like a cylinder, the sides parallel to one another and circular in section.

**cymbiform:** boat-shaped.

**cyme** (*adj.* **cymose**): a **determinate inflorescence** in which each flower, in turn, is formed at the tip of a growing axis, and further flowers are formed on branches arising below it (compare **indeterminate inflorescence**).

**cypsela** (*pl.* **cypselae**): an **achene** derived from a 1-loculed, **inferior ovary**; as in the **indehiscent** fruits of **Asteraceae** (compare **achene**).

## D

**decoction:** a liquid preparation of a medicinal plant, produced by boiling

the selected parts that extract the water-soluble substances.

**decumbent:** spreading horizontally at first, but then growing upwards.

**decurrent:** of a leaf **blade**, which has its base running, or continuing, along down the stem.

**decussate:** of leaves arranged in pairs along a stem, where each pair is set at right-angles to the pair above and below it.

**dehiscent:** splitting open to release seeds, pollen, or spores. (opposite: **indehiscent**)

**deltoid:** shaped like an equal-sided triangle.

**demataceous hyphomycetes:** fungi resembling the genus *Dematium*, having a felted layer of hypaebearing perithecia.

**dendritic/dendroid:** tree-like; resembling the shape of a tree; having a branched appearance.

**dentate** (of a margin): prominently toothed, the teeth directed outwards.

**denticulate:** finely toothed.

**determinate** (of an **inflorescence**): with a **bud** or **flower** terminating the growth of the main **axis** (compare **indeterminate**).

**di-** (*prefix*): two-.

**dichotomous:** forking regularly into two equal branches.

**digitate:** with 3 to 9 **leaflets** radiating from a central point, or the end of the leaf stalk (**petiole**); also termed **digitately compound**.

**dioecious:** with unisexual flowers, the male and the female flowers on separate plants (compare **monoecious**).

**disc:** (1) an enlargement of the **receptacle** within the **calyx** or within the **corolla** or **stamens**, usually in the form of a ring, cup or cushion, often lobed or even cut up into so-called (nectary) **glands**; (2) **disc floret:** the central florets as compared with the **ray florets** in a head of the **Asteraceae**.

**discolorous:** of a leaf in which the two surfaces are unlike in colour (compare **concolorous**).

**distichous:** regularly arranged one above the other in two opposite rows, one on each side of the stem or **rachis**.

**divaricate:** widely divergent or spreading in different directions, and often horizontal.

**domatia:** a cavity formed by a plant (usually on the underside of a leaf), in which live minute insects or mites, apparently living in symbiosis with the plant.

**double compound:** see **compound**.

**drip-tip:** an elongation of the tip of a leaf, which helps shed water from the leaf surface, particularly in high-rainfall, tropical areas where continually wet leaves may lead to the development of leaf diseases.

**drupe:** a fleshy **fruit** with a single hard seed or 'stone'.

## E

**e-** (*prefix*): often implying absence of something, e.g. in **ebracteate**, **eglandular**.

**ebracteate:** without **bracts**.

**eglandular:** having no **glands**.

**elliptic:** usually said of a leaf, which tapers to both ends and is widest about the middle.

**emarginate:** of a leaf with a notch in the tip or apex.

**endemic:** having a natural distribution confined to a particular geographical region.

**entire:** said of a leaf, which has a continuous margin, not broken by teeth or lobes.

**epi-** (*prefix*): on, upon, above, over.

**epicalyx:** a series of small **bracts** growing out from below the **sepals** or **calyx**, sometimes more prominent than the sepals.

**epigynous:** applied to the flower when the sepals, petals, and stamens are apparently borne above the **ovary**, the latter being enclosed in an **adnate receptacle** or **calyx tube** (compare **hypogynous**, **perigynous**).

**epilithic:** growing on rocks (= **lithophytic**).

**epiphyte** (*adj.* **epiphytic**): a plant that grows on another plant, but without deriving nourishment from it, i.e. not parasitic, as some ferns and orchids growing on trees.

**ex-** (*prefix*): often implying absence of something, e.g. **exstipulate**.

**excurrent:** extending beyond the **apex** or margin of a leaf into a **muco** or **awn**.

**exindusiate:** lacking an **indusium** (compare **indusiate**).

**exotic:** not **indigenous** or native; an introduced plant.

**exstipulate:** without **stipules**.

**extra-floral nectary:** a nectary that is found in some place other than the flower; (in this book): at the base of leaflets in the **legumes**, and of leaves in some other families.

## F

**falcate:** curved like a scythe.

**family:** a group of one to many **genera**, believed to be related phylogenetically, usually clearly separable from other such groups; the major taxonomic group between **genus** and order.

**fasciated:** of leaves or flowers that arise in numbers from a single point on the stem.

**filament:** see **anther**.

**filiform:** slender, thread-like.

**fistular:** hollow throughout its length, like a pipe, but closed at the ends.

**flabellate:** fan-like.

**flexuose/flexuous:** zigzag or bent alternately in opposite directions.

**floral:** belonging to, or associated with a flower.

**floret:** small, individual flowers that make up a (dense) **inflorescence**, as those in the **heads** of Asteraceae or the **spikelets** of Poaceae.

**flower:** the sexual, reproductive structure of **angiosperms**, typically consisting of **gynoecium**, **androecium**, and **perianth**, and the **axis/receptacle** bearing these parts.

**fluted:** of a tree trunk, which develops vertical grooves that run the length of the trunk; an adaptation to increase trunk strength in tall, slender trees.

**foliolate:** having **leaflets**, usually preceded by the number of leaflets, e.g. 3-foliolate (= trifoliolate). The term **foliate** is of more colloquial usage than **foliolate**, and is used in this work.

**follicle:** a many-seeded, dry fruit, derived from a single **carpel** and splitting down one side, e.g. one **lobe** of a pod of *Sterculia*.

**forb:** a non-woody plant other than a grass, sedge, rush, etc. (compare **herb**).

**forest:** a vegetation type composed primarily of large trees with overlapping canopies, under which a small **tree layer**, a **shrub stratum**, and a **herb layer** characteristically occur.

**free:** neither adhering, nor united; **free-basal placenta:** one in which the ovules are attached to a central column arising from the base of the ovary cavity and not reaching the top, e.g. in Primulaceae; **free-central placenta:** the same, but reaching to the top of the cavity, e.g. in most Caryophyllaceae.

**frond:** the leaf of a fern.

**fruit:** a dry or fleshy structure, developed from the **ovary** and containing one or many **seeds**.

**fusiform:** spindle-shaped, thick, but tapering towards each end.

## G

**gall:** an abnormal growth caused by infestation of a plant part by an insect or disease organism.

**gamopetalous:** with the **petals** united, either entirely or at the base into a tube, cup, or ring (see also **choripetalous**, **sympetalous**; compare **polypetalous**).

**gamosepalous:** with united **sepals**.

**gemma** (*pl.* **gemmae**): a small, usually cellular, asexual reproductive body which becomes detached from the parent organism and develops into a new individual, especially in ferns, mosses, liverworts, and some fungi.

**gemmaiferous:** bearing gemmae.

**geniculate:** bent like a knee.

**genus** (*pl.* **genera**): a group of species believed to be related phylogenetically and usually clearly separable from other such groups, or a single species without close relatives; the major taxonomic rank between species and **family**.

**glabrescent:** becoming **glabrous** or nearly so.

**glabrous:** without hairs.

**gland:** an organ or cell secreting a substance such as sugary sap, salt, or water.

**glaucous:** bluish-green, or covered with a waxy bloom.

**globose:** of a 3-dimensional object (such as a fruit), which is almost spherical.

**glochidium** (*pl.* **glochidia**; *adj.* **glochidiate**): barbed bristle or hooked hair.

**glomerule** (*adj.* **glomerulate**): a small, compact cluster.

**glume:** a **bract**, usually chaffy, in the **spikelets** of Cyperaceae, Poaceae, and similar plants.

**geoxylic:** of a woody plant with numerous stems arising from a subterranean **rhizome**.

**grassland:** a vegetation type dominated by grasses. When a certain quantity of trees is present, it is termed a **wooded grassland**.

**gregarious:** growing in groups or colonies.

**gymnosperm:** a seed plant with the **ovules** borne on the surface of a **sporophyll** (compare **angiosperm**).

**gynoecium:** the female part of the flower, consisting, when complete, of **ovary**, **style**, and **stigma**; also called **pistil**.

## H

**habitat:** the environment in which a plant or animal lives.

**hastate:** applied to the base of a leaf when it has two more or less triangular **lobes** diverging laterally.

**head:** a dense **inflorescence** of **sessile**, or nearly sessile flowers on a **compound receptacle** (see also **capitulum**).

**helicoid:** coiled; (of a **cymose inflorescence**): branching repeatedly on the same side.

**herb:** a non-woody plant. Large as well as small plants may be **herbaceous**.

**herbaceous:** with non-woody stems as opposed to woody stems.

**heterogamous:** of different sexes; (of a flowerhead, as in some Asteraceae): having two kinds of **florets**, including **ray florets**, which are neuter or unisexual, and **disc florets**, which are bisexual; of **spikelet** pairs in Poaceae: consisting of a sterile and a female-fertile spikelet (compare **homogamous**).

**heteromorphic:** of different forms.

**hirsute:** with rather coarse, stiff hairs (compare **villous**).

**hirsutulous:** minutely **hirsute**.

**hispid:** bristly **pubescent**.

**hispidulous:** minutely **hispid**.

**hoary:** covered with white or greyish white, very short, closely interwoven hairs.

**holotype:** a single specimen designated by the author as the type specimen.

**homogamous:** applied to a flowerhead/**capitulum** with all the flowers of the same kind; or to **spikelet** pairs in Poaceae that are of the same sexuality (compare **heterogamous**).

**host:** an organism on which a **parasite** lives and by which it is nourished (also applied, loosely, to a plant supporting an **epiphyte**).

**hyaline:** almost transparent.

**hypanthium** (*pl.* **hypanthia**): a cup or tube bearing **floral** parts above the base, and often above the top of the ovary of a flower, e.g. in many Myrtales or Onagraceae (see also **calyx tube**).

**hypogynous:** having the flower parts attached below the base of the ovary and free from it; flowers with this arrangement have a **superior ovary** (compare **epigynous**, **perigynous**).

## I

**imbricate:** overlapping.

**imparipinnate:** of a pinnate leaf bearing a single terminal leaflet at the end of the central **axis** or **rachis**.

**indehiscent:** see **dehiscent**.

**indeterminate:** (1) (of an **inflorescence**): the lateral or lower flowers mature first, while the primary **axis** continues to grow, hence the terminal flower is the last to open, and it is therefore a **racemose inflorescence** (compare **cymose**) (2) (of growth): (= **monopodial**) the condition in which the terminal bud persists and produces successive lateral branches.

**indigenous:** naturally-occurring in a particular, defined area; synonymous with **native**, which sadly is a fine term that is politically-sensitive in South Africa.

**indurated:** hardened.

**indusiate:** having an **indusium** (compare **exindusiate**).

**indusium:** a flap of tissue covering a **sorus** on a fern leaf.

**inferior:** beneath or below, as in a **calyx**, which is below the **ovary**, the latter then being **superior**; as in an **ovary**, which appears to be below the **calyx**, the latter being adherent to the ovary.

**inflorescence:** a flowering shoot bearing more than one flower, arranged in various patterns (see also **spike**, **raceme**, **panicle**, **umbel**).

**insectivorous:** catching, and presumably feeding on, insects.

**interpetiolar**: literally “between petioles”, referring to an organ borne on the **node** between the **petiole** bases of opposite leaves; especially of the **interpetiolar stipules** characteristic of all members of the family Rubiaceae.  
**introrse**: applied to an **anther** opening towards the centre of the flower.  
**involucre**: a small **involucre**; the **involucre** of a secondary **umbel**.  
**involucre/involucrum** (*adj.* **involucral**): a number of **bracts**, e.g. those surrounding the base of a flowerhead/**capitulum** or of an **umbel**.  
**involute**: having the edges of the leaves rolled towards the **adaxial** surface (compare **revolute**).  
**irregular** (of a flower, calyx or **corolla**): bilaterally symmetrical, symmetrical about one plane only, usually the plane that bisects the flower vertically along the longitudinal axis; (= **zygomorphic**) (compare **actinomorphic**, **regular**).  
**isotype**: duplicate of the holotype.

**J**

**jugate**: coupled or yoked together, applied especially to the **leaflets** of a **pinnate** leaf.

**K**

**keel**: (*syn.* **carina**): a ridge like the keel of a boat; in Fabaceae a boat-shaped structure formed by the fusion of the two **anterior petals**.  
**keeled**: ridged along the middle of a flat or convex surface.  
**kloof**: a deep valley, ravine, or gorge.  
**kranz anatomy**: the concentric arrangement of **bundle sheath cells** typical of C-4 plants.

**L**

**labellum**: a **lip**.  
**lacinia** (*pl.* **laciniae**): a slender **lobe**.  
**lacinate**: cut into slender, pointed **lobes**.  
**lacinate**: finely **lacinate**.  
**lamina**: the flattened part of a leaf.  
**lanceolate**: of a leaf, which is narrowly lance-shaped and widest at about one-third from the base.  
**lateral veins**: the main veins arising from, or branching off, the **midrib**. (= **side veins** or **secondary veins**)  
**latex**: a copious exudate or sap from a damaged plant, particularly a milky sap, e.g. Moraceae, Euphorbiaceae, Apocynaceae.  
**lax**: loose or floppy, sometimes drooping.  
**leaf apex**: the tip or point of a leaf, the opposite end from the petiole or stalk.  
**leaf axis**: the central line of the leaf, usually the **rachis** or **midrib** of a leaf.  
**leaflet**: a separate unit of a **compound** leaf.  
**leaf-opposed**: said of an organ (flower, spine or tendril) that is situated at the **node** opposite a leaf.  
**lectotype**: specimen chosen to act as a type from the syntypes.  
**legume**: any plant belonging to the large family Leguminosae (in recent times usually broken down into the families Mimosaceae, Caesalpiniaceae and Fabaceae); also a colloquial term applied to plants with a bean-like **pod**.  
**lemma**: the lower of two **bracts** enclosing the florets of Poaceae.  
**lenticel**: very small, corky dots in the young bark (periderm) of a stem or twig through which gases and moisture are expelled.  
**liana/liane**: a woody climber with rope-like stems.  
**ligule**: (1) a thin, membranous and/or hairy appendage at the top of the leaf sheath as in Poaceae; (2) the **limb** of **ray florets** in Asteraceae.  
**limb**: the upper, usually expanded part of the **calyx** or **corolla** above the tube, throat, or claw.  
**linear**: usually of a very narrow leaf with parallel sides and at least 4–5 times as long as broad.  
**lip**: (1) one of two divisions of a **gamosepalous calyx** or a **gamopetalous corolla** when it is cleft into an upper (posterior) and a lower (anterior) portion (see **bilabiate**); (2) of an orchid: the lowest petal (the inner median **perianth lobe**), usually enlarged and different in form from the two lateral ones (= **labellum**).  
**lithophyte** (*adj.* **lithophytic**): a plant that grows on rocks (= **epilithic**).  
**lobe**: one of the parts into which a flattened plant member (usually a leaf) is cut, when the parts are too large and distinct to be called teeth, but not

completely separated from one another.  
**locule**: a chamber of an **ovary** or an **anther**.

**M**

**mericarp**: a segment of a **fruit** that splits away as a perfect fruit itself.  
**midrib**: the main vein that runs down the centre of a leaf.  
**miombo**: a native term widely used in south tropical Africa to describe a deciduous woodland type dominated by members of the genus *Brachystegia* (Caesalpiniaceae) and other closely related genera, such as *Julbernardia*, *Isoberlinia* and *Berlinia*.  
**moniliform**: like a string of beads.  
**mono-** (*prefix*): one; single.  
**monocarpic**: applied to a plant that flowers and fruits only once and then dies (compare **polycarpic**).  
**monoecious**: with male and female flowers, separate but borne on the same individual plant.  
**monopodial** (of growth): with a **persistent** terminal growing point producing many lateral organs successively (compare **sympodial**).  
**montane**: of the mountains.  
**mucilage** (*adj.* **mucilaginous**): a gelatinous substance that absorbs water and increases in bulk.  
**muco**: a short, sharp, and very fine point borne on the tip of the leaf.  
**mucronate**: ending abruptly in a short, stiff point, which is a continuation of the **midrib**.  
**mucronulate**: finely **mucronate**.  
**muricate**: rough, with short, hard **tubercles** or pointed protuberances.  
**muriculate**: finely **muricate**.

**N**

**-nate** (*suffix*): indicating the number of parts in a group, e.g. leaves 3-nate = three leaves in a group or cluster.  
**naturalised**: introduced from another region, reproducing freely from seed, and competing successfully with **indigenous** plants.  
**neotype**: specimen chosen to act as a type when the original material has been lost.  
**nerves**: the principal or more conspicuous ribs of a leaf, which start from the **midrib** and diverge or branch throughout the **blade**; the smaller branches are veins.  
**net venation**: the very fine veins of the leaf, usually all joining one another and forming a network.  
**node**: the point on a stem where the leaf or leaves emerge.  
**nut**: a dry, hard, usually one-seed **indehiscent** (non-splitting) fruit.  
**nutlet**: a little **nut**.

**O**

**ob-** (*prefix*): inverse or inversely, e.g. **obovate** = inversely **ovate**.  
**obcordate**: more or less heart-shaped, but with the narrow end below, and the broad end deeply notched.  
**oblanceolate**: of a narrow leaf resembling an inverted lance, widest two-thirds up from the base (above the middle).  
**obovate**: of a leaf shape, roughly shaped like an inverted egg, widest in the upper half.  
**obtuse**: blunt or rounded at the end.  
**-oid** (*suffix*): indicates likeness, resemblance or similarity; or something having the form or nature of something else; e.g. **racemoid**: resembling a **raceme**; **petaloid**: resembling a **petal**.  
**opposite**: said of leaves inserted in pairs at each **node**, with a leaf on each side of the stem.  
**orbicular**: flat with a circular outline.  
**ovary**: the hollow **basal** portion of a flower bearing the seed or seeds, sometimes divided into two or more chambers or **locules**.  
**ovate**: of a leaf shape, roughly egg-shaped in outline, widest in the lower half.  
**ovule**: the young developing seed in an **ovary**.

**P**

**palea** (*pl.* **paleae**; *adj.* **paleate**): (1) one of the chaffy scales or thin colourless **bracts** amongst the flowers on the **receptacle**, in Asteraceae; (2) the inner of two bracts enclosing the **floret**, in Poaceae.

**pallid:** pale in colour.

**palmate:** of a leaf shape resembling the palm of a hand, with 3 or more lobes radiating from a central portion of the **lamina**.

**palmatisect** (of a leaf): **palmately** divided down to the **midrib**.

**pandurate/panduriform:** fiddle-shaped.

**panicle:** an **inflorescence**, which is a branched **raceme**, each branch bearing a raceme of flowers.

**papilionaceous/papilionoid:** applied to flowers with a 'butterfly-like' appearance, as in many Papilionoideae—Fabaceae and Polygalaceae.

**papilla** (*pl.* **papillae**): a soft, nipple-shaped protuberance; a type of **trichome**.

**papillate:** having **papillae**.

**pappus:** the ring of hairs or scales around the top of the fruit (as in Asteraceae) and perhaps representing the **calyx limb**.

**parasite:** an organism living on, or in a different organism and deriving nourishment from it (compare **epiphyte**, **saprophyte**).

**paripinnate:** said of a **compound** leaf, which bears no terminal **leaflet**, i.e. has an even number of leaflets.

**pectinate:** like a comb.

**pedicel** (*adj.* **pedicellate/pedicelled**): the stalk of an individual flower.

**peduncle** (*adj.* **pedunculate/ peduncled/peduncular**): the stalk of an **inflorescence**; the common stalk (**rachis** or **axis**) of several **pedicellate** or **sessile** flowers.

**pellucid:** translucent.

**peltate:** usually of a round leaf, where the petiole arises from the centre of the leaf, rather than from the edge of the leaf.

**pendent/pendulous** (of ovules): arising on, and hanging down from an **apical placenta**.

**perianth:** the floral envelope that includes the **calyx** and the **corolla**; a term mainly applied to these organs in the Monocotyledonae (bulbs, grasses, orchids, etc.).

**perennial:** lasting all year, not dying back in winter.

**perigynous:** applied to the flower when the sepals, petals, and stamens arise on an open **receptacle** surrounding the ovary, but are not **adnate** to it (compare **epigynous**, **hypogynous**).

**persistent:** remaining attached, not falling off.

**petal:** one **lobe** of the **corolla**, the showy and often colourful part of a flower.

**petaloid/petaline:** resembling **petals**.

**petiole** (*adv.* **petiolate**): the stalk of a leaf.

**petiolule:** the stalk of a **leaflet**.

**photosynthetic:** of a green plant part in which the process of photosynthesis takes place, whereby plants generate carbohydrates from water, carbon dioxide, and sunlight with the aid of the green pigment **chlorophyll**.

**phyllary:** an individual **bract** of the **involucre**, e.g. in the **inflorescence** of Asteraceae.

**phyllode:** a flattened, leaf-like petiole, which takes on the functions of a leaf.

**pilose:** with long, shaggy hairs.

**pinna** (*pl.* **pinnae**): a single unit of a leaf that is once-divided, or a pinnate leaf; see also **leaflet**.

**pinnate:** said of a leaf that is once-divided and having **leaflets** arranged in two ranks on **opposite** sides of the **rachis**; also termed **pinnately compound**.

**pinnately compound:** see **pinnate**.

**pinnatifid:** said of a leaf **blade** that is cut about half-way to the **midrib**.

**pinnatipartite:** **pinnately** divided almost to the **midrib**.

**pinnatisect:** **pinnately** divided down to the **midrib**.

**pinnule:** a single unit of a twice-divided (2-**pinnate**) leaf.

**pistil:** see **gynoecium**.

**placenta:** the part of the **ovary** that is sometimes, but not always, thickened or raised, and to which the **ovules** are attached (see also **free**).

**plicate:** folded back and forth longitudinally like a fan.

**pod:** a dry fruit formed from a single **carpel**; often a term applied to the hard fruit of the **legumes**, usually containing several seeds.

**polycarpic:** applied to a plant that flowers and fruits often (compare **monocarpic**).

**polypetalous:** of flowers with petals that are free from each other (compare **gamopetalous**).

**posterior:** in position nearest to the **axis** (compare **anterior/anticous**).

**posticous:** on the **posterior** side, next to the **axis** (compare **anticous**).

**prickle:** a sharp outgrowth from the bark or surface layer, containing no conducting tissue.

**procumbent:** trailing or lying on the ground without rooting at the **nodes**.

**prophyll:** a leaf formed at the base of a shoot, usually smaller than those formed subsequently.

**prostrate** (*syn.* **procumbent**): trailing to lying on the ground without rooting at the **nodes**.

**protuberance:** a bulge or swelling.

**pseudobulb:** a solid, above-ground, thickened or bulbiform stem, characteristic of some orchids.

**pseudopetiole:** the narrowed portion of the leaf located between the **ligule(s)** and the **blade** in Poaceae and in some Cyperaceae.

**pseudostem:** an apparent stem, which is actually a cylinder formed by overlapping leaf bases.

**puberulous:** slightly **pubescent**.

**pubescent:** covered with soft, short, erect hairs.

**pulvinus:** the swollen base of a **petiole**, or a swollen area on the petiole below the point of attachment of the leaf **blade**.

**pustule** (*adj.* **pustulate**): a slight elevation like a pimple or blister.

**pyrophyte:** a plant adapted to survive severe fires.

## Q

**quoad:** as to, with respect to.

## R

**raceme** (*adj.* **racemose**): an **indeterminate inflorescence** in which the flowers are borne on **pedicels** along an unbranched **axis** or **peduncle**, the terminal flowers being the youngest and last to open (centripetal development).

**rachilla** (*pl.* **rachillae**): (1) the **rachis** (axis) of the spikelet in Cyperaceae and Poaceae; (2) a secondary axis, as in a **compound** leaf.

**rachis** (*pl.* **rachises** or **rachides**) (= **rhachis**): (1) the **axis** of an **inflorescence** in which flower stalks occur at short intervals from each other, as in Poaceae; (2) the **axis** of a **pinnately compound** leaf, corresponding to the **midrib** of a **simple** leaf.

**ray:** (1) the **florets** of the margin of a flowerhead of the Asteraceae when different from those of the centre or **disc**; (2) one of the radiating branches of an **umbel**.

**receptacle:** the enlarged end of the flower stalk (**pedicel**) on which the flower parts are borne.

**recurved:** bent or curved backwards.

**regular** (= **actinomorphic**) (of a flower, **calyx** or **corolla**): radially symmetrical, i.e. capable of being dissected into similar halves in more than one vertical plane forming mirror images (compare **irregular**, **zygomorphic**).

**reniform:** kidney-shaped.

**reticulate:** having a network-like pattern; net-veined, with the smallest veins of a leaf connected together like the meshes of a net.

**retorse:** bent abruptly backwards, away from the **apex** (compare **antrorse**).

**revolute:** rolled back from the margin (compare **involute**).

**rhachilla:** see **rachilla**.

**rhizome** (*adj.* **rhizomatous**): a **rootstock** or root-like stem **prostrate** on or under the ground, sending rootlets downwards, and branches, leaves, or flowering shoots upwards, always distinguished from a true root by the presence of buds, leaves, or scales.

**rhombic:** a shape of four equal sides, but with unequal angles, i.e. a squashed square.

**riparian:** growing by rivers or streams.

**rootstock:** a short, swollen structure at the junction of the root and the shoot system of a plant.

**rosette:** a crowded, circular cluster of leaves or other organs.

**rosulate:** with the leaves in a circle or **rosette**.

**rotund:** with a shape between **orbicular** and broadly **elliptic**.

**rugose:** wrinkled; covered with coarse **reticulate** lines.

**rugula** (*pl.* **rugulae**): a fine wrinkle or fold, e.g. in the upper **lip** of some Acanthaceae.

**rugulose:** finely wrinkled.

**runner:** a slender, **prostrate** or trailing stem, which produces roots and sometimes erect shoots at its **nodes** (compare **stolon**).

## S

**saccate:** pouched.

**sagittate:** applied to the base of a leaf or an **anther** with two **acute**, straight lobes directed downwards like in an arrow-head.

**samara:** an **indehiscent winged fruit**, e.g. *Combretum* or *Terminalia*.

**saprophyte:** an organism deriving its nourishment from dead organic matter and usually lacking **chlorophyll** (compare **epiphyte**, **parasite**).

**saxicolous:** living or growing among, or on rocks.

**scaberulous/scabrelous:** minutely **scabrous**, slightly rough to the touch.

**scabrid/scabrous:** rough to the touch, usually from the presence of very short, harsh hairs.

**scaloped:** said of a leaf margin having rounded teeth.

**scandent:** climbing.

**scapose:** with a solitary flower on a leafless peduncle or scape, usually arising from a basal rosette.

**scarious:** thin and dry, not green.

**scorpioid** (of a **cymose inflorescence**): with the main **axis** coiled in bud, the flowers being usually 2-ranked, i.e. with single flowers alternately right and left (compare **helicoid**).

**scutate:** like a small shield.

**secondary veins:** see **lateral veins**.

**secund:** with parts or organs (branches, leaves or flowers) all directed to one side.

**sepal:** a segment of the **calyx**; a **calyx-lobe**.

**serrate:** set with fine teeth, usually applied to a leaf margin.

**serrulate:** serrate with minute teeth.

**sessile:** without a stalk.

**seta** (*pl. setae*): a bristle or stiff hair.

**setaceous:** having bristle-like hairs; bristly.

**setiferous:** bearing **setae**.

**setiform:** looking like a **seta**.

**setose:** beset with bristles.

**shrub:** a woody, **perennial** plant with two to several stems arising from near the ground; compare to a **tree**.

**shrub stratum:** the layer in a forest or woodland below the tree canopy that is dominated by shrubs; see also **shrub** and **canopy**.

**side veins:** see **lateral veins**.

**simple:** of a leaf, which is undivided or, if lobed, then less than half way to the **midrib**.

**sori:** the clusters of spore-bearing bodies on the underside of a fern **frond**, normally appearing as small brown lines or dots.

**spadix** (*pl. spadices*): a flower **spike** with a fleshy or thickened axis, e.g. in Araceae and some palms (Arecaceae).

**spathe** (*adj. spathaceous/spatheate*): a large **bract** enclosing a **spadix**, or one or more bracts enclosing a flower or **inflorescence**.

**spatheole:** a secondary **spathe** within a **compound inflorescence** in the Andropogoneae—Poaceae.

**spathulate:** of a leaf shape, which is bulbous towards the end, like the shape of a spatula.

**spicate:** arranged in a **spike**.

**spike:** an **inflorescence** with a single, unbranched **axis** bearing stalkless (**sessile**) flowers.

**spikelet:** a small **spike**, composed of one or more flowers enclosed by **glumes**, in Cyperaceae and Poaceae.

**spine:** a hard, straight, slender and sharply-pointed structure, usually a modified leaf or **stipule**.

**sporangium** (*pl. sporangia*): a hollow, unicellular or multicellular, sac-like, spore-producing structure.

**sporophyll:** a modified leaf or leaf-like structure that bears **sporangia**.

**spur:** a short, stubby side-branch bearing a cluster of leaves and/or the flowers and fruit.

**stamen** (*adj. staminal*): in **angiosperms**, the pollen-producing structure in a flower usually consisting of an **anther** and a **filament**.

**staminal column:** see **androphore**.

**stellate:** resembling a star in shape; (of hairs): with several arms radiating horizontally.

**stigma:** the tip of the female stigma in a flower; the receptive portion of the **style** on which germinate the pollen grains.

**stipe:** the stalk or **petiole** of a fern **frond**.

**stipule:** a basal appendage to a leaf or a petiole, often leafy and **photosynthetic**, frequently enclosing and protecting the developing leaf bud.

**stolon:** a **runner**, which roots.

**stoloniferous:** bearing **stolons**.

**striate:** marked with parallel longitudinal lines, grooves, or ridges.

**strigose:** with short, stiff hairs lying close along the surface.

**style:** in a flower the stalk bearing the **stigma**, borne on the **ovary**.

**stylopodium:** a disc-like enlargement of the base of the **style** (e.g. in some Brassicaceae).

**sub-:** a prefix denoting 'almost' or 'approaching' a particular state.

**subulate** (awl-shaped): narrow and tapering gradually to a fine point.

**succulent:** thick, fleshy, often with water-storing tissue; usually an adaptation to withstand long periods of drought such as found in arid regions.

**sucker:** see **coppice**.

**suffrutescent:** like a **suffrutex**.

**suffrutex** (*pl. suffrutices*): a woody **perennial** plant with a large underground stem, which produces annual aerial flowering shoots that persist for one to a few years. Also sometimes termed an **underground tree**.

**sulcate:** grooved.

**superior:** applied to an **ovary** when the **sepals**, petals, and stamens are inserted below it (**hypogynous**); also when the **receptacle** bearing the **calyx**, **corolla**, and stamens is prolonged so as to be separate from the ovary, but forms a cup surrounding it (**perigynous**) (compare **inferior**).

**sympetalous:** having petals that are partly or completely fused (*syn. choripetalous, gamopetalous*) (compare **polypetalous**).

**sympodial** (of growth): without a single persisting growing point; changing direction by frequent replacement of the growing **apex** by a lateral growing point below it (compare **monopodial**).

**syntype:** any one of two or more specimens cited by the author when no holotype was designated, or any one of two or more specimens simultaneously designated as types.

## T

**taxon** (*pl. taxa*): any unit of classification into which a living organism fits, e.g. a family, genus, species, subspecies, or variety.

**tendrill:** a slender, twining organ, usually a modified leaf or **stipule**, which enables a plant to climb by hooking onto other plants.

**terete:** **cylindrical**, circular in transverse section.

**ternate:** arranged in a whorl or cluster of three.

**tertiary venation:** the fine net-veining situated throughout a leaf between the **secondary veins** (also known as **lateral veins** or **side veins**); only sometimes visible to the naked eye.

**tessellate:** having colours or surface-divisions in regularly arranged squares or patches; chequered, reticulated.

**tetra-** (*prefix*): four-.

**tetragonous/tetragonal:** four-angled.

**thorn:** a curved **spine**; sometimes a term applied to a sharply-pointed branch.

**tomentellous:** covered with dense, matted hairs.

**tomentose:** covered in a dense mat of minute short hairs.

**topotype:** a specimen of a named taxon collected, usually later, from the original type locality, or the area from where the species was described.

**tree:** a woody, **perennial** plant, normally with a single stem or bole and a distinct upper **crown**.

**tri-** (*prefix*): three; thrice.

**triad:** a group of three.

**trichome:** an epidermal outgrowth, such as a hair or scale.

**trichotomous:** forking regularly into three.

**trifoliolate:** a leaf with 3 leaflets, more correctly termed **3-foliolate**.

**trigonous:** triangular in cross section and with **obtuse** angles (compare **triquetrous**).

**triquetrous:** triangular in cross section and with **acute** angles, therefore with three distinct longitudinal ridges (compare **trigonous**).

**trullate:** trowel-shaped; having its widest **axis** below the middle and with straight margins.

**truncate:** apparently cut off abruptly; of a leaf base that is square-cut.

**truss:** a cluster of flowers or fruit growing on a single stalk.

**tubercle:** a small, wart-like outgrowth.

**tuberculate:** covered with wart-like protuberances or knobs.

**twiner:** a small and slender climber.

## U

**umbel:** an **inflorescence** with numerous stalked flowers arising from a single point; each flower may be similarly-divided to form a **compound umbel**.

**undulate:** wavy, usually applied to a leaf margin.

**uni-** (*prefix*): one-.

**urticate:** to cause a burning or itching sensation.

## V

**vallecular:** pertaining to the grooves between the ridges, as in the fruits of Asteraceae and Apiaceae.

**valvate:** of a dry **capsule**, which releases its seeds via a door-like flap.

**venation:** the veins of a leaf.

**verrucose:** warty.

**verruculose:** finely warty.

**verticil:** a **whorl** or circular arrangement of similar parts around an axis, at the same level.

**vescicle:** a small sac or cavity; a spherical body.

**vescicular:** pertaining to, having or composed of **vescicles**.

**villous:** beset with long, weak hairs (compare **hirsute**).

**virgate:** with many long, slender, straight, ascending, almost parallel stems.

**viscid:** sticky, glutinous.

**vitta** (*pl. vittae*): aromatic oil tubes in the fruit of some Apiaceae.

## W

**whorl:** where a number of organs (often leaves) arise from a single point or level.

**wing:** a flattened outgrowth from a fruit or seed that assists in the wind-dispersal of the seed or fruit.

**woodland:** a vegetation type composed largely of trees, where the **crowns** of the trees are well-spaced apart, or just touching, with only a **herb** layer beneath the **canopy**; compare to **forest**.

## X

**xeromorphic** (of plants or plant parts): having characteristics that serve as protection against excessive loss of moisture.

**xerophyte** (*adj. xerophytic*): a plant that is adapted to dry or arid **habitats**.

## Z

**zygomorphic:** applied to flowers that are bilaterally symmetrical, i.e. capable of being bisected into identical halves in one plane only, forming mirror images; (= **irregular**) (compare **actinomorphic**, **regular**).

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# Photo credits

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## Colour plates

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- 8 *Brachycorythis pleistophylla* (G. Williamson); *Disa caffra* (G. Williamson); *Disa hircicornis* (J. Burrows); *Disa robusta* (W. Pawek); *Disa ukingensis* (H. Kurzweil); *Disa welwitschii* subsp. *welwitschii* (G. Williamson); *Disa zombica* (G. Williamson); *Epipactis africana* (H. Synge); *Habenaria diselloides* (H. Kurzweil); *Habenaria trachypetala* (J. Burrows); *Satyrium trinerve* (J. Burrows); *Satyrium buchananii* (H. Kurzweil); *Polystachya dendroiiiflora* (H. Synge); *Satyrium crassicaule* (G. Williamson); *Satyrium monadenum* (G. Williamson); *Satyrium sceptrum* (H. Kurzweil)