

Sheet1

-	/dispersal
PIPERACEAE	Fruits are said to be dispersed by bats or epizoochorous.
PEPEROMIA	-
Peperomia alata	-
Peperomia angustata	-
Peperomia blanda	-
Peperomia delascioi	-
Peperomia emarginella	-
Peperomia galioides	-
Peperomia glabella	-
Peperomia gracieana	-
Peperomia haematolepis	-
Peperomia hernandiifolia	-
Peperomia lancifolia	-
Peperomia macrostachya	-
Peperomia magnoliifolia	-
Peperomia maguirei	-
Peperomia obtusifolia	-
Peperomia ouabiana	-
Peperomia pellucida	-
Peperomia pernambucensis	-
Peperomia popayanensis	-
Peperomia purpurinervis	-
Peperomia quadrangularis	-
Peperomia quadrifolia	-
Peperomia reptans	-
Peperomia rhombea	-
Peperomia rotundifolia	-
Peperomia serpens	-
Peperomia tenella	-
Peperomia tetraphylla	-
Peperomia transparens	-
Peperomia urocarpa	-
PIPER	-
Piper adenandrum	-
Piper aduncum	-
Piper aequale	-
Piper alatabaccum	-
Piper amalago	-
Piper angustifolium	-
Piper anonifolium	-
Piper arboreum	-
Piper augustum	-
Piper aulacospermum	-
Piper avellanum	-
Piper bartlingianum	-
Piper bolivarianum	-
Piper brasiliense	-
Piper brownsbergense	-
Piper cernuum	-
Piper ciliomarginatum	-
Piper consanguineum	-
Piper coruscans	-

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Piper crassinervium	-
Piper cyrtopodium	-
Piper demeraranum	-
Piper dilatatum	-
Piper divaricatum	-
Piper duckei	-
Piper dumosum	-
Piper eucalyptifolium	-
Piper fanshawei	-
Piper flexuosum	-
Piper fuligineum	-
Piper glabrescens	-
Piper guianense	-
Piper hirtilimbium	-
Piper hispidum	-
Piper hostmannianum	-
Piper humistratum	-
Piper hymenophyllum	-
Piper inaequale	-
Piper insipiens	-
Piper marginatum	-
Piper nigrispicum	-
Piper nigrum	-
Piper obliquum	-
Piper paramaribense	-
Piper peltatum	-
Piper perstipulare	-
Piper phytolaccifolium	-
Piper piscatorum	-
Piper poiteanum	-
Piper pulleanum	-
Piper remotinervium	-
Piper reticulatum	-
Piper rudgeanum	-
Piper rupununianum	-
Piper salicifolium	-
Piper trichoneuron	-
Piper tuberculatum	-
Piper wachenheimii	-

Sheet1

[illegible][illegible]

[illegible]

/fruits

Fruits small drupes or nuts.

Fruits minute nuts or drupes ("berries"), (sub)basely or laterally attached, sessile or somewhat stipitate when mature, occasionally

Fruits laterally attached, globose-ovoid, reddish brown,

Fruits basely attached, ovoid to globose, beaked, blackish, often verruculose,

Fruits subbasely attached, globose to ovoid, more or less verruculose, brown,

Fruits stipitate pale brown, smooth, oblong-ellipsoid, |, crowned with a persistent, conic style,

Fruits basely attached (according to Steyermark, on a short stipe), ellipsoid,

Fruits subbasely attached, globose, brown,

Fruits laterally attached, globose, reddish brown,

-

Fruits ellipsoid or ovoid narrowing into slender beak, with curved tip,

Fruits basely attached, ellipsoid, reddish brown,

Fruits basely attached, narrowly cylindrical, brown,

Fruits basely attached, cylindrical, verruculose, brown,

Fruits basely attached, subglobose, verruculose, reddish brown or blackish, gradually tapering into beak, which is slightly

Fruits not sunken, subbasely attached, globose, green,

Fruits basely attached, ellipsoid, verruculose, reddish brown or blackish,

Fruits sessile, ovoid, brown, somewhat verruculose,

Fruits somewhat stipitate, globose, brown (young, green ones may be finely longitudinally ridged),

Fruits basely attached, cylindrical, slightly verrucose,

Fruits basely attached, ellipsoid,

Fruits basely attached, ovoid to globose, smooth,

Fruits somewhat sunken when young, slightly stipitate when ripe, ovoid, smooth and shiny (in vivo) brown, upper half often

Fruits basely attached, ovoid or subglobose, brown,

Fruits basely attached, subglobose to ovoid, with more or less hooked beak and subapical stigma.

Fruits ellipsoid or ovoid, |, slightly stipitate at maturity,

Fruits (sub)basely attached, globose to ovoid, brown, reticulately verruculose,

Fruits basely attached, ellipsoid, brown,

Fruits slightly stipitate at maturity, ellipsoid to obpyriform, with short beak and apical stigma.

Fruits basely attached in depressions of rachis, narrowly ovoid to ellipsoid-subcylindrical,

Fruits basely attached, globose to ovoid, brown, verruculose,

Fruits brown, ellipsoid with distinct beak,

Fruits drupes, embedded in rachis to exserted, separate from each other or in compact rows, glabrous or with indument, glabrous

Fruits separate at maturity, depressed globose, |, verruculose;

-

-

Fruits separate, obovoid with 4 prominent, deltoid or lobed projections at top, glabrous or papillose,

Fruits ovoid, conical to apex, |, glabrous or papillose,

-

-

Fruits dark green, laterally compressed, oblongoid or obovoid, |, glabrous or slightly papillose,

Fruits oblongoid, glabrous, may be somewhat papillose, |, becoming stylose or mammiform at apex,

Fruits 4-sulcate, globose, |, truncate at apex, glabrous,

Fruits trigonous or depressed globose, |, glabrous and papillose,

Fruits ovoid to tetragonous, separate, somewhat ridged or winged (at least when dried), glabrous may be somewhat papillose

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-

Fruits obovoid, |, puberulent at apex,

-

-

-

Sheet1

Fruits rounded, glabrous, with persistent style,

Fruits ovoid, |, glandular, glabrous,

-

Fruits trigonous, glabrous, or with some hairs at top,

-

Fruits obpyramidal-trigonous,

Fruits obovoid to trigonous, glabrous, depressed at apex when dried,

Fruits depressed globose, glabrous,

Fruits obovoid, puberulent at depressed apex,

Fruits depressed globose or ovoid, glabrous,

-

-

Fruits without style,

-

-

-

-

Fruits obovoid to depressed globose, glabrous,

-

-

Fruits oblongoid, glabrous,

-

Fruits globose, |, glabrous, red or black,

Fruits obovoid or oblongoid, sometimes flattened at apex, |, minutely pubescent or glabrous or with a few basal hairs,

-

Fruits trigonous, glabrous.

-

-

-

-

-

Fruits trigonous, somewhat exserted when mature, hirsute,

Fruits greenish white, obovoid or oblongoid, |, puberulous, with glabrous disc at apex, separate at maturity,

-

Fruits trigonous to obpyramidal, glabrous, glandular, green,

-

Fruits oblongoid, glandular, hirsute,

Fruits laterally compressed, rounded, glabrous,

Fruits depressed globose or obovoid, |, pubescent or hirtellous, separate from each other,

Sheet1

/fruits/shape	/fruits/position	/fruits/hairs	/fruits/colour
-	-	-	-
globose,ellipsoid,cylindric	lateral	-	-
globose,ovoid	lateral	-	reddish ,browr
ovoid,globose	-	-	-
globose,ovoid	-	-	brown
oblong,ellipsoid,conic	-	-	pale brown
ellipsoid	-	-	-
globose	-	-	brown
globose	lateral	-	reddish ,browr
-	-	-	-
ellipsoid,ovoid	-	-	-
ellipsoid	-	-	reddish ,browr
narrowly cylindric	-	-	brown
cylindric	-	-	brown
subglobose	-	-	reddish ,browr
globose	-	-	green
ellipsoid	-	-	reddish ,browr
ovoid	-	-	brown
globose	-	-	brown,green
cylindric	-	-	-
ellipsoid	-	-	-
ovoid,globose	-	-	-
ovoid	-	-	brown
ovoid,subglobose	-	-	brown
subglobose,ovoid	-	-	-
ellipsoid,ovoid	-	-	-
globose,ovoid	-	-	brown
ellipsoid	-	-	brown
ellipsoid	-	-	-
narrowly ovoid,ellipsoid,cylindric	-	-	-
globose,ovoid	-	-	brown
ellipsoid	-	-	brown
globose	-	glabrous	-
globose	-	-	-
-	-	-	-
-	-	-	-
ovoid,deltoid	-	glabrous	-
ovoid,conical	-	glabrous	-
-	-	-	-
-	-	-	-
oblongoid,ovoid	lateral	glabrous	dark green
oblongoid	-	glabrous	-
globose,truncate	-	glabrous	-
globose	-	glabrous	-
ovoid	-	glabrous	-
-	-	-	-
-	-	-	-
-	-	-	-
ovoid	-	puberulent	-
-	-	-	-
-	-	-	-
-	-	-	-

Sheet1

rounded	-	glabrous	-
ovoid	-	glabrous	-
-	-	-	-
-	-	glabrous,hairs	-
-	-	-	-
-	-	-	-
ovoid	-	glabrous	-
globose	-	glabrous	-
ovoid	-	puberulent	-
globose,ovoid	-	glabrous	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
ovoid,globose	-	glabrous	-
-	-	-	-
-	-	-	-
oblongoid	-	glabrous	-
-	-	-	-
globose	-	glabrous	red
ovoid,oblongoid	-	minutely pubescent,glabrous,hairs	-
-	-	-	-
-	-	glabrous	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	hirsute	-
ovoid,oblongoid	-	puberulous,glabrous	greenish,white
-	-	-	-
-	-	glabrous	green
-	-	-	-
oblongoid	-	hirsute	-
rounded	lateral	glabrous	-
globose,ovoid	-	pubescent	-

apex depressed, glandular, pubescent,

Sheet1

[illegible]

pubescent

1-2 mm in diam.

1

1.5 x 1.2-1.5 mm

/fruits/length	/fruits/seeds
-	-
-	-
-	-
-	-
-	-
-	-
ca. 1 mm long with apical stigma	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
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-	-
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-	-
0.9-1 mm long	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
1.5-2 mm long	-
-	-
-	-
2 mm long	-
to 4 mm long	-
-	seeds deeply 4-sulcate.
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-

5

5-6 mm long

Sheet1

/fruits/stigma	/fruits/stigma/shape
-	-
stigma apical, central or at base of beak.	-
-	-
stigma apical.	-
-	-
stigma apical, mammiform.	-
-	-
-	-
-	-
-	-
stigma at base of beak.	-
-	-
-	-
-	-
stigma at base of beak.	-
-	-
stigma at base of beak.	-
-	-
stigma apical, a short style may be developed.	-
-	-
-	-
stigma apical.	-
-	-
stigma apical.	-
-	-
stigma apical.	-
-	-
-	-
-	-
-	-
stigma at base of beak.	-
stigmas persistent.	-
stigmas 3, sessile or fruits somewhat stylose.	-
-	-
-	-
stigmas 4, sessile.	-
stigmas 3-4, sessile.	-
-	-
-	-
stigmas 3-4, sessile.	-
stigmas obsolete.	-
stigmas 4, globose, sessile;	globose
stigmas 3, sessile.	-
stigmas 4, sessile.	-
-	-
-	-
-	-
stigmas 3, sessile,	-
-	-
-	-
-	-

Sheet1

stigmas 3, recurved.	-
stigmas 3, may be on a short style or fruits apiculate.	-
-	-
stigmas 3, sessile.	-
-	-
stigmas 3, linear, sessile.	linear
stigmas 3, erect.	-
stigmas 3(-4), sessile.	-
stigmas sessile.	-
stigmas sessile.	-
-	-
-	-
stigmas 3?, sessile.	-
-	-
-	-
-	-
-	-
stigmas 3 or 2, recurved,	-
-	-
-	-
stigmas 3, sessile.	-
-	-
stigmas 2-3, sessile.	-
stigmas 3, often quite long, sessile, sometimes on a short style.	-
-	-
-	-
-	-
-	-
-	-
-	-
stigmas sessile.	-
stigmas 3(-4), sessile.	-
-	-
stigmas 3, minute, sessile.	-
-	-
stigmas 3, obtuse, sessile.	obtuse
stigmas 3-4, sessile.	-
stigmas 3, sessile.	-

Sheet1

[illegible]

Sheet1

[illegible]

/fruits/width

— — — — —

ca. 2-2.5 mm wide

—
—
—

- ca. 2 mm wide

Sheet1

/habit

Herbs, shrubs or treelets, sometimes scandent, rarely lianas.

Small epiphytic, epilithic, or terrestrial, succulent herbs, creeping, prostrate, hanging, ascending or erect.

Epiphytic, epilithic or terrestrial, glabrous herb.

Terrestrial, epiphytic or epilithic herb, erect, creeping or ascending, rooting at nodes.

Terrestrial, epiphytic or epilithic herb, erect or ascending from rooting base.

Terrestrial herb, non-creeping, suberect or ascending |, not rooting at nodes.

Epiphytic or epilithic, or epiphyllous herb, creeping and rooting at nodes, glabrous or sparsely villous.

Terrestrial, epilithic or epiphytic, caespitose herb.

Epiphytic, stoloniferous herb, strongly glandular dotted, erect, hanging, prostrate or ascending.

Epiphytic, terrestrial or epilithic herb, creeping and rooting at nodes.

Epiphytic, glabrous herb.

Epiphytic, terrestrial or epilithic herb, creeping.

Terrestrial, epilithic or epiphytic herb, erect or ascending and rooting at decumbent base.

Epiphytic herb, often growing on ants' nests, creeping or hanging and rooting at nodes.

Epiphytic, epilithic or terrestrial herb.

Epiphytic or epilithic herb, erect or ascending from prostrate, rooting base.

Epiphytic, epilithic or terrestrial herb.

Epiphytic or epilithic herb, creeping and rooting at nodes.

Terrestrial herb, delicate, erect, glabrous, annual.

Terrestrial or epiphytic, erect herb, glabrous except for pubescent peduncle.

Terrestrial, ascending, almost glabrous herb, rooting at nodes.

Epiphytic, terrestrial or epilithic herb, creeping to ascending.

Epiphytic or epilithic herb, creeping or hanging, sometimes mat-forming.

Epiphytic, trailing, glabrous herb.

Epiphytic, terrestrial or epilithic herb, creeping.

Epiphytic, stoloniferous herb.

Epiphytic or epilithic herb, prostrate with ascending stem tips rooting at nodes.

Epiphytic or epilithic herb, creeping or twining and rooting at nodes.

Terrestrial, epilithic or epiphytic, not branched, tiny herb, decumbent and rooting at base,

Epiphytic or rarely epilithic herb, caespitose or rooting at nodes and ascending.

Epilithic, erect or ascending, glabrous herb,

Epiphytic or epilithic herb.

Herbs, subshrubs, shrubs or treelets, sometimes with scrambling branches, rarely climbers or lianas.

Shrub or treelet, |, pubescent or villous, hairs

Shrub or treelet,

Shrub or treelet, |, glabrous.

Shrub or treelet, |, glabrous.

Shrub,

Shrub or subshrub

Shrub, occasionally a tree, |, nodose, glabrous.

Shrub or treelet, |, sometimes with long, arching branches, often strongly branching.

Shrub or treelet, |, glabrous, except for ciliate leaf margin.

Small shrub, |, sparingly branched.

Shrub or subshrub |, densely short crisp-pubescent, hairs

Shrub, subshrub or treelet, |, somewhat nodose, glabrous.

Subshrub

Small shrub,

Small shrub or subshrub,

Shrub or treelet,

Shrub

Herbaceous small shrub, |, sometimes creeping, retrorsely crisp-pubescent.

Shrub or subshrub

Shrub or treelet,
Subshrub or herb,
Subshrub or shrub,
Shrub or subshrub
Shrub, subshrub or treelet, sometimes scandent,
Shrub
Shrub or treelet
Shrub or treelet |, glabrous except for subnodal lines of hairs on stem.
Small shrub
Shrub to 2? m tall.
Stout herb or slender shrub,
Shrub
Small shrub, often scrambling, rooting at lower nodes.
Shrub
Shrub or subshrub, occasionally with scrambling branches,
Shrub, subshrub or treelet
Creeping herb or subshrub to
Scandent or creeping shrub, climbing branches rooting at nodes.
Shrub or treelet |, almost glabrous.
Shrub, subshrub or treelet, may be somewhat scandent,
Subshrub or treelet,
Shrub
Shrub sometimes with scrambling branches or liana.
Shrub or treelet,
Small shrub, sometimes trailing,
Large herb
Shrub
Shrub |, glabrous.
Subshrub,
Vine or climbing shrub
Shrub or treelet,
Shrub or treelet,
Treelet or shrub, sometimes scandent, |, tall.
Shrub.
Shrub or tree,
Shrub.
Shrub, sometimes treelet,
Shrub or treelet |, stem minutely hirtellous, usually somewhat tuberculate.
Small shrub or even small treelet, |, nodose in lower part.

Sheet1

/habit/hairs	/habit/growth form	/habit/fertile stems	/habit/fertile stems/growth form
-	sometimes scanden-	-	-
-	creeping,erect	-	-
glabrous	-	-	-
-	erect,creeping	-	-
-	erect	-	-
-	creeping,erect	-	-
glabrous,sparsey villous	creeping	-	-
-	-	-	-
-	erect	-	-
-	creeping	-	-
glabrous	-	-	-
-	creeping	-	-
-	erect	-	-
-	creeping	-	-
-	-	-	-
-	erect	-	-
-	-	-	-
-	creeping	-	-
glabrous	erect	-	-
glabrous,pubescent	erect	-	-
glabrous	-	-	-
-	creeping	-	-
-	creeping	-	-
glabrous	-	-	-
-	creeping	-	-
-	-	-	-
-	-	-	-
-	creeping	-	-
-	-	fertile stems erect.	erect
-	-	-	-
glabrous	erect	-	-
-	-	-	-
-	-	-	-
pubescent,villous,hairs	-	-	-
-	-	-	-
glabrous	-	-	-
glabrous	-	-	-
-	-	-	-
-	-	-	-
glabrous	-	-	-
-	-	-	-
glabrous	-	-	-
-	-	-	-
pubescent,hairs	-	-	-
glabrous	-	-	-
-	-	-	-
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-	-	-	-
-	-	-	-
pubescent	sometimes creeping-	-	-
-	-	-	-

Sheet1

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-	sometimes scanden-	-	-
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glabrous,hairs	-	-	-
-	-	-	-
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-	-	-	-
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-	-	-	-
-	-	-	-
-	-	-	-
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-	-	-	-
-	creeping	-	-
glabrous	-	-	-
-	somewhat scandent-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
glabrous	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	sometimes scanden-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
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-	-	-	-
-	-	-	-

Sheet1

/habit/height	/habit/length	/habit/odor	/habit/rhizome
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
up to 9 cm	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
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-	-	-	-
-	-	-	rhizome sometimes tuberous.
-	-	-	-
-	-	-	-
1.5 m tall	to 0.5 mm long	-	-
3-7 m tall	-	-	-
1-4 m tall	-	-	-
2-3 m tall	-	-	-
2-4(-7) m tall	-	-	-
to 1.5 m tall	-	-	-
0.5-3 m tall	-	-	-
2-7 m tall	-	-	-
to 2-4(-8) m tall	-	-	-
1-2.5 m tall	-	-	-
to 2 m tall	to 0.2 mm long	-	-
1-4 m tall	-	-	-
to 0.1-1.5 m tall	-	-	-
to 1 m tall	-	-	-
0.15-1.5 m tall	-	-	-
2-6 m tall	-	-	-
to 1-3 m tall	-	-	-
0.1-0.5 m tall	-	-	-
to 1-3 m tall	-	-	-

Sheet1

2-5 m tall	-	-	-
1-3(-4) m tall	-	-	-
1-2.5 m tall	-	-	-
to 4 m tall	-	-	-
to 3 m tall	-	-	-
to 1.5 m tall	-	-	-
to 3 m tall	-	-	-
to 2 m tall	-	-	-
to 2 m tall	-	-	-
-	-	-	-
ca. 1 m tall	-	-	-
to 1.5-2 m tall	-	-	-
-	-	-	-
to 0.5 m tall	-	-	-
2-3 m tall	-	-	-
to 7 m tall	-	-	-
0.35 m tall	-	-	-
-	-	-	-
to 3(-5) m tall	-	-	-
to 2 m tall	-	-	-
to 3 m tall	-	fragrant like anise.	-
to 2.5 m tall	-	-	-
-	-	-	-
1.5-8 m tall	-	-	-
to 1 m tall	-	-	-
to 3 m tall	-	-	-
to 1.5-4 m tall	-	-	-
to 1.6 m tall	-	-	-
to 1 m tall	-	-	-
to 8 m tall	-	-	-
to 2.5 m tall	-	-	-
to 1-3.5 m tall	-	-	-
to 10 m	-	-	-
-	-	-	-
1-2 m tall	-	-	-
-	-	-	-
to 2 m tall	-	-	-
to 3 m tall	-	-	-
to 1.5 m tall	-	-	-

```
/habit/upper internodes
```

/indumentum

u

— — — — —

upper internodes densely glandular.

/inflorescences

Inflorescences |, axillary, or leaf-opposed spikes with minute flowers, solitary or few together, or occasionally spikes arranged

Inflorescences |, solitary or few together, occasionally paniculate;

Inflorescence |, single or few together,

Inflorescence single,

Inflorescence |, single or few together;

Inflorescence |, solitary;

Inflorescence |, single,

Inflorescence |, often in groups of 2-5;

Inflorescence |, single, or several in upper leaf axils,

Inflorescence single,

Inflorescence |, single,

Inflorescence |, solitary;

Inflorescence |, solitary, bifurcate or once-branched;

Inflorescence |, few together;

Inflorescence |, solitary or usually 2(-few) together;

Inflorescence solitary,

Inflorescence |, solitary or few together;

Inflorescence |, solitary;

Inflorescence |, solitary;

Inflorescence |, paniculate;

Inflorescence |, solitary;

Inflorescence |, solitary;

Inflorescence |, solitary or two together,

Inflorescence |, solitary,

Inflorescence single,

Inflorescence |, solitary, simple;

Inflorescence |, solitary;

Inflorescence |, solitary;

Inflorescence |, solitary;

Inflorescence |, solitary;

Inflorescence |, solitary or few together;

Inflorescence solitary, simple,

Inflorescences simple, pedunculate spikes, solitary, leaf-opposed (in *P. peltatum* axillary on reduced, leafless branches, un

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence |, white, becoming green;

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence:

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence |, umbellate, |, sympodial branches with very short internodes, without leaves;

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence

Inflorescence:

Inflorescence

Inflorescence

Inflorescence

Sheet1

[illegible]

Sheet1

[illegible][illegible]

anthers dehiscing laterally;

anthers dehiscing laterally.

Sheet1

[illegible]

lateral

/inflorescences/common peduncle/colour

9

green

/inflorescences/common peduncle/lateral branches

—
—
—
—
—
—
—
—
—
—
—
—

lateral branches |, with linear-(ob)lanceolate, caducous bracts;

2

Sheet1

/inflorescences/common peduncle/peduncle /inflorescences/common peduncle/peduncle/length

— — — — —

— — — — —

— — — — — p — — — — —

peduncles slender,

1-1.5 cm long

/inflorescences/floral bracts

-

floral bracts peltate, mainly rounded, glabrous, often glandular.
 floral bracts rounded, glabrous, slightly glandular.
 floral bracts rounded to oblong, slightly glandular.
 floral bracts rounded, glandular.
 floral bracts rounded, umbonate with pale margin,
 floral bracts sub-orbicular to oblong.
 floral bracts rounded, glandular.
 floral bracts rounded, glabrous and black-glandular.
 floral bracts rounded, glabrous.
 floral bracts rounded, glandular.
 floral bracts rounded, glabrous, glandular.
 floral bracts rounded, glabrous, glandular.
 floral bracts rounded, dentate or fimbriate, glandular.
 floral bracts rounded, |, glabrous, glandular.
 floral bracts rounded, with scariose margin, glabrous, glandular.
 floral bracts rounded, |, glabrous, glandular.
 floral bracts rounded, glabrous, glandular.
 floral bracts rounded, glabrous, minutely glandular.
 floral bracts rounded, glabrous, glandular.
 floral bracts, rounded, glabrous.
 floral bracts rounded, glabrous, glandular.
 floral bracts rounded or oblong, glabrous, glandular;
 floral bracts rounded, glabrous and sparsely glandular.
 floral bracts rounded, glandular.
 floral bracts rounded, glabrous,
 floral bracts rounded, glabrous, glandular.
 floral bracts rounded, glabrous, glandular.
 floral bracts rounded to narrowly oblong, glabrous, glandular.
 floral bracts rounded, glabrous, glandular.
 floral bracts rounded, glabrous, glandular.
 floral bracts rounded, with scariose margin.
 floral bracts peltate, rounded, triangular or cucullate, subtending reduced flowers.
 floral bracts densely marginally fringed;
 floral bracts densely marginally fringed;
 floral bracts marginally fringed.
 floral bracts small, rounded peltate, glabrous, caducous;
 floral bracts cucullate, glabrous;
 floral bracts cucullate, glabrous.
 floral bracts cucullate, not fringed, often greyish when dried;
 floral bracts |, densely marginally fringed, conspicuously arranged in whorls;
 floral bracts densely marginally fringed.
 floral bracts saccate or galeate, glabrous, densely fimbriate;
 floral bracts densely marginally fringed.
 floral bracts cucullate, pilose on inner side.
 floral bracts trigonous, densely marginally fringed.
 floral bracts narrowly sublunulate, sparsely puberulous.
 floral bracts triangular-subpeltate, marginally fringed.
 floral bracts marginally fringed;
 floral bracts densely marginally fringed.
 floral bracts cucullate, glabrous;
 floral bracts rounded to trigonous, densely marginally fringed.

floral bracts marginally fringed.
floral bracts cucullate and pilose on inner side and at base.
floral bracts cucullate, glabrous or dorsally puberulent.
floral bracts |, densely marginally fringed;
floral bracts marginally fringed.
floral bracts densely marginally fringed.
floral bracts densely marginally fringed.
floral bracts cucullate, inflexed, glabrous.
floral bracts dorsally fringed, crowded.
floral bracts densely marginally fringed.
floral bracts ciliate and hirtellous.
floral bracts glabrous to papillate.
floral bracts rounded to cucullate, sparsely fringed, with central dark gland;
floral bracts densely marginally fringed;
floral bracts densely marginally fringed,
floral bracts densely crowded, spirally arranged, densely marginally fringed.
floral bracts glabrous, slightly cucullate.
floral bracts pubescent at base, densely marginally fringed;
floral bracts densely marginally fringed.
floral bracts triangular, densely marginally fringed.
floral bracts densely marginally fringed.
floral bracts densely marginally fringed.
floral bracts glabrous.
floral bracts triangular-rounded to cucullate, glabrous.
floral bracts cucullate and pilose on inner side and at base,
floral bracts marginally fringed.
floral bracts subtriangular, densely marginally fringed.
floral bracts densely marginally fringed.
floral bracts cucullate, glabrous.
floral bracts cucullate-inflexed, densely marginally fringed.
floral bracts marginally fringed;
floral bracts densely marginally fringed.
floral bracts glabrous or sparsely puberulous.
floral bracts pilose on inner side and at base.
floral bracts densely marginally fringed.
floral bracts densely marginally fringed;
floral bracts densely marginally fringed.
floral bracts |, marginally fringed, conspicuously arranged in whorls.
floral bracts densely marginally fringed.

Sheet1

/inflorescences/floral bracts/shape	/inflorescences/floral bracts/margin type
-	-
rounded	-
rounded	-
rounded,oblong	-
rounded	-
rounded	-
orbicular,oblong	-
rounded	-
rounded	-
rounded	-
rounded	-
rounded	-
rounded	-
rounded	dentate
rounded	-
rounded	-
rounded	-
rounded	-
rounded	-
rounded	-
rounded	-
rounded	-
rounded,oblong	-
rounded	-
rounded	-
rounded	-
rounded	-
rounded	-
rounded,narrowly oblong	-
rounded	-
rounded	-
rounded	-
rounded,triangular	-
-	-
-	-
-	-
rounded	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
triangular	-
-	-
-	-
-	-
rounded	-

[illegible]

Sheet1

/inflorescences/floral bracts/hairs	/inflorescences/floral bracts/colour
-	-
glabrous	-
glabrous	-
-	-
-	-
-	-
-	-
-	-
glabrous	-
glabrous	-
-	-
glabrous	-
glabrous	-
-	-
glabrous	-
glabrous	-
glabrous	-
glabrous	-
glabrous	-
glabrous	-
glabrous	-
glabrous	-
glabrous	-
-	-
glabrous	-
glabrous	-
glabrous	-
glabrous	-
glabrous	-
glabrous	-
-	-
-	-
-	-
-	-
-	-
glabrous	-
glabrous	-
glabrous	-
-	greyish
-	-
-	-
glabrous	-
-	-
pilose	-
-	-
sparsely puberulous	-
-	-
-	-
-	-
glabrous	-
-	-

Sheet1

-	-
pilose	-
glabrous, puberulent	-
-	-
-	-
-	-
-	-
glabrous	-
-	-
-	-
-	-
glabrous	-
-	-
-	-
-	-
glabrous	-
pubescent	-
-	-
-	-
-	-
-	-
glabrous	-
glabrous	-
pilose	-
-	-
-	-
-	-
glabrous	-
-	-
-	-
-	-
glabrous, sparsely puberulous	-
pilose	-
-	-
-	-
-	-
-	-
-	-

/inflorescences/floral bracts/diameter

-
-
-
-
-

0.3 mm in diam.

-
-
-
-
-
-
-
-

5-7 mm in diam.

-

2-4 mm in diam.

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-

0.4-0.5 mm in diam.

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-

0.3-0.6 mm in diam.

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-
-
-
0.7-0.8 mm in diam.

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-
-
-
-
-
-
-
-
-
0.4-0.5 mm in diam.

-
-
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-
-
-
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-
-
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-
-
-
-
-
-
-
-
-
-
-
-
-
0.5-0.7 mm in diam.

/inflorescences/floral bracts/filaments

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filaments with broadened connective and anthers dehiscing transversely (horizontally) apically.

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-

Sheet1

/inflorescences/floral bracts/rachises

/inflorescences/floral bracts/rachises/hairs

— — — — —

— — — — —

r

rachis pubescent.

— — — — — p — — — — —

pubescent

Sheet1

/inflorescences/flower number /inflorescences/flower number/colour

-----C-----

re

densely flowered;

```
red;
```


/inflorescences/flowers

-

flowers numerous, loosely or less often densely arranged, sometimes partly sunken in the rachis;

-

-

-

-

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flowers densely arranged in rings or spirals;

flowers densely crowded;

-

-

-

-

-

-

flowers densely congested;

-

-

-

-

-

-

-

-

-

Sheet1

/inflorescences/growth form	/inflorescences/length
-	-
-	-
erect	-
erect	-
-	-
erect	-
erect	-
-	-
erect to pendent	-
-	-
erect	-
-	-
-	-
pendent	-
erect	-
erect	-
-	-
-	-
-	-
-	-
-	-
-	-
erect	-
erect	-
-	-
-	-
-	-
-	-
erect	-
-	-
-	-
-	-
-	-
pendent	-
recurved	-
erect	-
erect	-
erect	-
erect	-
erect	-
erect	-
pendent, may be erect or horizontal at first	-
erect	-
pendent	-
erect	-
erect or pendent	-
pendent	-
pendent under leaves	-
pendent	-
erect	-
pendent	-
erect	-

Sheet1

-	-
pendent	-
erect	-
erect	-
usually pendent	-
erect	-
pendent	-
erect	-
erect	-
erect or slightly curved	-
erect	-
erect	-
erect	-
pendent	-
erect	-
erect	-
erect	-
horizontally oriented? later recurved	-
pendent	-
erect	-
erect and recurved	-
pendent	-
pendent	-
pendent	-
erect	-
erect	-
erect	-
erect	-
erect	-
presumably pendent	-
erect	-
erect or horizontally oriented	-
erect	-
pendent	-
erect or pendent	-
-	-
erect	-
erect	4-14 cm long
erect	-

Sheet1

ovary glabrous.
ovaries (and fruits) pubescent,

ovary and fruit too young to describe accurately.

g p

—
—
—
—

Sheet1

/inflorescences/ovary/stigma

/inflorescences/ovary/stigma/shape

— — — — —

— — — — —

[illegible]

/inflorescences/peduncle

-

-

peduncle not slender, |, green;

peduncle slender, |, glabrous or minutely pubescent, red;

peduncle |, pubescent or crisp-pubescent;

peduncle |, minutely hirtellous, without bracts;

peduncle slender, |, pinkish;

peduncle not slender, |, minutely pubescent to glabrous, winged, green;

peduncle |, glabrous, black-glandular;

peduncle slender, |, glabrous, green;

peduncle not slender, |, glabrous or minutely puberulent;

peduncle not slender, |, minutely pubescent, green;

-

peduncle not slender, |, glabrous or minutely pubescent or papillose, red or brown;

peduncle slender (when dried) or not slender, |, glabrous, green or pinkish;

peduncle |, villous, green or reddish brown;

both the common peduncle and those of individual spikes bracteate, green or pinkish, slender (when dried) or not slender;

peduncle slender, |, glabrous or minutely pubescent, green;

peduncle slender, |, green;

peduncle |, densely velvety pubescent, green;

peduncle slender, |, with 2-3 caducous bracts, green;

peduncle not slender, |, glabrous or minutely pubescent;

peduncle not slender, |, pubescent, 2-bracteate, red, brownish or green;

peduncle not slender, |, green;

peduncle not slender, often bracteate, |, longer than spike, pubescent, sometimes red;

peduncle |, minutely pubescent;

peduncle not nodose, without bract, |, pubescent or glabrous;

peduncle nodose or with 1-2 caducous bracts, not slender, |, crisp-pubescent, not winged, green;

peduncle not slender, |, glabrous, green;

peduncle |, minutely pubescent, green;

peduncle slender, |, red;

peduncle |, crisp-pubescent, 1-2 bracteate;

-

peduncle |, sometimes reddish tinged, crisp-pubescent or villous;

peduncle |, sparsely pubescent;

peduncle slender,

peduncle

peduncle |, glabrous;

peduncle |, retrorsely pubescent;

peduncle

peduncle moderately stout,

peduncle glandular-dotted, |, red to brown;

peduncle |, minutely pubescent;

peduncle slender, |, pubescent;

peduncle |, glabrous;

peduncle |, glabrous;

peduncle |, densely pubescent;

peduncle |, pilose, glabrescent;

peduncle |, densely pubescent;

peduncle |, glabrous;

peduncle |, glabrescent;

peduncle |, glabrous;

peduncle stout, |, pubescent;
peduncle |, pilose, often red;
peduncle |, pubescent, green;
peduncle |, puberulent to glabrous;
peduncle |, glabrous;
peduncle |, crisp-pubescent;
peduncle |, slender, glabrous, green to reddish;
peduncle |, glabrescent;
peduncle filiform,
peduncle |, crisp-pubescent;
peduncle
peduncle |, glabrous;
peduncle filiform, |, sparsely pubescent;
peduncle |, long-hirsute;
peduncle |, pubescent;
peduncle |, crisp-pubescent;
peduncle |, villous;
peduncle |, pubescent or glabrescent;
peduncle slender, |, glabrous;
peduncle slender,
peduncle |, glabrous;
peduncle slender, |, glabrous, often reddish or violaceous;
peduncle
peduncle |, pubescent to glabrescent;
peduncle |, glabrous or hirsute;
-
peduncle |, glabrous;
peduncle
peduncle |, glabrous;
peduncle |, minutely pubescent or glabrous;
peduncle |, brown crisp-pubescent;
peduncle |, pubescent;
peduncle |, glabrous or minutely puberulous;
peduncle rather stout, |, glabrous;
peduncle
peduncle
peduncle |, pubescent;
peduncle
peduncle |, crisp-pubescent;

Sheet1

/inflorescences/peduncle/hairs	/inflorescences/peduncle/colour	/inflorescences/peduncle/length
-	-	-
-	-	-
-	green	0.3-1.5 cm long
glabrous,minutely pubescent	red;	2-3 cm long
pubescent,pubescent	-	0.7-3.2 cm long
-	-	0.3-0.5(-2) cm long
-	pinkish	to 1 cm long
minutely pubescent,glabrous	green	0.2-1.2 cm long
glabrous	-	0.5-1.5 cm long
glabrous	green	1.5-1.7 cm long
glabrous,minutely puberulent	-	3.5-5 cm long
minutely pubescent	green	1.5-5.5 cm long
-	-	-
glabrous,minutely pubescent	red ,brown	to 1.5(-3) cm long
glabrous	green,pinkish	1-8 cm long
villous	green,reddish ,brown	1-2 cm long
minutely pubescent	green,pinkish	1-14 cm long
glabrous,minutely pubescent	green	to 1.5 cm long
-	green	to 1 cm long
pubescent	green	5 cm long
-	green	3-7 cm long
glabrous,minutely pubescent	-	0.5-2.5 cm long
pubescent	red,,brownish,green	0.5-4 cm long
-	green	up to 1.7 cm long
pubescent	red;	3-6 cm long
minutely pubescent	-	0.8-3.7 cm long
pubescent,glabrous	-	up to 1 cm long
pubescent	green	to 3 cm long
glabrous	green	0.4-1.5 cm long
minutely pubescent	green	to 2 cm long
-	red;	1-4(-15) cm long
pubescent	-	2-4 cm long
-	-	-
pubescent,villous	reddish	0.5-1.1 cm long
sparsely pubescent	-	0.7-1.2(-2.5) cm long
-	-	1-1.5 cm long
-	-	to 1.2 cm long
glabrous	-	0.8-1.5 cm long
pubescent	-	0.2-0.4(-0.7) cm long
-	-	0.5-1 cm long
-	-	0.5-1 cm long
-	red ,brown	1-2(-3) cm long
minutely pubescent	-	1 cm long
pubescent	-	0.5-1 cm long
glabrous	-	1 cm long
glabrous	-	0.5-1.1(-2.5) cm long
densely pubescent	-	0.3-0.4 (0.8 in fruit) cm long
pilose,glabrescent	-	1-2 cm long
densely pubescent	-	1-3(-5) cm long
glabrous	-	0.8-1.6 cm long
glabrescent	-	to 0.5 cm long
glabrous	-	0.5-1(-2.5) cm long

Sheet1

pubescent	-	0.5-1.5 cm long
pilose	red;	0.9-1.6 cm long
pubescent	green	to 1 cm long
puberulent,glabrous	-	0.5-1 cm long
glabrous	-	0.5-0.8(-1.5) cm long
pubescent	-	0.4-1.5 cm long
glabrous	green,reddish;	1-1.2 cm long
glabrescent	-	ca. 0.5 cm long
-	-	1-1.5 cm long
pubescent	-	0.5 cm long
-	-	0.2-0.6 cm long
glabrous	-	to 1.5 cm long
sparsely pubescent	-	to 3(-4) cm long
hirsute	-	0.5-1.2 cm long
pubescent	-	to 1 cm long
pubescent	-	1 cm long, to 1.5 cm in fruit
villous	-	1.5-2.5 cm long
pubescent,glabrescent	-	0.8-2 cm long
glabrous	-	1.5-2.5 cm long
-	-	1-3.5 cm long
glabrous	-	1 cm long
glabrous	reddish	0.5-1.8 cm long
-	-	1-2.5 cm long
pubescent,glabrescent	-	2-5 cm long
glabrous,hirsute	-	0.5-1 cm long
-	-	-
glabrous	-	1-2 cm long
-	-	0.4-0.7 cm long
glabrous	-	0.4-0.5(-1) cm long
minutely pubescent,glabrous	-	1-1.5 cm long
pubescent	brown	0.5-8(-2.5) cm long
pubescent	-	1.5-2 cm long
glabrous,minutely puberulous	-	0.7-2 cm long
glabrous	-	0.5-0.7 cm long
-	-	1-1.5(-3) cm long
-	-	ca. 1 cm long
pubescent	-	1 cm long to ca. 2 cm in fruit
-	-	0.5-2 cm long
pubescent	-	to 0.5 cm long

Sheet1

[illegible]

— — — — — s — — — — —

seem to be axillary, but are reduced

-----a-----

axillary

Sheet1

/inflorescences/rachises	/inflorescences/rachises/hairs
-	-
rachis glabrous (but hairy in <i>P. tetraphylla</i>);	glabrous
-	-
-	-
-	-
rachis glabrous.	glabrous
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
rachis strongly ridged (at least when dried).	-
-	-
-	-
-	-
-	-
-	-
rachis pubescent;	pubescent
-	-
-	-
-	-
rachis glabrous;	glabrous
-	-
rachis glabrous;	glabrous
rachis brownish crisp-pubescent.	pubescent
rachis minutely pubescent;	minutely pubescent
-	-
rachis glabrous;	glabrous
rachis glabrous;	glabrous
rachis glabrous, sometimes red;	glabrous
-	-
rachis glabrous;	glabrous
rachis hirsute;	hirsute
-	-
-	-
-	-
rachis glabrous;	glabrous
-	-
rachis pubescent.	pubescent
-	-

Sheet1

-	-
-	-
rachis glabrous;	glabrous
-	-
-	-
-	-
-	-
-	-
-	-
rachis glabrous or sparsely pubescent;	glabrous,sparsely pubescent
-	-
-	-
rachis presumably puberulent;	puberulent
-	-
-	-
-	-
-	-
rachis glabrous;	glabrous
rachis papillose;	-
-	-
-	-
-	-
rachis pubescent;	pubescent
-	-
-	-
-	-
-	-
rachis pubescent;	pubescent
-	-
-	-
-	-
rachis glabrous;	glabrous
-	-
-	-
-	-
-	-
rachis glabrous;	glabrous

/inflorescences/spikes

-

-

spike |, yellow;
 spike |, moderately to densely flowered;
 spike |, green, densely to laxly flowered;
 spike with scattered flowers,
 spike |, laxly flowered;
 spike |, pale yellow to green, laxly flowered;
 spike |, moderately densely flowered, flowers distinctly separate;
 spike laxly flowered, |, green;
 spike |, reddish;
 spike |, densely flowered;
 spike densely flowered, erect, |, whitish or yellowish green;
 spike |, yellow to green, densely flowered;
 spike |, green, white or yellow, densely flowered;
 spike |, green, densely flowered,
 spikes |, greenish white to yellow, densely flowered;
 spike |, sparsely to densely flowered;
 spike
 spikes |, green, densely flowered;
 spike |, green;
 spike erect, |, yellow or pale green or greenish white, laxly flowered;
 spike |, green or yellow-green, laxly to moderately flowered;
 spike |, densely flowered, green;
 spike |, green or yellow, densely flowered;
 spike
 spike |, yellow to red, moderately to densely flowered;
 spike |, pale green, densely flowered;
 spike |, green, flowers distinctly separate;
 spike |, cream-white;
 spike loosely flowered, erect, |, white or green;
 spike |, about as long as peduncle;
 -
 spike |, green to pale or dark yellow, apiculate;
 spike |, white to green, apiculate;
 spike |, white or green, apiculate or not;
 spike |, white turning green, not apiculate;
 spike |, not apiculate;
 spike almost globose, |, apiculate;
 spike |, white, yellow or (greyish) green, apiculate;
 spike |, whitish, yellow or pale green, apiculate, densely flowered;
 spike
 spike |, not apiculate;
 spike |, white, yellow or green, occasionally apiculate or not;
 spike |, green, not apiculate;
 spike |, white, not apiculate;
 spike |, not apiculate?;
 spike
 spike |, yellow, not apiculate;
 spike |, white, not apiculate;
 spike erect, |, white, yellow to green, apiculate;
 spike |, white, apiculate;

spike

spike |, not apiculate;

spike |, white, yellow or green, apiculate;

spike |, white to yellow, not apiculate;

spike |, whitish, pale yellow or green, apiculate;

spike |, pink, apiculate;

spike |, white, yellowish to green, not apiculate;

spike |, apiculate;

spike |, apiculate;

spike |, apiculate;

spike |, green, not apiculate;

spike |, apiculate;

spike |, apiculate;

spike |, hardly apiculate;

spike |, white, cream or pale green, not apiculate;

spike |, white or yellow;

spike |, green or yellow or "rosish", not apiculate;

spike protandrous (presenting staminate flowers first, pistillate flowers afterwards), |, green, not apiculate;

spike |, not apiculate;

spike |, white, yellowish or greyish-green, apiculate;

spike

spike |, green, yellow to reddish, apiculate;

spike |, apiculate or not;

spike |, reddish when young, apiculate;

spike |, yellow or green, apiculate;

spikes numerous, |, each subtended by a single prophyll, densely flowered;

spike |, greenish white to white, apiculate;

spike |, not apiculate;

spike |, green, apiculate;

spike |, yellow to green, apiculate;

spike |, white to yellowish, apiculate;

spike |, creamish white to green, hardly apiculate;

spike |, white or greyish, not aciculate;

spike |, not apiculate;

spike |, apiculate;

spike

spike |, often reddish or pink, apiculate;

spike

spike |, reddish, pinkish or brownish, apiculate;

Sheet1

/inflorescences/spikes/shape	/inflorescences/spikes/growth form	/inflorescences/spikes/colour
-	-	-
-	-	-
-	-	yellow
-	-	red;
-	-	green,red;
-	-	red
-	-	red;
-	-	pale yellow,green,red;
-	-	red,
-	-	red,,green
-	-	reddish;
-	-	red;
-	erect	red,,whitish,yellowish,green
-	-	yellow,green,red;
-	-	green,white,yellow,red;
-	-	green,red,
-	-	greenish,white,yellow,red;
-	-	red;
-	-	-
-	-	green,red;
-	-	green
-	erect	yellow,pale green,greenish,white,red;
-	-	green,yellow,green,red;
-	-	red,,green
-	-	green,yellow,red;
-	-	-
-	-	yellow,red,,red;
-	-	pale green,red;
-	-	green
-	-	white
-	erect	red,,white,green
-	-	-
-	-	-
-	-	green,dark yellow
-	-	white,green
-	-	white,green
-	-	white,green
-	-	-
globose	-	-
-	-	white,yellow,greyish,green
-	-	whitish,yellow,pale green,red;
-	-	-
-	-	-
-	-	white,yellow,green
-	-	green
-	-	white
-	-	-
-	-	-
-	-	yellow
-	-	white
-	erect	white,yellow,green
-	-	white

Sheet1

-	-	-
-	-	-
-	-	white,yellow,green
-	-	white,yellow
-	-	whitish,pale yellow,green
-	-	pink
-	-	white,yellowish,green
-	-	-
-	-	-
-	-	-
-	-	green
-	-	-
-	-	-
-	-	-
-	-	white,pale green
-	-	white,yellow
-	-	green,yellow
-	-	green
-	-	-
-	-	white,yellowish,greish,green
-	-	-
-	-	green,yellow,reddish,
-	-	-
-	-	reddish
-	-	yellow,green
-	-	red;
-	-	greenish,white,white
-	-	-
-	-	green
-	-	yellow,green
-	-	white,yellowish
-	-	white,green
-	-	white,greish
-	-	-
-	-	-
-	-	-
-	-	reddish ,pink
-	-	-
-	-	reddish,,pinkish,brownish

Sheet1

[illegible]

12-15 x 0.5-0.7 cm

1

— — — — —

10 mm in diam. in vivo

Sheet1

/inflorescences/spikes/length	/inflorescences/spikes/rachises
-	-
-	-
6-14 cm long	-
10-16 cm long	-
2.5-15 cm long	-
0.6-3 cm long	-
to 1.5 cm long	-
up to 15 cm long	-
to 16 cm long	-
4-6 cm long	-
2-5 cm long	-
3-5 cm long	-
4-11 cm long	-
to 30 cm long	-
to 18 cm long	-
2-7 cm long	rachis hardly ridged;
to 18 cm long	-
1.5-5.5 cm long	-
1-6 cm long	-
4-8 cm long	-
17 cm long	-
5-7 cm long	-
up to 6 cm long	-
1-3.5 (according to Henkel 946, to 10) cm long	-
1-2.5 cm long	-
2.2-6 cm long	-
2-6 cm long	-
up to 1.7 cm long	-
1.7-4 cm long	-
up to 4 cm long	-
2.5-5 cm long	-
1.5-5 cm long	-
-	-
1-5 cm long	-
8-15 cm long	-
to 10 cm long	-
5-8 cm long, to 12 cm in fruit	-
6-7 cm long	-
-	-
2.5-4(-5) cm long	-
5-10(-17) cm long	-
4-20 cm long	-
-	-
3-5.5(-10) cm long	-
10-12 cm long	-
1-1.7(-4.5) cm long	-
1-1.5 cm long	-
to 5.5 cm long	-
20-60 cm long	-
2-8 cm long	-
1.5-2.5 cm long	-
8-11 cm long	-

Sheet1

-	-
2.5-5 cm long	-
3.5-4.5 cm long	-
7-8 cm long	-
3-6 cm long	-
to 16 cm long	-
5-8 cm long	-
0.5-3 cm long	-
2 cm long	-
4-6 cm long	-
3.5-7 cm long	-
to 6 cm long	-
1-1.7 cm long	-
1-3 cm long	-
8-14 cm long	-
10-12 cm long	-
2-4 cm long	-
1-3.5 cm long	-
1.5-5 cm long	-
7-13 cm long	-
10-13(-20) cm long	-
1-5 cm long	-
5-10 cm long	-
(8-)20-60(-70) cm long	-
2-4 cm long	-
5-10 cm long	-
7-9.5 cm long	-
2-4 cm long	-
4-7 cm long	-
7-16.5 cm long	-
5-8 cm long	-
10-20 cm long	-
6-12(-15) cm long	-
1 cm long	-
5-9 cm long	-
ca. 4 cm long	-
8-9 cm long, in fruit to 11 cm long	-
2-11 cm long	-
to 8(-12?) cm long	-

Sheet1

[illegible]

-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
0.4-0.5 cm thick	thick	-
-	-	-
-	-	-
-	-	1.5 mm wide
-	-	-
-	-	-
-	-	-
-	-	-
-	-	to 0.5 cm wide
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
0.3 cm thick	thick	-
-	-	-
-	-	-
-	-	-

[illegible]

Sheet1

/inflorescences/stamens/growth form

/inflorescences/stamens/anthers

— — — — —

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re

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anthers dehiscing laterally.

recurved

Sheet1

/inflorescences/stamens/anthers/position /inflorescences/stamens/length

-
-
-

lateral

2-3 mm long

Sheet1

-	-
-	-
-	Infructescence , green;
-	-
-	Infructescence
-	-
-	-
-	-
-	-
-	Infructescence erect,
-	Infructescence
-	-
-	-
-	Infructescence grey or grey green;
-	Infructescence green,
-	Infructescence occasionally pendent;
-	-
-	Infructescence
-	Infructescence green, erect or pendent;
-	-
-	Infructescence pendent, green;
-	Infructescence pendent, , more than
-	-
-	Infructescence erect, , green;
-	-
-	Infructescence
-	Infructescence erect to pendent,
-	Infructescence
-	Infructescence
-	Infructescence erect;
-	-
-	-
-	Infructescence recurved,
-	-
-	-
-	-
-	-
-	-

Sheet1

[illegible]

Sheet1

-	-	-
-	-	-
-	green	-
-	-	-
-	-	6 x 1 cm (when dried)
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
erect	-	-
-	-	-
-	-	-
-	-	-
-	grey, grey, green	-
-	green	-
occasionally pendent	-	-
-	-	-
-	-	-
erect, pendent	green	-
-	-	-
pendent	green	-
pendent	-	-
-	-	-
erect	green	-
-	-	-
-	-	-
erect, pendent	-	-
-	-	-
-	-	-
erect	-	-
-	-	-
-	-	-
recurved	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

/infructescences/fruits

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fruits obovoid, trigonous or somewhat tetragonous, l, glabrous or glabrescent, glandular,
fruits oblongoid to trigonous, l, brownish green, glabrous,

—

—

fruits depressed globose or obovoid, |, glabrous,
fruits depressed globose, glabrous,

—

—

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—

—

fruits trigonous, l, glabrous, green,
fruits globose, depressed at apex, densely crisp-pubescent,
fruits depressed-globose to obovoid, glabrous or papillate at apex, substylose,

—

fruits trigonous, |, glabrous,
fruits depressed globose, |, papillose, green, becoming exserted,
fruits obovoid or somewhat angular, depressed at apex, |, glabrous, green,

-
-
- fruits globose, |, puberulent at apex,
-
- fruits obovoid, |, glabrous, becoming exserted,
-
-
-
-
-
- fruits globose to trigonous, |, glabrous,
- fruits depressed globose or subtetragonous, |, glabrous, glandular,
-
-
- fruits oblongoid to rounded-trigonous, hirsute,
- fruits oblongoid or trigonous, glabrous to puberulent at apex,
- fruits oblongoid, sunken, glabrous,
-
- fruits obovoid or slightly flattened, |, somewhat separate, glabrous or minutely papillate,
- fruits trigonous, glabrous, yellowish to green,
-
- fruits trigonous or subtetragonous with narrow "collar", glabrous, green,
-
-
- fruits globose or obovoid, |, glabrous, green,
-
- fruits trigonous or ovoid, glabrous, verruculose,
- fruits globose, |, glabrous, with persistent style,
- fruits separate at maturity, not sulcate, globose, |, papillose at apex, glabrescent,
- fruits depressed globose to trigonous, |, glabrous,
- fruits obovoid to trigonous, papillose or hispidulous,
-
-
- fruits ovoid, |, glabrous, with persistent short style,
-
-
-
-
-

Sheet1

[illegible]

Sheet1

-	-	-
-	-	-
globose	puberulent	-
-	-	-
ovoid	glabrous	-
-	-	-
-	-	-
-	-	-
-	-	-
globose	glabrous	-
globose	glabrous	-
-	-	-
-	-	-
oblongoid,rounded	hirsute	-
oblongoid	glabrous,puberulent	-
oblongoid	glabrous	-
-	-	-
ovoid	glabrous	-
-	glabrous	yellowish,green
-	-	-
-	glabrous	green
-	-	-
-	-	-
globose,ovoid	glabrous	green
-	-	-
ovoid	glabrous	-
globose	glabrous	-
globose	glabrescent	-
globose	glabrous	-
ovoid	-	-
-	-	-
-	-	-
ovoid	glabrous	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

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1.2 mm in diam.

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1

3 mm in diam.

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1-1.5 mm in diam.

1.5 mm in diam.

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—

2 mm in diam.

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-
-
- stigmas 3, sessile.
-
- stigmas 3, sessile.
-
-
-
-
-
- stigmas 3, sessile.
- stigmas 3, sessile.
-
-
- stigmas 3, sessile.
- stigmas 3, sessile.
- stigmas 4, sessile.
-
- stigmas 3-4, lanceolate, sessile.
- stigmas 3, short, sessile.
-
- stigmas 3, sessile.
-
-
- stigmas 3, linear, erect, may give impression of a style, obsolete on fruit.
-
- stigmas 3, recurved, sessile.
- stigmas 3, on long style.
- stigmas 4, sessile.
- stigmas 3, sessile.
-
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-
- stigmas 3-4 recurved on short, persistent style.
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lanceolate

linear

Sheet1

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1-2 mm thick

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1

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1

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erect

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recurved

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—

1 mm thick

1

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—

recurved

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Page 114

Sheet1

[illegible]

Sheet1

-	-	-
-	-	-
-	2-2.5 mm wide	to 6 cm long
-	-	-
thick	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	0.8-1 mm wide	3.5-7 cm long
-	-	-
-	-	-
-	-	-
-	-	to 12 cm long
-	-	-
-	ca. 2 mm wide	to 9 cm long
-	-	-
-	-	-
-	-	12 cm long
-	-	-
-	-	to 7 cm long
-	-	-
-	-	to 11.5 cm long
-	-	-
-	-	to 6 cm long
thick	-	to 15 cm long
-	ca. 2 mm wide	-
-	-	-
-	-	-
-	-	1 cm long
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

Sheet1

[illegible]

Sheet1

-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	to 0.5 cm thick	thick
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	0.5 cm thick	thick
-	-	-
-	to 1 cm thick	thick
-	-	-
-	-	-
-	0.6 cm thick	thick
-	-	-
-	-	-
stigmas 3.	-	-
-	-	-
-	-	-
-	0.3 cm thick	thick
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

/infructescences/width /internodes

-
-
10 mm wide

-
-
4 mm wide

-
-
-
-
-
-
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-
-
-
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-
-
-
-
Internodes black glandular-dotted, more densely so on nodes.

Sheet1

[illegible]

/leaves

Leaves simple, alternate, opposite or in whorls;
Leaves alternate, opposite or in whorls or 3-7 per node;
Leaves alternate;
Leaves in whorls of (2-)3-4(-5), basely attached;
Leaves opposite or in whorls of 3-7 (sometimes dimorphic), basely attached;
Uppermost leaves opposite, the others alternate;
Leaves alternate, basely attached;
Leaves in whorls of 1-4(-9), basely attached;
Leaves basely attached, alternate;
Leaves alternate, distinctly peltate;
Leaves alternate;
Leaves alternate, distinctly peltate;
Leaves basely attached, alternate;
Leaves alternate, basely attached;
Leaves alternate, basely attached;
Leaves in whorls of 1-4, basely attached;
Leaves alternate, basely attached;
Leaves alternate;
Leaves alternate, basely attached;
Leaves alternate, basely attached;
Leaves alternate, slightly subpeltate;
Leaves alternate, basely attached;
Leaves opposite, basely attached;
Leaves in whorls of 3-6, usually 4, basely attached;
Leaves alternate, basely attached;
Leaves in whorls of 3-5, usually 4;
Leaves alternate, basely attached, sometimes subpeltate,
Leaves alternate, slightly peltate;
Leaves alternate, basely attached;
Leaves in whorls of 4, basely attached;
Leaves alternate, peltate;
Leaves alternate;
Leaves alternate;

-

Leaves somewhat glandular-dotted;

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L

Leaves alternate, peltate;

/leaves/blade

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-

blade |, green above, often reddish brown beneath, |,

blade

blade

blade basely attached or slightly peltate,

blade |, bright green, |,

blade |, ciliate towards obtuse apex,

blade |, densely black-glandular (when dried), |,

blade

blade

blade

blade |, somewhat ciliate towards apex,

blade |, more or less ciliate,

blade |, often red-dotted, |,

blade |, sometimes pink below, |,

blade shiny green, pale green below, |, often with red spots, |,

blade glandular-dotted,

blade

blade

blade

blade |, maybe sparsely ciliate,

blade

blade

blade |, dark green above, light green beneath, |,

blade

blades

blade |, ciliolate towards apex,

blade

blade

blade

blade pale glandular-dotted,

blades basely attached or peltate, symmetrical or asymmetrical, at base often quite some difference in attachment of blad

-

blade |, yellow-green, |,

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b

blade glandular-dotted,

Sheet1

[illegible]

[illegible]

Sheet1

/leaves/blade/apex

-

-

apex acuminate,

apex acute or acuminate,

apex acute or somewhat acuminate,

apex emarginate with some hairs at notch,

apex emarginate,

-

apex acute to acuminate,

apex rounded,

apex rounded or emarginate,

apex acuminate,

apex acuminate,

apex acute or acuminate,

apex rounded, obtuse occasionally slightly emarginate to acutish,

apex rounded to emarginate,

apex rounded, obtuse or emarginate,

apex obtuse,

apex acute to obtuse,

apex acuminate,

apex acuminate,

apex acute to obtuse,

apex obtuse, rounded or slightly acute,

apex emarginate, occasionally with hairs in indentation,

apex acutely obtuse,

-

apex rounded,

apex rounded,

apex obtuse and minutely emarginate with hairs in indentation,

apex obtuse, rounded or emarginate,

apex rounded or somewhat acute,

apex acute to obtuse,

-

-

apex acuminate,

-

-

-

-

-

-

-

-

-

-

-

-

-

-

-

-

-

/leaves/blade/apex/shape

-

-

acuminate

acute,acuminate

acute,somewhat acuminate

-

-

-

acute,acuminate

rounded

rounded

acuminate

acuminate

acute,acuminate

rounded,obtuse

rounded

rounded,obtuse

obtuse

acute,obtuse

acuminate

acuminate

acute,obtuse

obtuse,rounded,acute

-

acute,obtuse

-

rounded

rounded

obtuse

obtuse,rounded

rounded,somewhat acute

acute,obtuse

-

-

acuminate

-

-

-

-

-

-

-

-

-

-

-

-

-

-

-

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-

— — — — —

/leaves/blade/base

-
-

base acute, glabrous;

base acutish to cuneate, glabrous;

base acute, pubescent usually on both sides;

base rounded or subtruncate, glabrous above, minutely hirtellous at base below;

base rounded or truncate, glabrous or with a few hairs;

base acutish, glabrous;

base acute to acuminate, sometimes subobtuse, glabrous;

base rounded, pilose with erect trichomes on upper surface;

base cuneate;

base rounded, minutely pubescent, glabrescent;

base acute, decurrent into petiole, glabrous;

base rounded or cordulate or acutish, glabrous or slightly pubescent, a waxy exudate like small scales or stars is usually present;

base cuneately decurrent into petiole, sometimes abruptly contracted, glabrous;

base acute, glabrous or loosely villous on upper surface, glabrescent, glabrous below;

base cuneate, glabrous;

base acute to obtuse, sparsely to densely villous above, less so beneath, or glabrescent;

base rounded, cordulate or truncate;

base cuneate;

base rounded to cordulate, minutely ciliate towards apex;

base acute or obtuse, glabrous or slightly hirtellous, green above, often magenta-red below;

base acute to rounded, dark green above, with paler veins beneath, minutely puberulent above, sparsely so and glabrescent below;

base acute;

base cordate, cordulate or rounded, brown appressed-pilose above, below light green (Tillet), red with green (Persaud) or magenta-red below;

-

base rounded, glabrous to puberulent;

base rounded, some hairs on young leaves only;

base acutish to obtuse, glabrous and ciliate, sometimes sparsely pilose;

base obtuse to subacute, somewhat ciliate towards apex and sparsely puberulent to glabrous;

base rounded to cordulate;

base truncate to subcordate, occasionally obtuse, pubescent or villous on both sides, glabrescent;

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base unequally attached to petiole |, rounded to subcordate, sparsely pubescent at least on veins above or glabrescent, sparsely puberulent below;

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b

base nearly rounded to usually deeply cordate, glabrous except for short hairs on veins;

Sheet1

[illegible]

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rounded, cordate

glabrous, short hairs

[illegible]

[illegible]

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/leaves/blade/margins

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margin may be ciliate towards apex,

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margin ciliate,

margin not ciliate,

margin somewhat ciliate,

-

margin ciliate near apex,

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margin somewhat ciliate,

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margin not ciliate,

-

margin ciliate,

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margin ciliate,

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margin ciliate,

margin ciliolate at apex, obtuse at apex, narrowly acute at base, glabrous above, sparsely minutely pubescent below;

margin ciliate,

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margin ciliolate towards apex,

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/leaves/blade/shape

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elliptic or broadly elliptic or ovate

rhombic to elliptic or oblanceolate

elliptic, narrowly elliptic, or obovate, often rhombic

oblately suborbicular

orbicular or subreniform

narrowly spatulate, narrowly elliptic or narrowly oblanceolate, larger towards apex of stem

narrowly ovate or ovate

broadly elliptic to orbicular

elliptic to obovate (to broadly ovate in extra-Guianan specimens)

narrowly ovate, ovate or almost orbicular

narrowly elliptic or narrowly oblanceolate

narrowly elliptic to ovate

obovate or elliptic, sometimes even broadly elliptic

obovate or somewhat elliptic

elliptic, obovate or subspathulate

oblong-elliptic or oblong-obovate or almost orbicular

broadly elliptic to deltoid

narrowly elliptic or oblanceolate

ovate

elliptic, subobovate or broadly ovate

broadly elliptic, obovate or orbicular

subspathulate, or elliptic-, or oblong-obovate

broadly ovate to deltoid

subrhombic, elliptic or narrowly elliptic

broadly elliptic to elliptic or almost orbicular

broadly elliptic or deltoid

elliptic or ovate

rhombic, ovate-elliptic to suborbicular

ovate with acutish apex or broadly ovate to almost orbicular

deltoid, ovate to broadly ovate

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lanceolate or lanceolate-oblong or elliptic-ovate

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r

round-ovate

/leaves/blade/shape/shape

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elliptic,broadly elliptic,ovate

rhombic,elliptic,oblanceolate

elliptic,narrowly elliptic,obovate,rhombic

suborbicular

orbicular,subreniform

narrowly spatulate,narrowly elliptic,narrowly oblanceolate

narrowly ovate,ovate

broadly elliptic,orbicular

obovate,broadly ovate

narrowly ovate,ovate,orbicular

narrowly elliptic,narrowly oblanceolate

narrowly elliptic,ovate

obovate,elliptic,broadly elliptic

obovate,somewhat elliptic

elliptic,obovate,subspathulate

oblong,elliptic,oblong,obovate,orbicular

broadly elliptic,deltoid

narrowly elliptic,oblanceolate

ovate

elliptic,subobovate,broadly ovate

broadly elliptic,obovate,orbicular

subspathulate,elliptic,oblong,obovate

broadly ovate,deltoid

subrhombic,elliptic,narrowly elliptic

broadly elliptic,elliptic,orbicular

broadly elliptic,deltoid

elliptic,ovate

rhombic,ovate,elliptic,suborbicular

ovate,broadly ovate,orbicular

deltoid,ovate,broadly ovate

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lanceolate,lanceolate,oblong,elliptic,ovate

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/leaves/blade/texture

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fleshy membranous or coriaceous

fleshy to coriaceous

slightly fleshy

fleshy-membranous

slightly fleshy

fleshy to subcoriaceous

fleshy to membranous

fleshy in vivo, membranous almost transparent when dried

-

coriaceous or subcoriaceous

fleshy and membranous

fleshy-coriaceous or subcoriaceous

fleshy

fleshy coriaceous

coriaceous

-

membranous, often drying translucent

membranous

coriaceous

fleshy-coriaceous

fleshy coriaceous

fleshy-coriaceous

fleshy, coriaceous

coriaceous fleshy

fleshy or fleshy coriaceous

fleshy or slightly coriaceous

fleshy-subcoriaceous

fleshy to subcoriaceous

fleshy, somewhat bullate in vivo, membranous, almost translucent when dried

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scabrous

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scabrous

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Sheet1

[illegible]

/leaves/fertile branches

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fertile branches often with distally progressively smaller leaves;

— — — — —

/leaves/petiole

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petiole |, deeply grooved or winged;

petiole |, glabrous;

petiole |, pubescent;

petiole |, minutely hirtellous;

petiole |, often red, glabrous or with sparse hairs;

petiole |, minutely pubescent;

petiole |, usually ciliate with 2 rows of hairs;

petiole |, glabrous;

petiole not grooved or winged,

petiole attached |, minutely pubescent, glabrescent;

petiole |, glabrous, narrowly winged;

petiole |, glabrous, ciliate or puberulent, reddish;

petiole |, more or less laterally winged or grooved, glabrous;

petiole |, loosely villous;

petiole green or green with red spots, |, more or less grooved, minutely pubescent;

petiole |, loosely villous;

petiole |, glabrous;

petiole to

petiole

petiole

petiole |, glabrous or minutely pubescent;

petiole

petiole |, retrorsely appressed-pubescent;

petiole |, minutely pubescent;

petiole |, pubescent to glabrous;

petiole |, crisp-pubescent;

petiole |, glabrous or with a few hairs at node;

petiole |, minutely pubescent;

petiole attached

petiole |, crisp-pubescent;

petioles often vaginate or winged, at base only or to apex (base of leaf blade), their margins may extend beyond base of l

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petiole |, pubescent, vaginate near base;

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Sheet1

/leaves/shape	/leaves/stipules
-	stipules absent or present;

/leaves/veins

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pinnately or palmately veined.

3-5(-7)-pli- or palmately veined.

palmately 3(-5)-veined.

palmately 3(-5)-veined.

palmately 3-5-veined.

obsoletely palmately 3-veined.

venation slightly obvious, palmately 3-veined.

venation obvious, pli- or palmately 3-5-veined.

venation obvious in dried state, veins 6-8 from base.

pinnately veined veins branching off in lower part of primary vein, may be obsolete when dried.

veins 9-11 arising from base.

pinnately 7-11-veined.

venation obsolete, 7-9-pli-veined.

venation obvious, ca. 7-pli-veined, or a few veins branching off primary vein or obsolete when dried.

veins 3, obvious.

venation obvious or hardly visible, ca, 7-pli-veined, or few veins branching off primary vein.

venation obvious, palmately 3-veined.

palmately 5-7-veined.

venation pinnate with 4-5(-8) lateral pairs of veins.

somewhat pli-veined with 2 pairs at base and 2-3 pairs from primary vein.

veins 3, obvious, often red below.

palmately 3-veined, veins impressed above, prominent beneath.

palmately 3-veined.

venation obvious in dried state, obsoletely palmately 5-7-veined.

distinctly palmately 3-veined.

obsolete palmately 3-veined.

venation obsoletely 3-5-veined.

obsoletely palmately 3-veined.

obsoletely palmately 3-veined.

palmately 5-7-veined (veins sometimes purple).

palmately 5-7-veined.

palmately or pinnately veined.

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pinnately veined, secondary veins 6-8 per side, arising from 1/2 to 3/4 of primary vein, sharply ascending, impressed above

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Sheet1

[illegible]

Sheet1

Petiole |, glabrous or pubescent, vaginate to middle or to apex;
Petiole |, pilose, glabrescent, vaginate to apex, sometimes reddish tinged;
Petiole |, crisp-pubescent, vaginate to blade;
Petiole |, pubescent sometimes densely so, vaginate to apex, occasionally reddish tinged;
Petiole |, vaginate or grooved to apex;
Petiole |, hirsute, broadly vaginate or winged to apex;
Petiole 0.5-2(to 6 in fertile twigs) cm long, dark-villous (hairs at least
Petiole |, ciliate, vaginate to apex;
Petiole |, glabrous, vaginate below middle;
Petiole |, crisp-pubescent, vaginate to apex;
Petiole |, pubescent, vaginate at base;
Petiole |, vaginate to apex, glabrescent;
Petiole |, sparsely pubescent or glabrescent, vaginate to apex;
Petiole |, long-hirsute, vaginate to apex (or to middle);
Petiole |, hirsute;
-
Petiole |, villous;
Petiole |, pubescent, vaginate to apex;
Petiole |, vaginate and narrowly winged to apex;
Petiole |, vaginate to apex;
Petiole vaginate to apex, |, glabrous;
Petiole |, glabrous, pubescent when young, vaginate at base;
Petiole |, glabrous, vaginate to apex;
Petiole |, glabrous or densely brown-pubescent, green to brown, vaginate or winged to apex;
Petiole |, hirsute, vaginate to middle;
-
Petiole |, glabrous, vaginate to apex,
Petiole |, vaginate to middle or to apex;
Petiole |, vaginate at base;
Petiole |, glabrous or sparsely pubescent, vaginate to apex;
Petiole |, densely brown-pubescent;
Petiole |, densely pubescent;
Petiole |, glabrous, vaginate at base;
Petiole |, vaginate to apex;
Petiole |, glabrous, vaginate usually at base;
Petiole |, villous;
Petiole often stout, |, densely crisp-pubescent, vaginate to apex;
Petiole tuberculate, |, minutely puberulent, glabrescent, vaginate to base of blade and extending shortly;
Petiole |, densely pubescent or hirsute, vaginate at base;

Sheet1

[illegible]

Sheet1

glabrous,pubescent	-
pilose,glabrescent	reddish
pubescent	-
pubescent	reddish
-	-
hirsute	-
villous,hairs	-
-	-
glabrous	-
pubescent	-
pubescent	-
glabrescent	-
sparsely pubescent,glabrescent	-
hirsute	-
hirsute	-
-	-
villous	-
pubescent	-
-	-
-	-
glabrous	-
glabrous,pubescent	-
glabrous	-
glabrous,pubescent	brown,green,brown
hirsute	-
-	-
glabrous	-
-	-
-	-
glabrous,sparsely pubescent	-
pubescent	brown
densely pubescent	-
glabrous	-
-	-
glabrous	-
villous	-
pubescent	-
minutely puberulent,glabrescent	-
densely pubescent,hirsute	-

Sheet1

blade |, not glandular-dotted, |,
blade |, not conspicuously glandular-dotted, |,
blade |, not glandular-dotted, dark green above, more pale below, |,
blade |, not glandular-dotted, |,
blade |, dark glandular-dotted on both sides, |,
blade drying glossy above, |, not conspicuously glandular-dotted, |,
blade |, glandular-dotted, |,
blade |, not conspicuously glandular-dotted, dark green above, pale below, |,
blade |, not glandular- but finely pellucid-dotted,
blade |, glandular-dotted, |,
blade |, not conspicuously glandular-dotted, yellow-green, |,
blade |, densely glandular-dotted, |,
blade |, somewhat glandular-dotted below, |,
blade |, glandular-dotted, |,
blade |, glandular-dotted, often greyish below, |,

-

blade discolourous, |, not conspicuously glandular-dotted, |,
blade not conspicuously glandular-dotted, |, subobovate or ovate,
blade sometimes discolorous and pale brown beneath, |, not conspicuously glandular-dotted, |,
blade |, discolorous often drying yellowish, conspicuously dark-glandular-dotted, |,
blade not dark glandular-dotted,
blade shiny dark green above, pale below, densely black glandular-dotted, translucent dotted in vivo,
blade |, not glandular-dotted, |,
blade |, not glandular-dotted, |,
blade |, glandular-dotted, |,

-

blade |, densely glandular-dotted below, |,
blade |, glandular-dotted to densely glandular-dotted, |,
blade |, dull green, not conspicuously glandular-dotted, |,
blade |, not conspicuously glandular-dotted, |,
blade not conspicuously glandular-dotted, often drying dull greyish green,
blade |, not conspicuously glandular-dotted, |,
blade |, not glandular-dotted, |,
blade |, densely glandular-dotted on both surfaces, |,
blade not glandular-dotted,
blade |, conspicuously dark-glandular-dotted below, |,
blade sometimes with pale band along primary vein, |, more or less orange glandular-dotted on lower surface, sometimes
blade
blade |, glandular-dotted, |,

Sheet1

[illegible]

Sheet1

-	-	-
-	-	-
-	-	dark green
-	-	-
-	-	-
-	-	-
-	-	-
-	-	dark green
-	-	-
-	-	-
-	-	yellow,green
-	-	-
-	-	-
-	-	-
-	-	greyish
-	-	-
-	-	-
-	subobovate,ovate	-
-	-	pale brown
-	-	yellowish
-	-	-
-	-	dark green,black
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	green
-	-	-
-	-	greyish,green
-	-	-
-	-	-
-	-	-
-	-	-
somewhat scabrous	-	orange
-	-	-
-	-	-

Sheet1

apex acuminate,	acuminate
apex acuminate or acute,	acuminate,acute
apex acuminate,	acuminate
apex acuminate,	acuminate
apex acute to acuminate,	acute,acuminate
apex (long) acuminate,	acuminate
apex short-acuminate,	acuminate
apex long-acuminate,	acuminate
-	-
apex acute,	acute
apex long-acuminate to obtuse,	acuminate,obtuse
apex acuminate,	acuminate
apex acute to acuminate,	acute,acuminate
apex acuminate,	acuminate
apex acuminate,	acuminate
-	-
apex obtuse or acutish,	obtuse
apex (long-)acuminate,	acuminate
apex acute to short-acuminate, lower half of blade asymmetrical,	acute,acuminate,asymmetrical
apex (long-)acuminate,	acuminate
apex (long-)acuminate,	acuminate
apex acuminate,	acuminate
apex acute to short-acuminate,	acute,acuminate
apex acute to acuminate,	acute,acuminate
apex short-acuminate, maybe somewhat obtuse,	acuminate,somewhat obtuse
-	-
apex acuminate,	acuminate
apex acuminate,	acuminate
apex acuminate,	acuminate
apex acuminate,	acuminate
apex acuminate,	acuminate
apex acuminate,	acuminate
apex acute or acuminate,	acute,acuminate
apex acuminate,	acuminate
apex long-acuminate,	acuminate
apex long-acuminate,	acuminate
apex (long-)acuminate,	acuminate
apex obtuse, rounded or slightly acute,	obtuse,rounded,acute
apex acuminate,	acuminate

/petiole/blade/base

[illegible]

base unequally attached to petiole difference |, acute or obtusish, glabrous or pubescent above, (densely) crisp-pubescent

—

base equally attached to petiole, acute, cuneate or obtuse, may be truncate or subcordate on sterile branches;

base equally attached to petiole, acute;

base equally attached to petiole, acute to subcordate, glabrous or pubescent on veins below;

—

base equal or almost equally attached to petiole, cuneate or acute, glabrous;

base unequally attached to petiole difference |, longest side obtuse, rounded to cordulate, in narrow leaves acute, shorter

base almost equal to unequally attached to petiole, acute or obtuse, occasionally truncate;

base equal or almost equally attached to petiole, acute, glabrous;

base unequally attached to petiole difference |, rounded, obtuse or subacute, glabrous or sparsely short-pubescent above

base equal or almost equally attached to petiole, acute, glabrous;

base equal, acute, glabrous above, glabrescent or glabrous below;

base unequally attached to petiole difference |, narrowing to lobed base, lobes shorter than petiole, unequal, longer one s

base equal or unequally attached to petiole difference |, subcordate or obtuse, shorter side cuneate, pilose above, more d

base equal or almost equally attached to petiole, deeply unequally lobed, glabrous or sparsely pubescent above, veins gla

base equal or somewhat unequally attached to petiole difference |, acute or obtuse or rounded or subcordate, glabrous or

base equal or almost equally attached to petiole, rounded to subcordate, glabrous above, crisp-pubescent below especial

base equal or almost equally attached to petiole, truncate, rounded or cordulate, glabrous above or primary vein somewhat

Sheet1

base equal or almost equally attached to petiole, truncate or cuneate, but acute to petiole, glabrous above, veins more or
base equal or almost equally attached to petiole, subcordate to rounded, somewhat pilose above, more so below;
base unequally attached to petiole difference |, unequally cordate, with slightly larger, auriculate lobe mostly covering petiole
base unequally attached to petiole difference |, unequally cordate, rounded or obtusish, upper surface glabrous to pubescent
base almost equal, obtuse or acute, glabrous;
base equal or unequally attached to petiole difference |, rounded or cordulate, one side may be subacute, glabrous above
base equal or almost equally attached to petiole, acute, truncate to subcordate, sparsely villous above, more densely so below
base almost equal, acute, glabrous;
-
base almost equally attached to petiole, unequally obtuse or acute, glabrous except for veins crisp-pubescent below;
base equal or almost equally attached to petiole, unequally cordate, lepidote-scabrid above, lower surface and veins hirsute
base equal or unequally attached to petiole difference
base equal, obtuse, truncate, rounded or subacute, glabrous except sparsely minutely pubescent veins above, minutely c
base unequally attached to petiole difference |, rounded to subcordate, pilose above and below;
base unequally attached to petiole difference |, obliquely rounded or cuneate with one side occasionally cordulate, lepidote
-
base unequally attached to petiole difference |, obliquely rounded, glabrous above, veins brown-villous below;
base unequally attached to petiole difference |, unequally cordate or obtuse, glabrescent but veins may be recurved-pubescent
base unequally attached to petiole difference |: shorter side obtuse to abruptly acute, longer side abruptly rounded, obtuse
base equal or unequally attached to petiole difference |, acute, cuneate or obtusish, glabrous above, glabrous often minutely
base equal or almost equally attached to petiole, deeply cordate, glabrescent or veins puberulent;
base equal or almost equally attached to petiole, acute or cuneate or obtusish, occasionally rough above (from scale-like
base equal or almost equally attached to petiole, subacute to obtusish, glabrous;
base unequally attached to petiole difference |, unequally lobed, basal lobes shorter or longer than petiole, occasionally ovate
base equal or unequally attached to petiole difference at most |, cuneate to obtusish, rounded or subcordate, glabrous but
-
base equal or unequally attached to petiole difference |, obtuse to rounded, glabrous, but veins sparsely to densely appressed
base unequally attached to petiole difference |, acute, glabrous;
base equal or almost equally attached to petiole, subacute to obtuse or rounded, glabrous;
base equal, rounded to subcordate to deeply cordate, glabrous but veins glabrous or sparsely pubescent below;
base unequally attached to petiole difference |, obtuse to subcordate, almost glabrous above, veins may be somewhat appressed
base equal or unequally attached to petiole difference |, subcordate or obtusish, pubescent on both surfaces, veins more or
base equal, obtuse or rounded;
base almost equal, acute to cuneate, glabrous;
base equal or almost equally attached to petiole, acute, glabrous;
base equal, obtuse or subacute, densely villous below;
base equal or unequally attached to petiole difference |, obtuse to rounded to subcordate occasionally cuneate, glabrous
base unequally attached to petiole difference |, shorter side acute to obtuse, longer side rounded or cordate, glabrous or glabrescent
base equal or almost equally attached to petiole, acute or cuneate, glabrous above, erect-pubescent below, more so on veins

Sheet1

[illegible]

Sheet1

truncate,cuneate,acute	glabrous,more or less pubescent
cordate,rounded	somewhat pilose
cordate	glabrous,pubescent
cordate,rounded	glabrous,pubescent,pubescent,densely pubescent
obtuse,acute	glabrous
rounded,acute	glabrous,hirsute
acute,truncate,cordate	sparsely villous
acute	glabrous
-	-
obtuse,acute	glabrous,pubescent
cordate	hirsute
-	-
obtuse,truncate,rounded,acute	glabrous,minutely pubescent,pubescent
rounded,cordate	pilose
obliquely rounded,cuneate	hirsute
-	-
obliquely rounded	glabrous,villous
cordate,obtuse	glabrescent,pubescent
obtuse,acute,rounded,obtuse,cordate	glabrous,minutely pubescent
acute,cuneate	glabrous,glabrous,pubescent
cordate	glabrescent,puberulent
acute,cuneate	glabrous
acute	glabrous
-	glabrous,pubescent
cuneate,rounded,cordate	glabrous,appressed-pubescent
-	-
obtuse,rounded	glabrous,pubescent
acute	glabrous
acute,obtuse,rounded	glabrous
rounded,cordate,cordate	glabrous,glabrous,sparsely pubescent
obtuse,cordate	glabrous,appressed-pubescent,appressed-pubescent
cordate	pubescent
obtuse,rounded	-
acute,cuneate	glabrous
acute	glabrous
obtuse,acute	densely villous
obtuse,rounded,cordate,cuneate	glabrous,pubescent
acute,obtuse,rounded,cordate	glabrous,glabrescent,minutely pubescent
acute,cuneate	glabrous,pubescent

Sheet1

[illegible]

Sheet1

-	-	-
-	-	-
-	-	0.1-0.4 cm
-	-	0.3-0.4 cm
-	-	-
-	-	0-0.5 cm
-	-	-
-	-	-
-	-	-
-	-	-
-	-	0.2 cm
-	-	-
-	-	0-0.8 cm
-	-	0.2-0.6 cm
-	-	-
-	brown	0.2-0.5 cm
recurved	-	0.1-0.7 cm
-	-	0-0.5 cm
-	-	up to 0.5 cm
-	-	-
-	-	-
-	-	-
-	brown	up to 1 cm
-	-	0.1 cm
-	-	-
-	-	0-0.3 cm
-	-	0.2-0.3 cm
-	-	-
-	-	-
-	-	0.1-0.3 cm
-	-	0-0.3(-0.7) cm
-	-	-
-	-	-
-	-	-
-	-	0-0.5 cm
-	-	0.2-0.7 cm
erect	-	-

Sheet1

13-20 x 5-13 cm
9-20 x 4-6(-10) cm
11-26(-35) x 4-9 cm
15-20 x 7-9 cm
10-20 x 3-8 cm
13-21 x 7.5-10 cm
18-22(-27) x 5.5-7.5(-17) cm
6-16 x 1.5-3 cm
10-14 x 3-4.5 cm
8-13 x 3.5-5.5 cm
5-12 x 2.5-6.5 cm
14-28 x 7-14 cm
5-8(-13) x 1.5-3.5(-6.3) cm
16-25 x 6-9.5 cm
11-23 x 4-11 cm
-
9-15(-18) x 5-7(-8.5) cm
4-17 x 3-6.5 cm, (on young creeping branches ca. 1.5-5 x 0.8-1.8 cm
20-24(-36) x 7.5-9.5(-17) cm
13-23 x 4-8.5 cm
10-12 x 8-15 cm
8-15 x 3-6 cm
8-19 x 5-10 cm
20-60(-70) x (12-)20-35 cm
7-17 x 2.5-6 cm
-
16-27 x 7-13(-14.5) cm
9-16 x 2.5-7 cm
(5.5-)7.5-17(-19.5) x (2.5-)3.5-6.5(-7.5) cm
7-12 x 3-5 cm
11-25 x 4.5-8 cm
17-30 x 10-17 cm
14-30 x 7-18 cm
9-13 x 2-4 cm
14-20 x 5-7 cm
5-7.5 x 1-1.5 cm
12-33 x 5-13 cm
4-12 x 2-6 cm
12-15 x 3.5-5 cm

Sheet1

/petiole/blade/dimensions/growth form /petiole/blade/margins

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margin ciliate,
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margin ciliate,
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margin ciliate,
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margin ciliate,
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margin ciliate,

Sheet1

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-	margin hardly ciliate,
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-	margin ciliate towards apex,
-	margin long-ciliate,
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creeping	margin occasionally ciliate,
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-	margin ciliate,
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-	margin ciliolate,
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-	margin ciliate,
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ovate
elliptic-ovate, elliptic-oblong or lanceolate
elliptic to oblanceolate
rhombic, elliptic to subobovate
rhombic, somewhat asymmetric
slightly asymmetrical, broadly elliptic
lance-elliptic to ovate to broadly ovate
narrowly lanceolate
elliptic(-oblong)
elliptic
ovate
elliptic to ovate
narrowly ovate to ovate
obovate to elliptic or elliptic-oblong
elliptic or elliptic-ovate
-
elliptic to broadly elliptic
elliptic
elliptic-oblong or somewhat ovate
elliptic, ovate, elliptic-oblong or rhombic
rounded to ovate
(narrowly) ovate to elliptic-oblong
elliptic, ovate to broadly ovate
elliptic-ovate to oblong
lance-elliptic, elliptic or elliptic-oblong
-
narrowly elliptic to elliptic-ovate
elliptic to ovate
elliptic-oblong to narrowly ovate
oblong to ovate
ovate or elliptic-ovate
broadly ovate or ovate
ovate or broadly ovate
narrowly ovate or lance-elliptic
narrowly elliptic or narrowly elliptic-oblong
narrowly elliptic or narrowly ovate
(narrowly) elliptic, elliptic-oblong or (narrowly) ovate
broadly ovate-elliptic
lance-elliptic to oblanceolate

ovate
elliptic, ovate, elliptic, oblong, lanceolate
elliptic, oblanceolate
rhombic, elliptic, subobovate
rhombic
asymmetrical, broadly elliptic
lance, elliptic, ovate, broadly ovate
narrowly lanceolate
elliptic, oblong
elliptic
ovate
elliptic, ovate
narrowly ovate, ovate
obovate, elliptic, elliptic, oblong
elliptic, elliptic, ovate
-
elliptic, broadly elliptic
elliptic
elliptic, oblong, somewhat ovate
elliptic, ovate, elliptic, oblong, rhombic
rounded, ovate
ovate, elliptic, oblong
elliptic, ovate, broadly ovate
elliptic, ovate, oblong
lance, elliptic, elliptic, elliptic, oblong
-
narrowly elliptic, elliptic, ovate
elliptic, ovate
elliptic, oblong, narrowly ovate
oblong, ovate
ovate, elliptic, ovate
broadly ovate, ovate
ovate, broadly ovate
narrowly ovate, lance, elliptic
narrowly elliptic, narrowly elliptic, oblong
narrowly elliptic, narrowly ovate
elliptic, elliptic, oblong, ovate
broadly ovate, elliptic
lance, elliptic, oblanceolate

not scabrous
somewhat scabrous
membranous or subcoriaceous, not scabrous
hardly to densely scabrous above
coriaceous, drying shiny or membranous
not scabrous
may be somewhat bullate in vivo
not scabrous
not scabrous
not scabrous
scabrous
not scabrous
not scabrous
not scabrous
scabrous often on both surfaces
-
not scabrous
-
not scabrous
fleshy, drying membranous
-
-
not scabrous
not scabrous
slightly bullate to smooth, coriaceous and silvery shiny or membranous
-
not scabrous
membranous, not scabrous
subcoriaceous
membranous, bicolourous, not scabrous
somewhat scabrous and bullate
somewhat scabrous when dried
membranous or firmly chartaceous
not scabrous
-
somewhat scabrous above
coriaceous
-
not scabrous

Sheet1

[illegible]

Sheet1

scabrous	-	ca. 1.5 cm long
somewhat scabrous	-	0.2-1 cm long
membranous,subcoriaceous,scabrous	-	0.3-0.5(-1) cm long
scabrous	-	0.5-1.5 cm long
coriaceous,membranous	-	1-2.2 cm long
scabrous	-	0.5-1.2 cm long
somewhat bullate	-	1 mm long
scabrous	-	0.3-0.7 cm long
scabrous	-	1-2 cm long
scabrous	-	0.5 cm long
scabrous	-	0-0.4 cm long
scabrous	-	1-3.2 cm long
scabrous	-	0.7-1.5 cm long
scabrous	-	1-3 cm long
scabrous	-	0.5-1 cm long
-	-	-
scabrous	-	1-2(-5.5) cm long
-	-	0.5-1 cm long
scabrous	-	2.5-4.5(-7.5) cm long
fleshy,membranous	-	0.3-2.5 cm long
-	-	4 cm long
-	-	0.4-0.8 cm long
scabrous	-	1-2 cm long
scabrous	-	3-7(-10) cm long
bullate,coriaceous,membranous	silver	0.5 cm long
-	-	-
scabrous	-	(0.5-)1-4.5 cm long
membranous,scabrous	-	0.4-1 cm long
subcoriaceous	-	0.5-2 cm long
membranous,scabrous	-	1.5-2.5 cm long
somewhat scabrous,bullate	-	0.3-0.7(-1) cm long
somewhat scabrous	-	1.5-2 cm long
membranous,chartaceous	-	3-12 cm long
scabrous	-	0.3-2 cm long
-	-	0.3-0.6 cm long
somewhat scabrous	-	ca. 0.5 cm long
coriaceous	-	to 1 cm long
-	-	0.1-0.7 cm long
scabrous	-	0.3-0.5 cm long

[illegible]

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margin not ciliate,
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margin enlarged;
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apex acuminate,
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/petiole/margins/apex/shape /petiole/margins/base

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Sheet1

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Sheet1

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Sheet1

pinnately veined, secondary veins 4-5 per side, originating from lower 1/2 of primary vein, prominent below.

pinnately veined, secondary veins (4-)6-8 per side, originating from throughout primary vein, plane above, prominent below.

pinnately veined, secondary veins 8-11(-14) per side, originating from throughout primary vein, flat to impressed above, prominent below.

pinnately veined, secondary veins 5-6 per side, originating from lower 1/2 of primary vein, tertiary veins transverse and parallel to primary vein.

pinnately veined, secondary veins 4-6 per side, originating from lower 3/4 of primary vein, at a wide angle and abruptly curved.

pinnately veined, secondary veins 4-8 per side, originating from lower 3/4 or 2/3 of primary vein, impressed above, tertiary veins transverse.

pinnately veined, secondary veins 5-6 per side, originating from lower 3/4 of primary vein.

pinnately veined, secondary veins 8-15 per side, originating from throughout primary vein, plane above, slightly prominent below.

pinnately veined, secondary veins 5-6 per side, originating from throughout primary vein, plane or inconspicuous above, slightly prominent below.

pinnately veined, secondary veins 5-7 per side, originating from throughout primary vein, prominent below, tertiary veins transverse.

pinnately veined, secondary veins 3-5 per side, originating from lower 1/3 of primary vein, impressed above, prominent below.

pinnately veined, secondary veins 5-7 per side, originating from lower 2/3 of primary vein, slightly impressed above, prominent below.

pinnately veined, secondary veins 4-5(-7) per side, originating from lower 1/3 or more of primary vein, 2 originating from base of primary vein.

pinnately veined, secondary veins 5-8 per side, originating from lower 2/3 of primary vein, flat above, prominent below, tertiary veins transverse.

pinnately veined, secondary veins 5-6 per side, originating from lower 1/2 of primary vein, tertiary veins transversely reticulate.

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pinnately veined, secondary veins 3-5 per side, originating from lower 3/4 or more of primary vein, anastomosing, impressed above, prominent below.

pinnately veined, secondary veins 6-8 per side, originating from throughout primary vein, impressed above, prominent below.

pinnately veined, secondary veins 5-6(-8) per side, widely spaced, originating from lower 2/3 or more of primary vein, anastomosing.

pinnately veined, secondary veins 4-6 per side, originating from lower 1/2 or 2/3 of primary vein, plane above, prominent below.

palmately 9-11-veined.

pinnately veined, secondary veins 3-5 per side, anastomosing near margin, originating from lower 3/4 of primary vein, tertiary veins transverse.

palmately-pinnately veined, secondary veins 2-3 per side, originating from lower 1/4 of primary vein, flat to prominent below.

pinnately veined, secondary veins 5-9, per side originating from lower 3/4 of primary vein.

pinnately veined, secondary veins (7-)8-12 per side, originating from throughout primary vein, impressed above, prominent below.

-

pinnately veined, secondary veins 6-7 per side, originating from lower 2/3 of primary vein, flat above, prominent below, tertiary veins transverse.

pinnately veined, secondary veins 4-6 per side, originating from lower 2/3 of primary vein, flat above, prominent below, tertiary veins transverse.

pinnately veined, secondary veins (5-)7-8(-11) per side, originating from throughout primary vein, anastomosing well within primary vein.

palmately-pinnately veined, secondary veins 2-3 per side originating from lower 1/4 of primary vein, flat above, prominent below.

pinnately veined, secondary veins 3-4(-5), originating from lower 1/2 of primary vein, ascending at an angle of ca. 45°, flat above, prominent below.

pinnately veined, secondary veins 5-7 per side, originating from lower 1/2 of primary vein, prominent below, tertiary veins transverse.

palmately 5-7(-9)-veined, veins plane to impressed above, very prominent below, tertiary veins transverse.

pinnately veined, secondary veins 7-10 per side, originating from throughout primary vein, flat above, flat below, marginally anastomosing.

pinnately veined, secondary veins 3-4 per side, originating from lower 1/2 to lower 2/3 of primary vein, ascending at an angle of ca. 45°, flat above, prominent below.

pinnately veined, secondary veins ca. 5 per side, originating from lower 1/2 of primary vein, tertiary veins more or less parallel to primary vein.

pinnately veined, secondary veins 4-7(-11) per side, originating from lower 1/2 to 2/3 of primary vein, not anastomosing, impressed above, prominent below.

pinnately veined, secondary veins 4-10, originating from throughout primary vein, anastomosing near margin.

pinnately veined, secondary veins 4-5 per side, originating from lower 2/3 of primary vein, not anastomosing, plane to impressed above, prominent below.

Sheet1

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thin	minutely pubescent	-
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thin	-	-
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Prophyll densely pubescent.

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Prophyll |, glabrous except pubescent on midvein.

Prophyll glabrous, marginally with some hairs or densely pubescent.

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Prophyll oblong,

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Sheet1

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Sheet1

[illegible]

Sheet1

[illegible]

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	8												

/stamens/ovary

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ovary with 1 style and stigma, or stigma sessile.

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/stems

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Stem ascending,

Stem glabrous, |, green or reddish.

Stem villous, often fuscous, green or reddish,

Stem minutely hirtellous (spreading hairs

-

Stem minutely pubescent to glabrous, |, green or green with red spots or reddish.

Stem |, green or reddish, glabrous, except for lines of hairs decurrent from nodes.

Stem glabrous, |, whitish green.

Stem ascending.

Stem |, retrorsely minutely crisp-pubescent, green and reddish.

Stem glabrous, |, green or reddish.

Stem glabrous, |, green or green with red nodes.

Stem erect, creeping or ascending, rooting at nodes, |, glabrous, green or green with red spots.

Stem loosely villous, |, green or reddish brown.

Stem erect, creeping or ascending, rooting at nodes, glabrous, green or green with red spots.

Stem loosely villous, |, green to reddish.

Stem |, green often reddish tinged.

Stem |, green.

Stem glabrous, green.

Stem glabrous to minutely pubescent (with white hairs, Persaud 52), |, reddish.

Stem quadrangular, minutely pubescent,

Stem erect to ascending, glabrous, |, green or reddish.

Stem succulent, glossy, retrorsely crisp-pubescent, green with red spots or reddish.

Stem sparsely pubescent.

Stem crisp-pubescent when young,

Stem minutely crisp-pubescent,

Stem glabrous to somewhat minutely pubescent,

Stem |, minutely pubescent, green.

Stem |, green or red.

Stem rooting at nodes, ascending, crisp-pubescent, glabrescent.

Stems usually with swollen nodes.

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Stem sparsely pubescent to glabrescent;

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Stem glabrous or minutely pubescent on upper internodes.

Stem retrorsely pubescent with swollen nodes.

Stem glabrous except for 1 or 2 subnodal lines of hairs decurrent from petioles.

Stem glabrous or minutely pubescent, upper internodes smooth or somewhat lenticellate.

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Stem striate or canaliculate, glabrous.

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Stem glabrous.

Stem densely retrorsely pubescent with hairs

Stem somewhat yellow-glandular, pilose, hairs

Stem densely pubescent.

Stem glabrous.

-

Stem glabrescent.

-

Stem pilose with hairs

Stem crisp-pubescent or sometimes appressed-pubescent.

Stem crisp-pubescent or scabrous.

Stem glabrous.

Stem densely hirsute.

Stem glabrous, densely dark glandular-dotted.

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Stem glabrous.

Stem densely crisp- pubescent.

Stem pubescent.

Stem glabrescent.

Stem ribbed, glabrous, younger parts sparsely pubescent.

Stem long-hirsute, hairs

Stem hirsute to glabrescent.

Stem crisp-pubescent.

Stem villous often with white hairs.

Stem ridged, pubescent with recurved hairs.

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Stem, petiole and peduncle and even primary vein below maybe reddish (brown), or yellowish, glabrous.

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Stem glabrous, young ones often reddish.

Stem glabrous.

Stem densely pubescent to glabrescent.

Stem hirsute.

-

Stem glabrous.

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Stem glabrous or glabrescent;

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Stem densely retrorsely crisp-pubescent.

Stem and branches sparsely to densely pubescent.

Stem often with spines opposite petiole;

Stem glabrous, glandular.

Stem glabrous or may be sparsely appressed-pubescent.

Stem retrorsely villous.

Stem crisp-pubescent.

-

Stem densely pubescent or hirsute, hairs often reddish brown (

Sheet1

/stems/texture	/stems/hairs	/stems/growth form	/stems/colour
-	-	-	-
-	-	-	-
-	-	-	-
-	glabrous	-	green,reddish.
-	villous	-	green,reddish,
-	hairs	spreading	-
-	-	-	-
-	minutely pubescent,glabrous	-	green,green,red ,reddish.
-	glabrous,hairs	-	green,reddish,
-	glabrous	-	whitish,green
-	-	-	-
-	pubescent	-	green,reddish.
-	glabrous	-	green,reddish.
-	glabrous	-	green,green,red
-	glabrous	erect,creeping	green,green,red
-	villous	-	green,reddish ,brown
-	glabrous	erect,creeping	green,green,red
-	villous	-	green,reddish.
-	-	-	green,reddish
-	-	-	green
-	glabrous	-	green
-	glabrous,minutely pubescent,hairs	-	white,reddish.
-	minutely pubescent	-	-
-	glabrous	erect	green,reddish.
-	pubescent	-	green,red ,reddish.
-	sparsely pubescent	-	-
-	pubescent	-	-
-	pubescent	-	-
-	glabrous,minutely pubescent	-	-
-	minutely pubescent	-	green
-	-	-	green,red.
-	pubescent,glabrescent	-	-
-	-	-	-
-	-	-	-
-	sparsely pubescent,glabrescent	-	-
-	-	-	-
-	-	-	-
-	glabrous,minutely pubescent	-	-
-	pubescent	-	-
-	glabrous,hairs	-	-
-	glabrous,minutely pubescent	-	-
-	-	-	-
-	glabrous	-	-
-	-	-	-
-	-	-	-
-	glabrous	-	-
-	pubescent,hairs	-	-
-	pilose,hairs	-	yellow
-	densely pubescent	-	-
-	glabrous	-	-
-	-	-	-
-	glabrescent	-	-

Sheet1

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-	pubescent, appressed-pubescent	-	-
-	pubescent	-	-
scabrous	glabrous	-	-
-	densely hirsute	-	-
-	glabrous	-	-
-	-	-	-
-	glabrous	-	-
-	pubescent	-	-
-	pubescent	-	-
-	glabrescent	-	-
-	glabrous, sparsely pubescent	-	-
-	hirsute, hairs	-	-
-	hirsute, glabrescent	-	-
-	pubescent	-	-
-	villous, hairs	-	white
-	pubescent, hairs	recurved	-
-	-	-	-
-	glabrous	-	reddish, brown, yellowish
-	-	-	-
-	glabrous	-	reddish.
-	glabrous	-	-
-	densely pubescent, glabrescent	-	-
-	hirsute	-	-
-	-	-	-
-	glabrous	-	-
-	-	-	-
-	glabrous, glabrescent	-	-
-	-	-	-
-	pubescent	-	-
-	densely pubescent	-	-
-	-	-	-
-	glabrous	-	-
-	glabrous, appressed-pubescent	-	-
-	villous	-	-
-	pubescent	-	-
-	-	-	-
-	densely pubescent, hirsute, hairs	-	reddish, brown

Sheet1

/stems/internodes

-

-

internodes winged or ridged below nodes, green or reddish.

-

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-

internodes |, green brownish or reddish.

-

-

-

internodes |, green often with red spots.

internodes |, green.

internodes |, green with lilac.

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/stems/internodes/colour

-

-

green,reddish.

-

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-

green,brownish,reddish.

-

-

-

green,red

green

green,lilac

-

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Sheet1

/stems/internodes/length	/stems/length	/stems/nodes	/stems/thickness
-	-	-	-
-	-	-	-
-	10-40 cm long	-	-
-	30-100 cm long	-	-
-	10-20(-60) cm long	-	-
-	0.1 mm long	-	-
-	-	-	-
-	10-80 cm long	-	-
-	to 15 cm long	-	-
-	40 cm long	-	-
-	-	-	-
-	-	-	to 0.4 cm thick when dried
-	10-34 cm long	-	-
-	to 100 cm long	-	-
-	10-50 cm long	-	-
-	10 cm long when fruiting	-	-
-	-	-	-
-	3-8 cm long	-	-
-	10-30(-40) cm long	-	-
-	to 5 cm long	-	-
-	-	-	-
-	10-28 cm long	-	-
2-6 cm long	-	-	-
-	up to 25 cm long	-	-
-	-	-	-
-	-	-	-
0.3-2 cm long	-	-	-
0.5-3 cm long	-	-	-
0.2-1.6 cm long	-	-	-
-	to 25 cm long	-	-
-	10-20 cm long	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	to 1 mm long	-	-
-	to 2 mm long	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

Sheet1

[illegible]

Sheet1

[illegible]

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Stipules large |, early caducous.

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Stipules rather long persistent;

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-

Stipules may be persistent, |, glabrous.

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-

Stipules long persistent.

-

Stipules |, glabrous, upper ones subpersistent.

-

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-

Stipules may be long persistent.

-

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-

Stipules late deciduous.

-

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Sheet1

[illegible]

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Sheet1

[illegible]

[illegible]

Sheet1

[illegible]

Sheet1

[illegible]

/stipules/veins

pinnately veined, secondary veins 6-10 per side, originating from throughout primary vein, plane above, prominulous below

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—
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—
—
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—
—

/habitat

-
-
-

in forests,

-

Altitudes

-

Altitudes

-

in non-flooded moist forest, creeping and forming loose mats along creeks on rocks, on the forest floor, or on fallen logs,

-

elev.

from

in wet forest,

-
-
-

from sea level

-
-
-

in dense forest on sandstone,

in savanna forest,

from

from

-

humid forests

-

in forests especially cloud forests, at

at higher altitudes.

on granitic rocks, on

from

Weedy species in secondary vegetation, most species are found in the understory of various types of forest, in open spaces

-

in open or somewhat shady places.

in forest or even in secondary vegetation, often on granitic outcrops;

from understory of mixed forest (on slopes);

-

in primary forest,

-

in moist tropical rain forest high, dense, mixed or swamp forest, occasionally in secondary vegetation, often in humid places, also recorded from secondary vegetation,

in lowland moist forest,

in (dense) forest, in river-bank or marsh forest and in secondary vegetation.

in forest on terra firme and in marsh forest, on sand, clay or granite,

-
-
-

in moist forest, swampy vegetation and stream sides,

understorey of primary forest or swampy forest, or open forest on laterite;

riverine flood plain forest on white and brown sands, from mud in wet forest on granitic rocks, red clay or deep mud along

-
virgin forest, mossy cloud forest, forest on granite and from open places,
in dense forest, montane forest, growing on brown sand with granite boulders or on sandstone, from
-
in riverine forest, swamp forest, occasionally reported from regenerating forest.
dense forest on brown sand,
mainly from dense forest, or swampy places,
in dense forest understorey,
-
-
on edges of streams in savanna areas, in Brazil
-
-
in dense forest on brown sand,
in secondary vegetation, on creek banks in forest and in dense forest,
-
often on rocks and in humid places in primary forest,
-
in forest,
dark, humid, primary forest or swamp forest,
-
in forest
-
in moist forest
-
-
from
-
non-flooded moist forest, or along riverbanks, up to 660(-1100?) m elev.
in understorey of primary rainforest and from secondary vegetation, from
-
in (dense) forest,
recorded mainly from secondary vegetation,
-
in clearings, damp places, open and mixed forest, shady rocky areas,
-
-
mostly in dry areas.
in primary forest, and occasionally from secondary vegetation,

/habitat/altitude

-

-

from sea level up to 1700 m

from sea level up to 2400 m

above 200 m, up to 1100 m

above 2000 m

from sea level to 600 m

2250-2500 m, 2700 m

from sea level up to 2400 m

between 150-500 m

200-700 m

500-2000 m

700-1600 m

from sea level to 1800 m

from sea level to over 1200 m

up to 700 m

from sea level to over 1200 m

to 850-1400 m

-

to 700 m

-

1120-2750 m

up to 200 m

1000-2800 m

300-1900 m

-

from sea level up to 1000 m

from sea level to 1200 m

high altitudes up to 1580 m

-

250-850 m

200-800-1200? m

from sea level to 2000 m

from sea level to 500 m

-

from sea level to 1500 m

to 750 m

from sea level to 1500 m

up to 500 m

-

from sea level to 1500 m

from sea level to 1500 m

200-450 m

-

up to 700 m

800-1100 m

up to 650 m

from sea level to 700 m

from sea level to 700 m

to 850 m

up to 650 m

from sea level to 650 m

-
up to 700 m
20-720 m
-
-
240 m
up to 700 m
up to 639 m
600-1500 m
-
up to 1200 m
up to 900 m
-
240-700 m
from sea level to 700 m
-
up to 800 m
-
to 150 m
from sea level to 700 m
-
from sea level to 700 m
-
from sea-levelto 2000 m
up to 1600 m
-
500-1275 m
-
-
10-600 m
to 260 m
20-300 m
to 450 m
-
from sea level to 1600 m
-
-
-
from sea level to 600 m