# MEDEDELINGEN LANDBOUWHOGESCHOOL WAGENINGEN • NEDERLAND • 72-21 (1972)

# TENTATIVE DETERMINATION KEY TO 600 TREES, SHRUBS AND CLIMBERS FROM THE IVORY COAST, AFRICA, MAINLY BASED ON CHARACTERS OF THE LIVING BARK, BESIDES THE RHYTIDOME AND THE LEAF

IV. CLIMBERS

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#### 1. INTRODUCTION AND ACKNOWLEDGEMENTS

All the species dealt with in this study were collected in the Ivory Coast, Africa by Versteegh and Den Outer in 1969.

Although most collecting areas are near the main roads, a sufficient allround impression of the forest situation could be obtained because smaller or larger forested areas are often within reach of the road. Only those trees, shrubs and climbers which were flowering or fruiting in secondary forest-areas, mangrove and the savanna were examined. A few were collected in old plantations.

One of the reasons to make the collection was to prepare a determination key kept as simple as possible, based on field characters and particularly those of the bark. The total number of considered species is 593, viz.: 144 trees with a dbh of more than 25 cm, 180 trees with a dbh of less than 25 cm, 152 shrubs and 117 climbers. Part I deals with large trees, part II with small trees, part III with shrubs and part IV with climbers.

A list of all species considered in alphabetical order, according to family, is published in DEN OUTER (1972a).

It is strongly emphasized that the key can be used only when fresh bark is available. In a number of cases bark alone was not sufficient to distingiush the species and then also leaves were taken into account. There are always some old fallen leaves in the neighbourhood of the tree, or fresh ones can be obtained. It is recommended to check the short description mainly of the leaf, at the end of the key, after determination of a species has been made.

The glossary of terms used (DEN OUTER, 1972a), is based on those of ENDERT (1928), JACKSON (1953), LANJOUW (1968), DEN OUTER (1967), VOORHOEVE (1965) and WYATT-SMITH (1952).

The final determinations were made by MISS DR. G. J. H. AMSHOFF of the Department of Plant Taxonomy and Plant Geography of the Agricultural University, Wageningen, The Netherlands.

I feel indebted to CHR. VERSTEEGH of whom I learned very much, especially during the time in the Ivory Coast when we collected the material. Furthermore I am most grateful to Professor DR. A. L. STOFFERS of the Laboratory of General Botany at Wageningen for his critical and most valuable comments in reading this manuscript.

#### 2. METHODS

Field characters from the standing tree were noted. From a suitable part of the bole, mostly at breast height, a piece of bark with the wood attached to it was cut out with an ax or cutlass. A transverse section of the bark was made with a sharp knife and the characters observed were noted.

Then a small portion of the collected material was kept in a fixation fluid, the biggest portion dry. Both pieces got the same number as the herbarium material. The latter has often been collected after cutting down the tree and later on sent for identification to the herbarium of the Department of Plant Taxonomy and Plant Geography at Wageningen, The Netherlands.

Duplicates were sent to the herbaria at Utrecht and Leiden, The Netherlands. All observations were registered in the field and include the following items: number, date, family, scientific name as far as known to us, collectors, local name, locality, habitat, frequency of occurrence, general form, dimensions (height and dbh);

flower: colour of bud and open flower;

fruit: colour of young and old fruit, general form, dimensions;

roots: buttresses, stilt-roots, aerial-roots, adventitious-roots; pneumatophores,

stem: general form, colour flakes, flutes, fissures, scales, grooves, rough, smooth:

dead bark: thickness, colour, lenticels;

living bark: thickness, colour tangential outerside, colour tangential innerside

and colour cross section, discolouring, smell, dilatating rays,

exudate;

heartwood: thickness, colour, discolouring; sapwood: thickness, colour, discolouring:

crown: colour, density, shape, short leaf description;

stricking characters.

These observations were cut in a punch card. With the help of these cards the determination key was prepared.

# 3. KEY IV, CLIMBERS

Tentative determination key based on characters of the living bark of 117 species, all climbers, from the Ivory Coast, Africa.

With a few exceptions the key is based on a strictly dichotomous principle; each number gives two alternatives a and b and each alternative either leads to a new number or to an identification.

1.	a.	Exudate present	2
	ъ.	Exudate absent	23
2.		Exudate colourless	3
		Exudate reddish brown	7
		Exudate white	11
3.		Slash discolouring wine-red or purple Illigera pentaphylla	
		Slash not discolouring	4
4.		Colour slash brown Farquharia elliptica	
	b.	Colour slash different	5
5.		Colour slash white or grey	6
		Colour slash green Dioclea reflexa	
6.	a.	Colour slash white or grey with pink Millettia barteri	
	Ъ.	Colour slash white or grey without pink . Mucuna flagellipes	
7.	a.	Slash discolouring	8
		Slash not discolouring	9
8.	a.	Slash discolouring red-brown to purple . Strophanthus hispidus	
	b.	Slash discolouring brown Macaranga beillei	
9.	a.	Colour slash red-brown or wine-red:	
		leaves alternate Cissus producta	
		leaves opposite Farquharia elliptica	
	b.	Colour slash white or grey	10
10.	a.	Sapwood white with concentric wine-red rings	
		Lonchocarpus cyanescens	
	b.	Sapwood without concentric rings of different colour:	
		leaves compound Leptoderris macrothyrsa	
		leaves simple Manniophyton fulvum	
11.	a.	Slash pink, discolouring wine-red or purple:	
		leaves alternate Ficus kamerunensis	
		leaves opposite Landolphia micrantha	
		Slash not discolouring	12
12.		Colour slash yellow Dictyophleba leonensis	
	b.	Colour slash different	13
13.		Colour slash green	14
		Colour slash different	15
14.	a.	Slash very fibrous Baissea leonensis	
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		Slash not fibrous	
15.	a.	Colour slash pink	16
	b.	Colour slash different	17
16.	a.	Colour sapwood pink-brown Ficus thonningii	
	b.	Colour sapwood white Ficus vogelii	
17.	a.	Colour slash brown or reddish brown	18
		Colour slash different	19
18.	а.	Colour slash brown	
		Colour slash reddish Baissea multiflora	
19.		Colour slash white or grey	20
		Colour slash different	21
20.	a.	Colour slash pink-white	
	b.	Colour slash yellow-white	
21	я.	Colour slash grey with orange spots; sapwood brown-grey	
	٠		
	h	Colour slash pink with red-brown spots; sapwood yellowish	22
22.		Midrib of leaf on the lower surface with brown hairs; leaf c. 4 cm	
	ш.	wide Landolphia owariensis	
	h	Midrib of leaf on the lower surface without brown hairs; leaf c.	
	υ.	6 cm wide Saba senegalensis	
23	9	Slash discolouring	24
<i>29</i> .		Slash not discolouring	64
24		Slash discolouring green	UT
47.		Slash discolouring different	25
25		Slash discolouring orange Strychnos usambarensis	25
25.		Slash discolouring different	26
26		Slash discolouring yellow Polycoryne fernandensis	20
20.		Slash discolouring different	27
27		Slash discolouring wine-red or purple	28
21.	h.	Slash discolouring brown	34
28		Colour slash pink	<b>7</b> 7
20.		Colour slash different	29
20		Colour slash white or grey	30
۷).		Colour slash different	31
30		Leaves pinnati-nervate Combretum grandiflorum	21
50.		Leaves palmeti-nervate Dioscorea minutiflora	
31			32
J1.		C 1 1 1 1 m	33
30		Stem twisted	55
JZ,		Stem not twisted Dichapetahum murinum	
32		Colour slash reddish brown or wine-red	68
JJ.		Colour slash white with wine-red spots Embelia rowlandii	vo
34			35
J4.		Colour slash different	38
	υ.	Colour stasti different	JO

35. a. Stem white-grey with grooves . Allophyllus africanus f. chrysothr	
b. Stem brown without grooves	. 36
b. Stem brown without grooves	рa
b. Leaves compound, unifoliolate	. 37
37. a. Leaflet ovate Dalbergia ecastaphyllu	m
b. Leaflet elliptic Baphiastrum confusu	
38. a. Colour slash white or grey	
b. Colour slash different	
39. a. Colour slash white or grey with pink Paullinea pinna	
b. Colour slash white or grey without pink	
40. a. Stem reddish brown	
b. Stem brown	
41. a. Leaves simple	
42. a. Lower leaf surface rough, with hairs; stipulate	
Rutidea parviflo	ra
b. Lower leaf surface smooth, without hairs or very little hair	
estipulate	ns
43. a. Colour slash yellow	
b. Colour slash different	. 46
44. a. Sapwood white or yellowish, discolouring brown	
b. Sapwood different	
45. a. Sapwood ochre yellow; stem with a rough surface	
	rii
b. Sapwood yellowish; stem with a smooth surface	
	lii
46. a. Colour slash green	. 47
b. Colour slash different	. 50
47. a. Stem white-green	la
b. Stem brown or black	. 48
48. a. Stem undulated in outline Grewia carpinifol	ia
b. Stem round to oval in outline	. 49
49. a. Leaves simple	
b. Leaves compound Dalbergia saxatii	
Dalbergia oblongifol	
50. a. Colour slash white with spots or stripes	
b. Colour slash brown	
51. a. Colour slash white with red-brown dilatating rays	
b. Colour slash white with spots	. 53
52. a. Leaves not strongly hairy; 3-nerved from the base	. 33
b. Leaves strongly hairy; pinnati-nervate Uvaria baumani Uvaria doering	
53. a. Colour spots orange	. 54
b. Colour spots different	. 55
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54.	a. Leaves alternate Atroxima afzeliana b. Leaves opposite	
55.	a. Colour spots green	
	b. Colour spots brown or purple Sherbournia calycina	
56	a. Colour slash uniform brown	57
,	b. Colour slash brown with other colours	62
57	a. Colour sapwood white	58
٠.,	b. Colour sapwood different	59
52	a. Leaves not strongly hairy; 3-nerved from the base	3,
<i>7</i> 0.		
	b. Leaves strongly hairy; pinnati-nervate	
50		60
99.	a. Colour sapwood yellow	60
~~	b. Colour sapwood brown	61
50.	a. Leaves compound, alternate Byrsocarpus coccineus	
	b. Leaves simple, opposite Rytigynia canthioides	
51.	a. Leaves alternate, c. 5 cm wide, apex caudate	
	b. Leaves opposite, c. 10 cm wide, apex acuminate	
52.	a. Colour slash brown-yellow Dalbergia heudelotii	
	b. Colour slash brown with white areas	63
53.	a. Interpetiolar stipules present, large	
	Leptactina densiflora var. glabra	
	b. Interpetiolar stipules absent Heteropteris leona	
54.	a. Colour slash black	65
٠	b. Colour slash different	66
55	a. Stem round or oval in outline; sapwood yellowish with concen-	00
00.	tric rings Tiliacora cf. dielsiana	
	b. Stem undulated in outline; sapwood yellow without concentric	
c	rings	67
ю.	a. Colour stash white with spots	69
-	b. Colour slash different	09
37.	a. Stem scaly; sapwood white	
	b. Stem not scaly; sapwood yellowish Morinda morindoides	
აგ.	a. Leaves alternate; spines absent; sapwood pale yellow to red-brown	
	Dichapetalum cf. heudelotii	
	b. Leaves opposite; spines present; sapwood white	
	Combretum grandiflorum	
59.	a. Colour slash pink	70
	b. Colour slash different	74
70.	a. Stem angular in outline; sapwood pink . Phyllanthus muellerianus	
	b. Stem round to oval in outline; sapwood not pink	71
71.	a. Colour sapwood yellowish without purple	72
	b. Colour sapwood yellowish, discolouring purple, or with concentric	
	, , , , , , , , , , , , , , , , , , ,	

		purple rings
72.	a.	Grooves present Cissus populnea
	Ъ.	Grooves absent Baphiastrum confusum
73.	a.	Young branches, petiole and nerves, covered with dark brown
		hairs
	b.	Not covered with dark brown hairs Salacia spec.
		G 1 · 6 · ic
74	a	Colour slash yellow
<i>1</i> <del>7</del> .		Colour slash different
75		
15.		Colour sapwood white
		Colour sapwood yellowish
76.	a.	Leaves simple
		cf. Hippocratea unguiculata
	b.	Leaves compound Platysepalum hirsutum
77.		Stem undulated in outline Cissus producta
		Stem round to oval in outline
78.	a.	Leaves alternate Capparis erythrocarpos
		Leaves opposite
<b>7</b> 9.		Leaves and young branches strongly hairy; spines present
	b	Leaves and young branches not strongly hairy; spines absent .
ደበ		Petioles short, c. 0.2 cm; leaves c. 5 cm long; climb-hooks present
	ш.	
		Strychnos camptoneura
	1.	Petioles short, c. 0.4 cm; leaves c. 12 cm long; leaf-margin dentate;
	υ.	
		climb-hooks absent
	c.	Petioles long, c. 1 cm; leaves c. 12 cm long; leaf-margin entire;
		climb-hooks absent
81.		Colour slash green
		Colour slash different
82.	a.	Colour sapwood green
		Colour sapwood different
83.	a.	Leaves alternate
		Leaves opposite
84.		Leaves compound; leaflets palmati-lobed; tendrils absent
		Neorautanenia pseudopachyrhiza
	h	Leaves simple, cordate in outline; tendrils present Adenia lobata
85		Petiole and lower leaf surface hairy
05.	u.	
	L	Petiole and lower leaf surface not hairy . Canthium horizontale
0.0		
00.		Colour sapwood yellow
		Colour sapwood different
87.	a.	Sapwood with concentric purple rings
		Lonchocarpus cyanescens
	b.	Sapwood without concentric purple rings
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88.	a.	Leaves needle-like	
	Ъ.	Leaves not needle-like	89
89.		Petioles and midrib of lower leaf surface hairy	
		Dichapetalum filicaule	
	ъ.	Petioles and midrib of lower leaf surface not hairy	90
90.		Colour leaf dark green-brown Monodora crispata	
, ,		Colour leaf yellow-green Opilia celtidifolia	
91		Sapwood white	92
71.	h.	Sapwood orange with yellow vessels Flabellaria paniculata	
92	о.	Stem with spines Macarana heillei	
92,	a. h	Stem with spines	
		Colour slash white or grey	94
93.		Colour slash different	
04			
94.		Colour slash white with green	
		Colour slash white with pink	96
0.5		Colour slash uniform white or grey	98
95.		Stem with spines	
		Stem without spines Acridocarpus alternifolius	
96.	a.	Stem with rough surface Crossostemma laurifolia	
	b.	Stem with smooth surface	97
97.	a.	Stem with grooves Griffonia simplicifolia	
	Ъ.	Stem without grooves Acridocarpus alternifolius	
98.	a.	Leaves compound:	
		each leaf with one leaflet Griffonia simplicifolia	
		each leaf with three leaflets Castanola paradoxa	
		Leaves simple	
99.	a.	Leaves alternate	100
	b.	Leaves opposite	102
100.	a.	Leaf-blade rounded or cordate at the base	
	Ъ.	Leaf-blade cuneate at the base	101
101.	a.	Clear stipule-marks present Crossostemma laurifolia	
	b.	Clear stipule-marks absent Dichapetalum dictyospermum	
102.	a.	Leaf 3-nerved from the base	103
		Leaf pinnati-nervate	
103.		Leaf broadest above the middle; climb-hooks present	
	b.	Leaf broadest in the middle; climb-hooks absent	
104.	а.	Leaf-blade cordate or rounded at the base	
	٠.,		
	h	Leaf-blade cuneate at the base Salacia nitida	
105		Colour slash reddish brown or brown-red	104
100.		Colour slash brown	
106		Colour sapwood yellowish	
100.	u,	•	
0		26 1 1 7 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	

	b.	Colour sapwood different	109
107.	a.	Stem undulated in outline	
	ъ.	Stem round or oval in outline	108
108.	a.	Leaves opposite Sherbournia bignoniiflora	
		Leaves alternate Tetracera alnifolia	
109.	a.	Sapwood white or grey	110
		Sapwood pink; stem scaly, with grooves, undulate in outline	
110.	a.	Colour stem black Embelia spec.	
		Colour stem brown	111
111.	a.	Compound leaves pinnate, leaflets c. 12 cm long	
	Ъ.	Compound leaves bipinnate, leaflets c. 1-2 cm long	
		Entada scelerata	
112.	a.	Colour sapwood white Strychnos longicaudata	
	b.	Colour sapwood different	
113.		Colour sapwood brown	
	b.	Colour sapwood yellowish	115
114.	a.	Sapwood with radial white stripes Pararistolochia mannii	
		Sapwood without radial white stripes Usteria guineensis	
115.	a.	Stem with grooves	116
		Stem without grooves	117
116.	a.	Petiole rough, covered with brown hairs; tendrils present	
	b.	Petiole smooth, mealy, coverd with very small grey-white hairs;	
		tendrils absent	
117.		Leaf broadest in the middle; c. 18 cm long Salacia zenkeri	
	b.	Leaf broadest above the middle; c. 9 cm long	
		Oncinotis pontyi	
118.	a.	Leaf margin dentate or crenate; stipules large, pinnate	
	ъ.	Leaf margin entire; stipules small or absent	
		Dichapetalum cf. thomsonii	

#### 4. LEAF DESCRIPTIONS OF CLIMBERS

Leaf descriptions of climbers alphabetically arranged, according to genus and species. The species name is followed by the abbreviation of the family name between brackets and the herbarium number(s).

Acridocarpus alternifolius (Schum. et Thonn.) Ndz. (Malp.), 167, 199, 548

Leaves

simple, alternate; estipulate

blade hase

oblong, 8-12 cm long, 3-6 cm wide cuneate, provided with two glands

margin

entire acuminate

apex

c. 0.4 cm long

petiole Flowers

orange-yellow

Fruits

a winged diachenium, wine-red

Adenia lobata (Jacq.) Engl. (Pass.), 262

Leaves

simple, alternate; stipulate

blade

cordate in outline, 10-15 cm long, 6-10 cm wide, thin,

glabrous

base

cordate entire

margin apex

acute

nervature

palmati-nervate, sub-5-nerved from the base

petiole

c. 10 cm long, with 2 broad, semi-lunar, fleshy glands

at the top

**Flowers** 

yellow-green

Branches

with spines; tendrils in the axil of the leaves

Alafia barteri Oliv. (Apoc.), 222

Leaves

simple, opposite; interpetiolar ridge

blade

elliptic-oblong, c. 8 cm long, c. 4 cm wide, glabrous

on both sides

base

cuneate to rounded

margin

entire

apex petiole

acuminate c. 0.5 cm

Flowers

white

Alafia scandens (Thonn.) De Wild. (Apoc.), 132

Leaves

simple, opposite; interpetiolar ridge

blade

elliptic, c. 9 cm long, c. 5 cm wide, glabrous on both

sides, coriaceous

10

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base

rounded

margin

entire

apex

bluntly acuminate

nervature

pinnati-nervate with 5-12 pairs of lateral nerves

petiole

0.3 cm long

Flowers

white

# Allophyllus africanus P. Beauv. f. chrysothrix Radlk. (Sapind.), 245

Leaves

compound, trifoliolate, alternate; stipulate

leaflets

blade

obovate, sessile, lower surface long spreading pilose,

c. 7 cm long, c. 4 cm wide

base

cuneate

margin

dentate near the top acuminate to obtuse

apex petiole

c. 5 cm long, long spreading pilose

petiolule

0.1 cm long or absent

Flowers

white

**Branchlets** 

long spreading pilose

# Artabotrys oliganthus Engl. et Diels (Annon.), 666

Leaves

simple, alternate; estipulate

blade

elliptic to oblong, c. 12 cm long, c. 5 cm wide

base margin rounded entire

apex

caudate

petiole

c. 0.3 cm long, thick

Flowers

light-green

#### Asparagus spec. (Lil.), 509

Leaves

simple, acerose, in a bundle of about 10 in the axil of a

spine, c. 1.5 cm long

Fruits

orange

**Branches** 

with spines

# Atroxima afzeliana (Oliv.) Stapf (Polygal.), 554

Leaves

simple, alternate; estipulate

blade

elliptic to oblong, 7-12 cm long, 2.5-5.5 cm wide

base margin cuneate entire

margin apex

acuminate

petiole

c. 0.7 cm long

Flowers

pink-white

#### Baissea leonensis Benth. (Apoc.), 564

Leaves

simple, opposite; estipulate

blade elliptic, sometimes obovate, glabrous, c. 7 cm long,

c. 4 cm wide

base cuneate margin entire

apex acuminate

nervature pinnati-nervate with 4-15 pairs of lateral nerves

petiole 0.5–1.5 cm long

Flowers yellow Slash very fibrous

# Baissea multiflora A. DC. (Apoc.), 455

Leaves simple, opposite; estipulate

blade elliptic to oblong, 5–13 cm long, 2–5 cm wide

base subcordate to rounded

margin entire apex acuminate

nervature pinnati-nervate with 2-8 pairs of lateral nerves, fre-

quently pilose on the midrib beneath and in the nerve

axils

petiole 0.1–0.5 cm long

Flowers tubus pink, limbus white Branches frequently puberulous

# Baphiastrum confusum (Hutch. et Dalz.) Pellegr. (Pap.), 108, 551 Leaves compound, unifoliolate, alternate; stipulate

leaflets

blade broadly elliptic, 7-18 cm long, 3-7 cm wide, reticulate

and slightly rusty pubescent beneath

base rounded margin entire

margin entire apex acute to acuminate

nervature pinnati-nervate with 6-8 pairs of lateral nerves

petiole 1.5-3 cm long, with 2 small stipels at the top, swollen

on both ends, rusty pubescent

Flowers flowerbud green with brown hairs; flower white with

a yellow heart

Fruits light-brown with orange-red seeds

Branches pubescent when young

#### Byrsocarpus coccineus Schum. et Thonn. (Conn.), 238

Leaves compound, imparipinnate, alternate; estipulate

leaflets alternate

blade oblong, 0.5-4.5 cm long, 0.3-2 cm wide; very flaccid

when young

base proximal side sharp cuneate, the distal side almost

rounded

margin

entire

apex

obtuse to emarginate

petiole

0.2 cm long

Fruits

mature fruits red-orange

#### Caesalpinia bonduc (L.) Roxb. (Caes.), 290

Leaves

bipinnate, each pinna with 4-7 pairs of opposite

leaflets; alternate; stipulate

leaflets

blade

oblong-elliptic, 2-5 cm long, 1.5-2.5 cm wide, slightly

pubescent

base

rounded

margin apex entire bluntly acute

nervature

midrib excurrent c. 10 cm long

petiole rachis

with curved to erect prickles, like those one the branches

Flowers

yellow

Fruits

flattish, very prickly

# Calycolobus parviflorus (Mangenot) Heine (Conv.), 10

Leaves blade simple, alternate; estipulate elliptic, entirely glabrous

base margin cuneate entire

margin apex

bluntly acute c. 0.6 cm, glabrous

petiole Flowers

yellow-green

Fruits

small, yellow-white, enclosed by two thin, flat, outer

sepals of different size

# Canthium horizontale (Schum. et Thonn.) Hiern (Rub.), 569

Leaves

simple, opposite; stipules interpetiolar

blade

oblong-elliptic, glabrous, 7-10 cm long, 4-6 cm wide

base

cuneate

margin apex entire caudate

petiole

c. 0.5 cm long

Flowers

light green

# Capparis erythrocarpos Isert (Capp.), 732

Leaves

simple, alternate; estipulate

blade

oblong, but very variable in shape; glabrous

base

cuneate

margin

slightly dentate

apex sharply acuminate to obtuse

petiole c. 0.3 cm long, pilose; on both sides of the base of the

petiole a curved prickle, placed on the branch

Flowers green-yellow Branches slightly pubescent

Castanola paradoxa (Gilg) Schellenb. ex Hutch. et Dalz. (Conn.), 651

Leaves compound, trifoliolate, alternate; estipulate

leaflets

blade elliptic-oblong, pitted on upper surface (sunken muci-

lageous cells), 8-16 cm long, 4-10 cm wide, glabrous

base broadly cuneate

margin entire
apex acuminate
petiole c. 8 cm long
petiolule c. 0.5 cm long

Flowers white

Slash with a Daucus smell

Chrysophyllum welwitschii Engl. (Sapot.), 544, 572 Leaves simple, alternate; estipulate

blade oblong to lanceolate, glabrous, 5-11 cm long, 2-4 cm

wide

base rounded margin entire

apex bluntly acuminate

nervature pinnati-nervate with very numerous rather inconspi-

cuous parallel lateral nerves; midrib pubescent

petiole c. 0.3 cm long, red-brown, pubescent

Flowers yellow-green

Fruits young fruit green, 6 cm long, pentagonal in cross

section

Branches red-brown pubescent when young

Cissus populnea Guill. et Perr. (Vit.), 346, 473

Leaves simple, alternate; stipulate; with tendrils or inflores-

cences opposite the leaves

blade cordate in outline, c. 6 cm long, c. 10 cm wide, glabrous

base cordate

margin undulate or slightly dentate apex acute to shortly acuminate

petiole c. 5 cm long
Flowers green white
Fruits green when young

Water streaming out of the stem when cut

Cissus producta Afzel. (Vit.), 173, 376, 783

simple, alternate; stipulate; with tendrils or inflorescen-Leaves

ces opposite the leaves

hlade oblong-lanceolate or elliptic-ovate, 8-14 cm long,

3-9 cm wide, glabrous

base

rounded

margin

markedly dentate

apex

acuminate

petiole

c. 1 cm or more, glabrous

Flowers

flowerbud brown-red; flower light red to brown with a

red pistillum, encircled by a vellow disc

Fruits

black, ellipsoid, c. 1.8 cm long, c. 1 cm across

Clerodendrum capitatum (Willd.) Schum. et Thonn. (Verb.), 661

Leaves

simple, opposite; estipulate

blade

elliptic to ovate, 7-20 cm long, 4-10 cm wide, scabrous;

lower surface pilose

base

rounded to slightly cordate

margin

entire

apex

acute to slightly acuminate

nervature petiole

pinnati-nervate, with 3-6 pairs of lateral nerves c. 1 cm long, covered with long brown hairs

Flowers

white

Fruits

mature fruit dark purple

**Branches** 

with spines

Combretum dolichopetalum Engl. et Diels (Combr.), 733

Leaves

simple, opposite; estipulate

blade

oblong-elliptic to oblong-obovate, scabrous; up to 20

cm long and 12 cm wide

base

rounded

margin

entire

apex

acute to slightly acuminate

petiole

c. 0.7 cm long, pilose

Flowers

red, passing into white towards the top; bract vellowish

Stem

twisted

Combretum grandiflorum G. Don (Combr.), 204

Leaves

simple, opposite; estipulate

blade

oblong, 8-15 cm long, 4-9 cm wide, glabrous

base

slightly cuneate

margin

entire

apex petiole acuminate

c. 0.7 cm long, pilose

Flowers

red

Stem

with spines

Combretum cf. smeathmannii G. Don (Combr.), 220

Leaves simple, opposite; estipulate

blade oblong, c. 12 cm long, c. 6 cm wide, pubescent on

lower surface

base cuneate margin entire

apex bluntly acute petiole c. 1.5 cm long

Flowers white, with a nice smell

Crossostemma laurifolia Planch. ex Benth. (Pass.), 583, 721

Leaves simple, alternate; stipulate; tendrils present in the axil

of the leaves

blade lanceolate to oblong, 7–11 cm long, 3–5 cm wide

base cuneate

margin slightly dentate
apex long acute
petiole c. 1.5 cm long

Flowers dirty white with yellow anthers

Fruits mature fruit orange, 6 cm long, cross section round

with 6 ridges

Stem with large brick-red lenticels

Dalbergia ecastaphyllum (L.) Taub. (Pap.), 156

Leaves compound, unifoliolate, alternate; stipulate

leaflets

blade ovate to elliptic-oblong, 8-17 cm long, 4-7 cm wide,

minutely pubescent beneath

base rounded margin entire

apex acute or short acuminate

petiole c. 0.8 cm long, pubescent; upper half near the blade

thicker

petiolule 0.3–0.5 cm long, pubescent

Fruits pod

Dalbergia heudelotii Stapf (Pap.), 635

Leaves compound, imparipinnate, with 3-7 alternate leaflets;

alternate; stipulate

leaflets

16

blade elliptic, 10–15 cm long, 4–9 cm wide; terminal leaflet

usually larger than the others; lower surface with minu-

te hairs, appressed and pointing at one direction

base rounded margin entire

apex acuminate

petiole c. 2 cm long petiolule c. 0.6 cm long

rachis c. 6 cm long

Flowers white

#### Dalbergia oblongifolia G. Don (Pap.), 726

Leaves compound, imparipinnate, with often 9 alternate

leaflets; alternate; stipulate

leaflets

blade variable in shape and size, broadly ovate to elliptic-

oblong, 2-6 cm long, 1-3 cm wide

base rounded margin entire

apex bluntly acute

petiole c. 1 cm long, pubescent c. 0.2 cm long, pubescent

rachis c. 4 cm long, pubescent

Flowers white

# Dalbergia saxatilis Hook. f. (Pap.), 169

Leaves compound, imparipinnate, alternate; stipulate

leaflets 9-13 alternate or subopposite leaflets (4-6 pairs), lar-

ger near the top b ade oblong, 2.5-6 cm long, 1.5-3.5

cm wide; scarcely pubescent beneath

base rounded margin entire

apex obtuse to emarginate

petiole c. 2 cm long

petiolule c. 0.2 cm long, put escent

rachis 3-10 cm long

Flowers white

Fruits oblong, stipulate, 8–13 cm long, 3–4 cm wide

#### Dichapetalum dictyospermum Bret. (Dich.), 720

Leaves simple, alternate; stipulate

blade lanceolate, c. 9 cm long, c. 3 cm wide, glabrous

base cuneate margin entire apex acuminate

petiole c. 0.7 cm long, glabrous

Flowers yellow, with an unpleasant smell

Stem with only a few lenticels

Dichapetalum filicaule Bret. (Dich.), 561

Leaves simple, alternate; stipulate

blade lanceolate, c. 8 cm long, c. 2.5 cm wide

base rounded margin entire apex acuminate

nervature midrib pubescent on lower leaf surface

petiole c. 0.3 cm long, pubescent

Fruits orange

Branches pubescent when young

Dichapetalum cf. heudelotii (Planch. ex Oliv.) Baill. (Dich.), 265

Leaves simple, alternate; stipulate

blade elliptic, sometimes obovate, 7-14 cm long, 2.5-7 cm

wide

base rounded to subauriculate

margin very slightly undulated

apex acuminate

nervature midrib and nerves pubescent on lower leaf surface;

glands in the axils of nerves and midrib

petiole c. 0.3 cm long, pubescent

Flowers white

Fruits mature fruit green, c. 1.5 cm long

Dichapetalum murinum Bret. (Dich.), 727

Leaves simple, alternate, stipulate

blade lanceolate to oblong, lower surface grey pubescent,

upper surface glabrous; c. 8 cm long, c. 3 cm wide

base subauriculate

margin entire apex acuminate

petiole c. 0.2 cm long, grey pubescent

Fruits dark orange

Branches young branches grey pubescent; stem with a few

vertical rows of lenticels

Dichapetalum cf. murinum Bret. (Dich.), 120

Leaves simple, alternate; stipulate

blade oblong, lower surface grey pubescent, upper surface

glabrous, dark green; c. 8 cm long, c. 4 cm wide

base cuneate margin entire

apex acuminate

petiole c. 0.5 cm long, grey pubescent

Flowers white

18 Meded. Landbouwhogeschool Wageningen 72-21 (1972)

Branches voung branches pubescent; stem with vertical rows of

white, globular lenticels

Dichapetalum cf. thomsonii (Oliv.) Engl. (Dich.), 179, 235, 383

Leaves simple, alternate; stipulate

blade oblong-lanceolate, up to 18 cm long, 2-7 cm wide,

glabrous

base cuneate margin entire

apex bluntly acuminate petiole c. 0.6 cm long, glabrous

Flowers white

Dictyophleba leonensis (Stapf) Pichon (Apoc.), 231

Leaves simple, opposite; interpetiolar ridge

blade broadly elliptic to obovate, 7–22 long, 5–12 cm wide;

lower surface of the leaf pubescent

base rounded to subcordate

margin entire

apex acuminate to apiculate petiole c. 0.5 cm long, pilose

Flowers flowerbud white with red stripes

Dioclea reflexa Hook. f. (Pap.), 639

Leaves compound, trifoliolate, alternate; stipules triangular,

pilose; stipels liliform, pilose

leaflets

blade ovate-elliptic, up to 15 cm long, 10 cm wide, thinly

pilose

base rounded margin entire

apex abruptly acuminate
petiole c. 7 cm long, pilose
petiolule c. 0.5 cm long, pilose
Flowers purple, with a nice smell

Dioscorea minutifiora Engle (Diosc.), 260

Leaves simple, opposite; stipulate

blade ovate, c. 5 cm long, c. 4 cm wide, glabrous

base rounded
margin entire
apex caudate
nervature curvi-nervate
petiole c. 1.5 cm long

Fruits mature fruit black; a 3-pointed star in cross section

Water streaming out of the stem when cut

Embelia rowlandii Gilg (Myrs.) 338

Leaves simple, alternate; estipulate

hlade obovate to elliptic, 6-13 cm long, 3-7 cm wide; lower

surface slightly pubescent, without visible black dots

cuneate base entire

margin

obtuse or very shortly apiculate apex nervature pinnati-nervate; midrib pubescent

petiole c. 1.5 cm long, pubescent

white **Flowers** 

Fruits grev with a many-pointed, wine-red star at the top

Stem with a few spines

Embelia spec. (Myrs.), 502

Leaves simple, alternate; estipulate

blade obovate to elliptic, c. 9 cm long, c. 5 cm wide, with

visible black dots

base cuneate

margin entire apex obtuse

nervature midrib pubescent petiole c. 1 cm long, pubescent

Fruits pink to white

Entada scelerata A. Chev. (Mim.), 604

Leaves compound, bipinnate, paripinnate with 6-10 pairs of

pinnae, each pinna with 10-12 pairs of leaflets; alter-

nate: stipulate

leaflets

blade elliptic to oblong, 1-1.5 cm long, 0.5-0.7 cm wide

base cuneate margin entire apex rounded petiole

c. 4 cm long petiolule c. 0.1 cm long

rachis c. 9 cm long Flowers white-yellow

Stem with spines; water streaming out of the cut; branches,

petiole, and rachis densely armed with recurved prick-

les, slightly pilose

Fagara leprieurii (Guill. et Perr.) Engl. (Rut.), 271

compound, imparipinnate with 9-21 opposite to sub-Leaves

opposite leaflets; alternate; estipulate

leaflets

20 Meded. Landbouwhogeschool Wageningen 72-21 (1972) blade oblong to lanceolate, covered with translucent glands,

3-13 cm long, 2-5 cm wide

base cuneate

margin slightly crenate
apex long acuminate
petiole c. 5 cm long
petiolule c. 0.2 cm long

rachis c. 17 cm long, with prickles

Flowers green-brown

Fruits young fruits spotted brown, \angle 4 cm, with shining black

seeds

Branches covered with prickles, like the petiole and the main

stem

Farquharia elliptica Stapf (Apoc.), 600

Leaves simple, opposite; interpetiolar stipules

blade oblong, glabrous, 6-12 cm long, 3-6 cm wide

base rounded margin entire apex acuminate

petiole c. 0.7 cm long, glabrous, with supra-axillary glands

Fruits 40 cm long, covered with red-brown hairs

Ficus kamerunensis Warb. ex Mildbr. et Burret (Morac.), 609

Leaves simple, alternate; stipulate

blade narrowly rhombic-elliptic, 4–9 cm long, 2–3 cm wide

base cuneate margin entire

apex acute to acuminate nervature pinnati-nervate petiole c. 0.8 cm long

Fruits yellow to red-brown with red spots

Stem strangler

Ficus thonningii Bl. (Morac.), 624

Leaves simple, alternate; stipulate

blade elliptic to oblong, 5–14 cm long, 2–7 cm wide

base rounded margin entire apex obtuse

nervature pinnati-nervate petiole 1.2–7.5 cm long

Fruits yellow-green with orange-red spots, born directly in

the axils of the leaves on the branches which are usually

yellow-brown when dry

Stem with black lenticels

Ficus vogelii (Miq.) Miq. (Morac.), 611

Leaves simple, alternate; stipulate

blade oblong to obovate, 9-35 cm long, 4-16 cm wide;

coriaceous

base rounded to shallowly cordate

margin entire

apex acute to short acuminate

nervature pinnati-nervate with 5-6 main lateral nerves on each

side of the midrib, ascending, looped, prominent

beneath

petiole 2–10 cm long, stout

Fruits yellow-green
Stem strangler

Flabellaria paniculata Cav. (Malp.), 196, 494

Leaves simple, opposite; estipulate

blade ovate, suborbicular or elliptic, 7–14 cm long, up to 10 cm

wide, glabrous above, appressed silky-tomentose

beneath

base rounded to cuneate

margin entire

apex obtuse to subacute

nervature pinnati-nervate with about 4-5 pairs of lateral nerves

petiole c. 2 cm long, silky tomentose like the young branches

Flowers white

Fruits grey to brown

Stem many globular, light brown lenticels

Grewia carpinifolia Juss. (Til.), 289

Leaves simple, alternate: stipulate

blade oblong-ovate to oblong-obovate, 5–14 cm long, 2–7 cm

wide, minute pubescent beneath

base rounded margin serrate

apex acuminate

nervature 3-nerved from the base

petiole c. 0.3 cm long

Fruits yellow brown

Grewia hookerana Exell et Mend. (Til.), 119, 662

Leaves simple, alternate; stipulate

blade oblong to lanceolate, 6-12 cm long, 2.5 to 5 cm wide,

lower surface shortly tomentellous with brown scaly

hairs

base rounded

margin

entire

apex

sharp acuminate

nervature

3-nerved from the base

petiole

c. 0.5 cm long, shortly tomentellous with brown scaly

hairs, like the branchlets

Flowers

vellow

Fruits

pear-shaped, 2 cm long, green with black-brown hairs

## Grewia malacocarpa Mast. (Til.), 264, 708

Leaves

simple, alternate; stipules linear-subulate

blade

oblong-elliptic, 6-14 cm long, 2-6 cm wide, glabrous

above, lower surface hidden by a soft, grey, felt of

hoary indumentum

base margin

rounded entire

apex

acuminate

nervature

3-nerved from the base

petiole **Flowers** 

c. 0.5 cm long, pilose pink with a red centre

Fruits

young fruit olive-green, rough

# Griffonia simplicifolia (Vahl ex DC.) Baill. (Caes.), 241, 614

Leaves leaflets compound, unifoliolate, alternate; stipulate

blade

oblong, 6-12 cm long, 3-6 cm wide, glabrous

base margin rounded entire

apex

rounded or acuminate

nervature

prominently 3-nerved from near the base

petiole

c. 0.5 cm long

**Flowers** 

flowerbud purple-grey, flower green

Fruits

black, 6 cm long, 3 cm across

# Heteropteris leona (Cav.) Exell (Malp.), 634, 550

Leaves

simple, opposite; estipulate

blade

oblong-elliptic, 12-20 cm long, 5-8 cm wide, slightly

pubescent beneath

base

rounded entire

margin apex

caudate

petiole

c. 1 cm long, thicker at base

Flowers

vellow

Fruits

brown-red

Hippocratea iotricha Loes. (Hipp.), 229

Leaves simple, opposite; estipulate

blade obovate to elliptic, c. 7 cm long, 5 cm wide, upper

surface glabrous, lower surface pubescent

base rounded

margin entire apex obtuse

nervature midrib and nerves densely red-brown, tomentose-

pubescent

petiole c. 0.5 cm long, densely red-brown, tomentose-pubes-

cent, like the branches

Flowers white

Fruits mature fruit densely covered with dark brown hairs

Hippocratea pallens Planch. ex Oliv. (Hipp.), 474

Leaves simple, opposite to subopposite; estipulate

blade elliptic, smooth, powdered, c. 9 cm long, 5 cm wide

base cuneate margin entire

apex short, bluntly acuminate

petiole c. 1 cm long
Flowers green-brown

Branches mealy when young

Hippocratea spec. (Hipp.), 599

Leaves simple, opposite; estipulate

blade elliptic, c. 11 cm long, 7 cm wide, glabrous

base cuneate

margin dentate to serrate
apex bluntly acuminate
petiole c. 0.7 cm long

Fruits green-grey, 3 carpels, apocarp, like a 3-pointed star

cf. Hippocratea unguiculata (Loes.) M. Hallé (Hipp.), 180

Leaves simple, opposite; estipulate

blade obovate to elliptic-oblong, c. 13 cm long, c. 7 cm wide,

coriaceous, glabrous

base cuneate
margin entire
apex acuminate
petiole c. 1 cm long

Fruits green, 3 carpels, apocarp, like a 3-pointed star

Hippocratea velutina Afzel. (Hipp.), 605, 724

Leaves simple, opposite; estipulate

24 Meded, Landbouwhogeschool Wageningen 72-21 (1972)

blade elliptic, c. 10 cm long, c. 6 cm wide; especially the

lower surface red-brown tomentose-pubescent, like

the twigs and petioles

base margin rounded entire

apex

acuminate

petiole

c. 0.7 cm long, red-brown, tomentose-pubescent

Flowers

brown-yellow

Fruits

dark brown, 3 carpels, apocarp, like a 3-pointed star

#### Hippocratea vignei Hoyle (Hipp.), 345

Leaves

simple, opposite; stipulate

blade

orbicular to elliptic, c. 7 cm long, c. 6 cm wide, glabrous

base

rounded crenate

margin apex

acuminate

petiole Flowers

c. 1 cm long vellow-white

#### Hugonia afzelii R. Br. ex Planch. (Lin.), 375

Leaves

simple, alternate; stipules deeply divided, c. 1 cm long obovate or oblong-elliptic, 8-18 cm long, 3-9 cm wide,

blade

lower surface densely white-tomentose

lanceolate, 7-14 cm long, 3-7 cm wide

base

rounded

margin

dentate-crenate acute to acuminate

apex petiole

c. 0.5 cm long, densely tomentose, like the branches

Stem

with curved hooks

#### Hugonia platysepala Welw. ex Oliv. (Lin.), 1, 555, 751 Leaves

blade

simple, alternate; stipulate

base

cuneate

margin

entire

apex

subacute to obtuse

nervature

pinnati-nervate, midrib hairy

petiole

c. 0.5 cm long, hairy

Branches

hairy when young

#### Illigera pentaphylla Welw. (Hern.), 184, 588

Leaves

compound, digitate, usually quinquefoliate, alternate;

estipulate

leaflets

blade

obovate to oblong-elliptic, 5-8 cm long, 3.5-6 cm wide

base rounded or subcordate margin

entire

apex

bluntly acuminate

nervature

2 strong lateral nerves on each side of the midrib

petiole

up to 10 cm long

petiolule

c. 2 cm long

**Flowers** 

white

## Iodes liberica Stapf (Icac.), 269

Leaves

simple, opposite or subopposite; estipulate

blade

elliptic, c. 8 cm long, c. 5 cm wide, lower surface sca-

brous

base

rounded entire

margin apex

acute to acuminate

petiole

c. 0.5 cm long, pilose, with horizontal ridges

Flowers

yellow-green

Branches

pilose when young; extra-axillary tendrils

# Ipomoea mauritiana Jacq. (Conv.), 4

Leaves

simple, alternate; estipulate

blade

palmati-fid or palmati-lobed, usually 5-7-lobed, c. 13

cm long, c. 15 cm wide

base

cordate entire

margin

apex of lobes acuminate

apex

palmati-nervate

nervature petiole

c. 10 cm long with small spines

**Flowers** 

purple

Stem

with spines, rough

# Isonema smeathmannii Roem. et Schult. (Apoc.), 111, 152

Leaves

simple, opposite; estipulate

blade

elliptic to oblong or obovate, 4-11 cm long, 2-5 cm

wide, pilose beneath, especially on the nerves

base

rounded

margin

entire

apex

acute to slightly acuminate

nervature

pinnati-nervate, with 5-7 pairs of lateral nerves

petiole

c. 0.3 cm long, pilose

Flowers

purple-brown

Fruits

mature fruit green, covered with brown hairs

#### Landolphia micrantha (A. Chev.) Pichon (Apoc.), 663

Leaves

simple, opposite; interpetiolar ridge

blade

elliptic to oblong, 5-17 cm long, 2-6 cm wide, glabrous

base

cuneate

margin

entire

apex

acuminate

nervature

pinnati-nervate, with 5-11 pairs of lateral nerves

petiole

c. 0.5 cm long, glabrous

Fruits

yellow-green with brown warts

#### Landolphia owariensis P. Beauv. (Apoc.), 319

Leaves

simple, opposite; interpetiolar ridge

blade

oblong to lanceolate, 5-25 cm long, 2-12 cm wide

base margin cuneate entire

apex

acuminate

nervature

pinnati-nervate with 6-20 pairs of lateral nerves

petiole

c. 0.5 cm long, pilose

Flowers

white

Branches

pubescent when young

# Leptactina densiflora (Hook. f.) var. glabra Hutch. et Dalz. (Rub.), 239

Leaves

simple, opposite; c. 2 cm long interpetiolar stipules broadly elliptic, 7-20 cm long, 3-11 cm wide

blade

cuneate

base

entire

margin apex

acute to more or less acuminate

nervature

short hairs in the axils of midrib and the lateral nerves

petiole

c. 1.5 cm long

#### Leptoderris macrothyrsa Dunn (Pap.), 725

Leaves

compound, imparipinnate with 2-4 pairs of opposite

leaflets; alternate; stipulate

leaflets

hlade

elliptic to obovate-oblong, c. 13 cm long, 6 cm wide

base

rounded

margin

entire

apex

rounded, emarginate or apiculate

nervature

pinnati-nervate with 11-16 pairs of lateral nerves

petiole

c. 6 cm long

petiolule

c. 0.8 cm long

rachis

c. 7 cm long

Flowers

white

# Lonchocarpus cyanescens (Schum. et Thonn.) Benth. (Pap.), 312, 463, 489

Leaves

compound, imparipinnate with 3-5 pairs of opposite

leaflets; alternate; stipulate

leaflets

terminal leaflet often fallen

blade ovate or elliptic, up to 16 cm long and 8 cm wide,

glabrous

rounded base margin entire

apex

shortly acuminate c. 6 cm long petiole petiolule c. 0.5 cm long rachis c. 6 cm long

Flowers white with blue and purple parts

#### Macaranga beillei Prain (Euph.), 83, 372

simple, alternate; stipules lanceolate, c. 1.5 cm long Leaves

blade cordate in outline or palmati-lobed with 3 lobes,

10-17 cm long, 11-17 cm wide; on the lower surface

many small glands

cordate base dentate margin caudate apex

palmati-nervate, 5-9 nerved; midrib and main nerves nervature

beneath with many long spreading hairs

petiole c. 13 cm long

Flowers orange

Fruits mature fruit red

with many spines; slash smells like cucumber Stem

#### Manniophyton fulvum M.A. (Euph.), 740

Leaves simple, alternate; stipulate

blade polymorphous, often ovate or more or less 2-3-lobed

up to 25 cm long and wide; very scabrous-setose with

stellate hairs on both surfaces

cordate base margin entire

apex acutely acuminate to apiculate

3-nerved from the base nervature up to 12 cm long, scabrous petiole

Fruits green-vellow

Branches scabrous with stellate hairs

#### Millettia barteri (Benth.) Dunn (Pap.), 91, 700

Leaves compound, imparipinnate with opposite leaflets, never

trifoliolate; alternate; stipulate

leaflets

blade obovate, 9-15 cm long, 4-8 cm wide

base rounded entire margin

apex caudate
petiole c. 7 cm long
petiolule c. 0.7 cm long
Flowers purple or violet

Monodora crispata Engl. et Diels (Annon.), 100, 567

Leaves

simple, alternate; estipulate

blade

obovate to oblong, c. 9 cm long, c. 4 cm wide

base margin rounded entire

apex

acuminate to acute

petiole Flowers c. 0.3 cm long

Thursday

white with black-brown spots

Fruits

c. 15 cm long, c. 5 cm across, cross section undulate;

with a grey wax bloom

Morinda longiflora G. Don (Rub.), 94, 160

Leaves

simple, opposite; interpetiolar stipules

blade

oblong-elliptic, 6-12 cm long, 2-7 cm wide, glabrous

base margin entire acuminate

apex petiole

c. 1.5 cm long flowerbud green-yellow, peduncles in pairs

Flowers Fruits

green, globular with concrescences

Branching

typical; c. 0.4 cm above the interpetiolar stipule and

in the leaf-axil

Morinda morindoides (Baker) Milne-Redh. (Rub.), 192, 559

Leaves

simple, opposite; interpetiolar stipules

blade

elliptic or oblong-elliptic, 6-15 cm long, 3-8 cm wide,

glabrous

base margin cuneate entire acuminate

apex petiole

c. 0.7 cm long

Flowers

white-green, peduncles solitary

Fruits

orange-yellow

Mucuna flagellipes T. Vogel ex Hook. f. (Pap.), 622A

Leaves

compound, trifoliolate; stipulate

leaflets

blade

obliquely ovate, up to 15 cm long and 8 cm wide,

glabrous or very sparsely pilose beneath

base

rounded

margin

entire

apex

abruptly acuminate

nervature

3-nerved from the base

petiole

c. 8 cm long

petiolule Flowers

c. 0.8 cm long flowerbud wax-white, flowers wax-white to pink,

hanging; rachis of inflorescence very zigzag

Fruits

green-brown, hairy, very itching

# Mussaenda elegans Schum. et Thonn. (Rub.), 236

Leaves

simple, opposite; interpetiolar stipules

blade

elliptic to obovate-elliptic, 7-11 cm long, 3-6 cm wide,

glabrous

base

acute entire

margin apex

acuminate

petiole

c. 1.5 cm long, slightly pubescent

Flowers

orange-red

Fruits

young fruit green with light green spots

# Mussaenda tenuifolia Benth. (Rub.), 637

Leaves

simple, opposite; interpetiolar stipules pubescent

blade

elliptic to obovate, upper surface glabrous, lower surface pilose, scabrous, 9-12 cm long, 5-8 cm wide

base

rounded to acute

margin

entire apiculate

apex petiole

c. 0.5 cm long, pubescent

Flowers

yellow, with a large white lure leaf

#### Neorautanenia pseudopachyrhiza (Harms) Milne-Redh. (Pap.), 514

Leaves

compound, trifoliolate, alternate; stipules lanceolate, c. 0.6 cm long; stipels spreading, linear-subulate,

c. 0.4 cm long

leaflets

blade

irregular palmati-lobed, very broadly ovate, thinly

pubescent beneath

base

rounded lobbed

margin

apex of lobes acute

apex petiole

c. 8 cm long, pubescent

petiolule

c. 0.6 cm long, pubescent

**Flowers** 

purple blue

#### Oncinotis pontyi Dubard (Apoc.), 657

Leaves

simple, opposite; estipulate

blade spatulate, glabrous, c. 8 cm long, c. 3 cm wide; glands

present in the axils of midrib and nerves

base cuneate margin entire

apex rounded to acuminate

petiole c. 1 cm long

Fruits green with a brown bloom, c. 30 cm long

#### Opilia celtidifolia (Guill. et Perr.) Endl. ex Walp. (Opil.), 424

Leaves simple, alternate; estipulate

blade elliptic to oblong, 6-12 cm long, 3-5 cm wide, gla-

brous, light green

base cuneate margin entire

apex acutely acuminate

nervature pinnati-nervate with about 5 pairs of prominent lateral

nerves

petiole c. 0.5 cm long Flowers yellow-green

Fruits orange, ellipsoid, 2-2.5 cm long, finely puberulous

# Pararistolochia mannii (Hook. f.) Keay (Arist.), 699

Leaves simple, alternate; estipulate

blade palmati-fid to palmati-partite, with 3-5 lobes, glabrous

base deeply cordate, auricles sometimes overlapping

margin entire

apex apex of lobes obtuse to cuneate

petiole c. 7 cm long Flowers brown-yellow

Fruits brown

#### Paullinia pinnata L. (Sapind.), 106, 526A

Leaves compound, imparipinnate with 2 pairs of opposite

leaflets; alternate; stipulate

leaflets

blade obovate to elliptic, 3-10 cm long, 2-6 cm wide

base rounded to cuneate margin remotely dentate apex bluntly acute

nervature pinnati-nervate; hairy pits in the axils of the nerves

petiole c. 3 cm long, winged petiolule c. 0.2 cm long, pubescent

rachis c. 2 cm long, conspicuously winged

Flowers white

Fruits green-yellow

Branches ribbed; tendrils present

Phyllanthus muellerianus (O. Ktze.) Exell (Euph.), 327, 426

Leaves simple, resembling pinnate leaves; alternate; stipules

linear

ovate to elliptic, 2-7 cm long, 1.5-4 cm wide, glaucous blade

beneath

base margin rounded entire subacute

арех petiole

c, 0.4 cm long

Flowers

red-brown to white

Stem

cross section pentagonal

Platysepalum hirsutum (Dunn) Hepper (Pap.), 615, 773

Leaves compound, imparipinnate with 7-9 opposite leaflets;

alternate; stipulate

leaflets

blade

obovate-oblong, 5-11 cm long, 2.5-3.5 cm wide, rusty

pilose beneath

base

cuneate to rounded

margin

entire

apex

acutely acuminate

petiole petiolule c. 5 cm long, rusty pilose c. 0.2 cm long, rusty pilose

rachis

c. 6 cm long, rusty pilose

Flowers

flowerbud felty, covered with dark brown hairs; flower

purple

Polycorvne fernandensis (Hiern) Keay (Rub.), 138

Leaves

simple, opposite; interpetiolar stipules

blade

oblong-elliptic, glabrous, 4-25 cm long, 3-14 cm wide

base

cuneate to rounded

margin

entire

apex

shortly acuminate

petiole

1-5 cm long

Fruits

mature fruit black, ellipsoid, c. 2.5 cm long, c. 2 cm

Branches

cross section rectangular; water streaming out of the

stem when cut

Premna lucens A. Chev. (Verb.), 513, 438

Leaves

simple, opposite; estipulate

blade

obovate to oblong-elliptic, 5-9 cm long, 2-6 cm wide,

shortly pubescent beneath

base

rounded

margin

entire

apex

acuminate

Flowers

pale green to white

#### cf. Pyrenacantha mangenotiana Miège (Icac.), 705

Leaves

simple, alternate; estipulate

blade

elliptic to obovate-elliptic, glabrous, 3-16 cm long,

2-9 cm wide

base margin cuneate entire

apex

acuminate

Fruits

orange, c. 1.5 cm long, rough with subsidences

# Pyrenacantha vogeliana Baill. (Icac.), 643

Leaves

simple, alternate; estipulate

blade

oblong-elliptic or oblong-lanceolate, 5-17 cm long,

2-7 cm wide; lower surface scabrous, appressed puberu-

lous, the hairs well separated from one another

base

auriculate

margin

undulate caudate

apex petiole

c. 1 cm long

Fruits

orange

#### Quisqualis indica L. (Combr.), 103

Leaves

simple, opposite; estipulate

blade

obovate-elliptic, 3.5-14 cm long, 2.5-8 cm wide

base

rounded

margin

entire

apex

shortly acuminate

Flowers

petels with a yellow-white lower side and a wine-red

upper side

Fruits

narrow elliptic, with narrow, thin wings, c. 3 cm long

# Rhigiocarya racemifera Miers (Menisp.), 379

Leaves

simple, alternate; estipulate

blade

cordate in outline, 7-18 cm long, 6-16 cm wide, thinly

papery

base

cordate

margin apex

entire acuminate

nervature

palmeti-nervate; about 7-nerved at base

petiole

up to 9 cm long, twisted at base

Flowers

green

Fruits

green, ellipsoid, 1.5 cm long, 1 cm across

#### Rutidea parviflora DC. (Rub.), 349

Leaves simple, opposite; interpetiolar stipules divided into

3-5 filiform segments

blade oblong, 6-10 cm long, 3-5.5 cm wide; subglabrous

above, pilose on nerves beneath, often with a tuft of

pale coloured hairs in the nerve axils

base rounded margin entire

apex acutely acuminate petiole 0.4 cm long, pilose Branches bristly pubescent

#### Rytigynia canthioides (Benth.) Robyns (Rub.), 343

Leaves simple, opposite; interpetiolar stipules

blade oblong-elliptic, slightly pubescent on nerves beneath

and on upper surface, 5-9 cm long, 2-4 cm wide

base rounded margin entire

apex long acuminate

petiole c. 0.5 cm long, densely pubescent

Flowers light yellow, in the axils of leaves on the young branch-

lets

Branches covered with red-brown hairs when young

## Saba senegalensis (A. DC.) Pichon (Apoc.), 417

Leaves simple, opposite; interpetiolar line

blade oblong, sometimes ovate, glabrous, 4–17 cm long, 2–7

cm wide

base rounded margin entire

apex shortly acuminate or acute

nervature pinnati- nervate with 7-14 pairs of lateral nerves

petiole c. 1.2 cm long

#### Sacosperma paniculatum (Benth.) G. Taylor (Rub.), 556

Leaves simple, opposite; interpetiolar stipules triangular with

a simple or occasionally bifid awn

blade elliptic to ovate, 6-10 cm long, 2-4 cm wide, subgla-

brous to pubescent

base cuneate
margin entire
apex acute
petiole c. 2 cm long
Flowers green

#### Salacia camerunensis Loes. (Hipp.), 223

Leaves simple, opposite; estipulate

blade oblong, c. 13 cm long, c. 5 cm wide, glabrous

base cuneate margin dentate acuminate apex petiole c. 0.5 cm long Flowers pale vellow

#### Salacia cf. cerasifera Welw. ex Oliv. (Hipp.), 749

Leaves simple, opposite to subopposite; estipulate

blade elliptic to oblong, c. 14 cm long, c. 7 cm wide, glabrous,

coriaceous

base long cuneate weakly dentate margin acuminate apex petiole c. 1 cm long Fruits dark orange

#### Salacia nitida (Benth.) N.E. Brown (Hipp.), 723

simple, opposite to subopposite; estipulate Leaves

blade oblong to elliptic, c. 12 cm long, c. 6 cm wide, glabrous

base cuneate margin entire apex acuminate c. 0.7 cm long petiole Flowers green-yellow

dark orange Fruits

#### Salacia spec. (Hipp.), 360

Leaves simple, opposite to subopposite; estipulate blade oblong, c. 7 cm long, 2-4 cm wide, glabrous

cuneate to rounded base

entire

margin

apex slightly acute to obtuse

c. 0.4 cm long petiole Flowers green-yellow

#### Salacia zenkeri Loes. (Hipp.), 68

Leaves simple, subopposite; estipulate

oblong, c. 15 cm long, c. 6 cm wide, glabrous blade

base cuneate

margin very weakly dentate to entire

acute to acuminate apex petiole c. 0.5 cm long **Flowers** green-yellow

Sherbournia bignoniiflora (Welw.) Hua (Rub.), 200

Leaves simple, opposite; interpetiolar stipules

blade ovate-oblong, 9-21 cm long, 5-12 cm wide

base mostly cordate and unequal-sided

margin entire

apex acute to slightly acuminate

nervature pinnati-nervate, with 5-7 main lateral nerves on each

side of the midrib

petiole c. 0.8 cm long

Flowers green-purple

Fruits orange, c. 7.5 cm long, 5-6 cm broad

Sherbournia calycina (G. Don) Hua (Rub.), 270

Leaves simple, opposite; interpetiolar stipules

blade lanceolate to oblong, 7-17 cm long, 2-8 cm wide

base cuneate margin entire

apex gradually acuminate

nervature pinnati-nervate, with 4-7 main lateral nerves on each

side of the pubescent midrib

petiole c. 0.5 cm long, pubescent Flowers petals white, sepals pink

Fruits orange

Spiropetalum reynoldsii (Stapf) Schellenb. (Conn.), 26, 79

Leaves compound, imparipinnate, with 2-4 pairs of often

subopposite leaflets; alternate; estipulate

leaflets

blade oblong-elliptic, c. 9 cm long, c. 5 cm wide

base cuneate or rounded

margin entire

apex shortly acuminate

nervature midrib markedly pubescent

petiole pubescent

petiolule c. 0.3 cm long, pubescent rachis 4-8 cm long, pubescent

Flowers white, discolouring pink, with a nice smell

Branches pubescent

Strophanthus hispidus DC. (Apoc.), 492

Leaves simple, opposite; estipulate

blade elliptic or ovate; especially the lower surface of the

leaf densely covered with long hairs, scabrous, 5-15 cm

long, 2-9 cm wide

base rounded

margin

entire

apex

acuminate

petiole

c. 0.4 cm long, pubescent

Fruits

mature fruit 20 cm long, covered with brown hairs

#### Strophanthus sarmentosus DC. (Apoc.), 491

Leaves

simple, opposite; interpetiolar ridge

blade

elliptic or ovate, smooth and glabrous on both sides,

4-11 cm long, c. 3 cm wide

base

cuneate

margin apex entire acuminate

nervature

acuminate

nervature

pinnati-nervate, with 4-7 pairs of lateral nerves and

distinct tertiary venation beneath

petiole

c. 1 cm long, glabrous

Fruits

mature fruit c. 20 cm long

#### Strychnos aculeata Solered. (Log.), 240

Leaves

simple, opposite; interpetiolar ridge

blade

elliptic to oblong, c. 12 cm long, c. 6 cm wide, coria-

ceous

base margin rounded entire

apex

acuminate

nervature petiole distinctly 3-nerved c. 0.7 cm long

Fruits

green

Stem

with internodial prickles

#### Strychnos afzelii Gilg (Log.), 198, 712

Leaves

simple, opposite; interpetiolar ridge; often one of the

opposite leafs a tendril

blade

variable in size, often obovate, c. 5 cm long, c. 3 cm

wide

base

cuneate entire

margin apex

apiculate

nervature

3-nerved; midrib hairy c. 0.3 cm long, hairy

petiole Flowers

yellow-green

Fruits

green

#### Strychnos camptoneura Gilg et Busse (Log.), 207

Leaves

simple, opposite; interpetiolar ridge; tendrils present

blade

6-22 cm long, 3-10 cm wide

nervature

basal secondary veins mostly not more conspicuous

than the others

Fruits

green

#### Strychnos longicaudata Gilg (Log.), 628

Leaves

simple, opposite; interpetiolar ridge; tendrils present

blade

elliptic to oblong, c. 9 cm long, c. 4 cm wide, subcoria-

ceous

base margin cuneate entire

apex

long caudate

nervature

distinctly 3-nerved

petiole

c. 0.3 cm long

Fruits

green

# Strychnos usambarensis Gilg (Log.), 677, 539

Leaves

simple, opposite; interpetiolar ridge; often one of the

two opposite leaves a tendril

blade

oblong to lanceolate, c. 6 cm long, c. 2.5 cm wide,

glabrous

base

cuneate to rounded

margin

entire caudate

apex nervature

distinctly 3- or 5-nerved

petiole

c. 0.3 cm long

Fruits

yellow, c. 0.5 cm long

Branches

lenticellate, glabrous, often covered with a pale skin

which splits and peels off

#### Tacazzea apiculata Oliv. (Asclep.), 503

Leaves

simple, opposite; stipulate

blade

elliptic to suborbicular, c. 4-10 cm long, c. 6 cm wide

base

cordate

margin

entire

apex

slightly emarginate

petiole

2-3 cm long

Flowers

greenish yellow

#### Tetracera alnifolia Willd. (Dill.), 460, 805

Leaves

simple, alternate; estipulate

blade

oblong to oblong-obovate, 6-16 cm long, 3.5-9 cm

wide, scabrous, coriaceous

base margin cuneate entire

apex

obtuse to rounded

nervature pinnati-nervate; sparsely pubescent on midrib and

nerves beneath

petiole c. 1 cm long, winged, pubescent

Fruits red-brown

Branches pubescent when young

Tiliacora cf. dielsiana Hutch. et Dalz. (Menisp.), 134,

Leaves simple, alternate; estipulate

blade oblong, 9–20 cm long, 4–8 cm wide

base cuneate

margin entire
apex acuminate
nervature 6-nerved at base

petiole c. 1.5 cm long, thicker near the blade

Fruits black, many together in a cluster

Usteria guineensis Willd. (Log.), 440

Leaves simple, opposite; interpetiolar ridge

blade orbicular or broadly elliptic, c. 10 cm long, c. 6 cm wide,

glabrous rounded

base rounded margin entire apex rounded

nervature pinnati-nervate, with 3-4 conspicuous lateral nerves

petiole c. 0.5 cm long

Flowers yellow-green with a nice smell

Branches glabrous

Uvaria afzelii Sc. Elliot (Annon.), 101, 168, 543

Leaves simple, alternate; estipulate

blade oblong, 7–25 cm long, 3–7 cm wide, covered with long

red-brown hairs; upper surface not scabrous

base rounded to cordate

margin entire

apex subacute or obtuse

petiole c. 0.5 cm long, densely covered with red-brown hairs

Flowers pale yellow; flowerbuds, young fruits, twigs and leaves

felty, covered with hairs

Uvaria baumannii Engl. et Diels (Annon.), 226

Leaves simple, alternate; estipulate

blade oblong to lanceolate, 7-18 cm long, 3-6 cm wide,

densely tomentellous

base rounded margin entire

apex caudate

nervature pinnati-nervate with 15-20 pairs of lateral nerves im-

pressed above, prominent beneath

petiole c. 0.3 cm long, pilose

Fruits yellow-brown

# Uvaria doeringii Diels (Annon.), 286

Leaves simple, alternate; estipulate

blade narrowly oblong-obovate, 7–12 cm long, 3–6 cm wide,

pilose

base rounded margin entire

apex shortly acuminate petiole c. 0.6 cm long, pilose

Flowers green-white

Fruits yellow, sticky, c. 8 cm long, sausage-like

#### 5. REFERENCES

- ENDERT, F. H. (1928): Geslachtstabellen voor Nederlandsch-Indische boomsoorten naar vegetatieve kenmerken. Diss. Univ. Wageningen: 242 p.
- HUTCHINSON, J. and J. M. DALZIEL (1954–1972): Flora of West Tropical Africa, Vol. I part 1 (1954) and 2 (1958), Vol. II (1963), Vol. III part 1 (1968) and 2 (1972). Publ. Millbank, London.
- International Association of Wood Anatomists (1957): International glossary of terms used in Wood Anatomy. Tropical Woods 107: 1-36.
- JACKSON, B. D. (1953): A glossary of botanic terms. Publ. G. Duckworth and Co. Ltd., London: 481 p.
- Lanjouw, J. et al. (1968): Compendium van de Pteridophyta en Spermatophyta. Publ. A. Oosthoek, Utrecht: 342 p.
- OUTER, R. W. DEN (1967): Histological investigations of the secondary phloem of Gymnosperms, Diss. Univ. Wageningen: 119 p.
- OUTER, R. W. DEN (1972a): Tentative determination key to 600 trees, shrubs and climbers from the Ivory Coast, Africa, mainly based on characters of the living bark, besides the rhytidome and the leaf. I. Large trees. Meded. LH, Wageningen, 72-18: 73 p.
- OUTER, R. W. DEN (1972b): -. II. Small trees, Meded. LH, Wageningen, 72-19: 60 p.
- OUTER, R. W. DEN (1972c): -. III. Shrubs. Meded. LH, Wageningen, 72-20: 52 p.
- Pulle, A. A. (1952): Compendium van de terminologie, nomenclatuur en systematiek der zaadplanten. Publ. A. Oosthoek, Utrecht: 376 p.
- Versteegh, Chr. (1971): Key to the most important native trees of Irian Barat (Indonesia) based on field characters. Meded. LH, Wageningen, 71-19: 63 p.
- VOORHOEVE, A. G. (1965): Liberian high forest trees. Diss. Univ. Wageningen: 416 p.
- WYATT-SMITH, J. (1964): Suggested definitions of field characters. Malayan Forest Records 17: 86-122.