



Malafasy
Ficus

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Rasplus
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Foreword :

This work is not an original contribution. It compiles informations dispersed in several papers, especially in Berg's publications. Descriptions and most of the informations have been extracted from Berg, 1986; 1990 and Berg & Wiebes, 1992. I just add original photographs and drawings, update some biological and taxonomic informations and adapt parts of the keys of the fig wasps. I also include distribution maps for all the species of *Ficus* occurring in Madagascar, these maps were based on material observed in the MNHN, Paris and from personal observations. They were subsequently implemented by A. Dalecky (Dalecky et al. 2002). I hope it could be a valuable field guide for beginners and will generate some vocations to study the fig-fig wasps interaction.

The first part of this booklet presents the species of *Ficus* which occur in Madagascar. It should enable the non-expert to recognise fig species which is a rather difficult task. Clearly a good picture often says more than words and to this end as many fig species as possible have been illustrated. For this purpose I made original line drawings (however when I never observed the species, I used drawings from Berg, 1986) and photographs I took in a trip to Madagascar in 1996. The identification key is adapted from C.C. Berg's key to Afro-tropical species (1992).

The second part give a key to the genera of Chalcid wasps (Hymenoptera) associated with *Ficus* in the afro-tropical region. In some parts (especially the pollinators) the key is weak, but I have no enough time to formalise my notes. However it includes all the genera known to occur in Africa, excepted one new genus of Epichrysomallinae. To facilitate the use of the key, I include numerous illustrations mostly published by Boucek, van Noort and Wiebes and I add some new photographs and drawings of habitus. The key is largely inspired from Boucek (1988) and Berg & Wiebes (1992), but I change some couplets.

Jean-Yves RASPLUS

References

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LIST OF FICUS FROM MADAGASCAR

SUBGENUS *FICUS* SECTION *SYCIDIUM*

3. <i>F. pachyclada</i> subsp. <i>pachyclada</i> Baker and subsp. <i>arborea</i> (Perrier) C.C. Berg.....	6
8. <i>F. bojeri</i> Baker	8
9. <i>F. brachyclada</i> Baker.....	10
10. <i>F. politoria</i> Lamarck.....	12

SUBGENUS *SYCOMORUS*

11a. <i>F. sycomorus</i> Linné.....	14
11b. <i>F. sakalavarum</i> Baker	16
17. <i>F. tiliifolia</i> Baker	18
18. <i>F. torrentium</i> H. Perrier	20
19. <i>F. polyphlebia</i> Baker.....	22
20. <i>F. botryoides</i> Baker.....	24
21. <i>F. trichoclada</i> Baker	26

SUBGENUS *PHARMACOSYCEA* SECTION *OREOSYCEA*

25. <i>F. assimilis</i> Baker	28
26. <i>F. ampana</i> Berg	30

SUBGENUS *UROSTIGMA* SECTION *UROSTIGMA*

30. <i>F. madagascariensis</i> Berg.....	32
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SUBGENUS *UROSTIGMA* SECTION *CONOSYCEA*

32. <i>F. menabeensis</i> H. Perrier.....	34
33. <i>F. humbertii</i> Berg.....	36

SUBGENUS *UROSTIGMA* SECTION *GALOGLYCHIA*

subsection *Galochychia*

36. <i>F. lutea</i> Vahl.....	38
-------------------------------	----

subsection *Platyphyllae*

50. <i>F. trichopoda</i> Baker.....	40
51. <i>F. grevei</i> Baillon	42
52. <i>F. rubra</i> Vahl	44
53. <i>F. marmorata</i> Baker	46
54. <i>F. bivalvata</i> Perrier.....	48

subsection *Chlamydodora*

64. <i>F. antandronarum</i> subsp. <i>antandronarum</i> (Perrier) C.C. Berg	50
65a. <i>F. reflexa</i> subsp. <i>reflexa</i> Thunberg	52

subsection *Caulocarpae*

98a <i>F. polita</i> subsp. <i>polita</i> Vahl.....	54
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Numbers refer to Berg, C.C. 1990. Annotated check-list of the *Ficus* species of the African floristic region, with special reference and a key to the taxa of southern Africa. *Kirkia* 13 : 253-291.

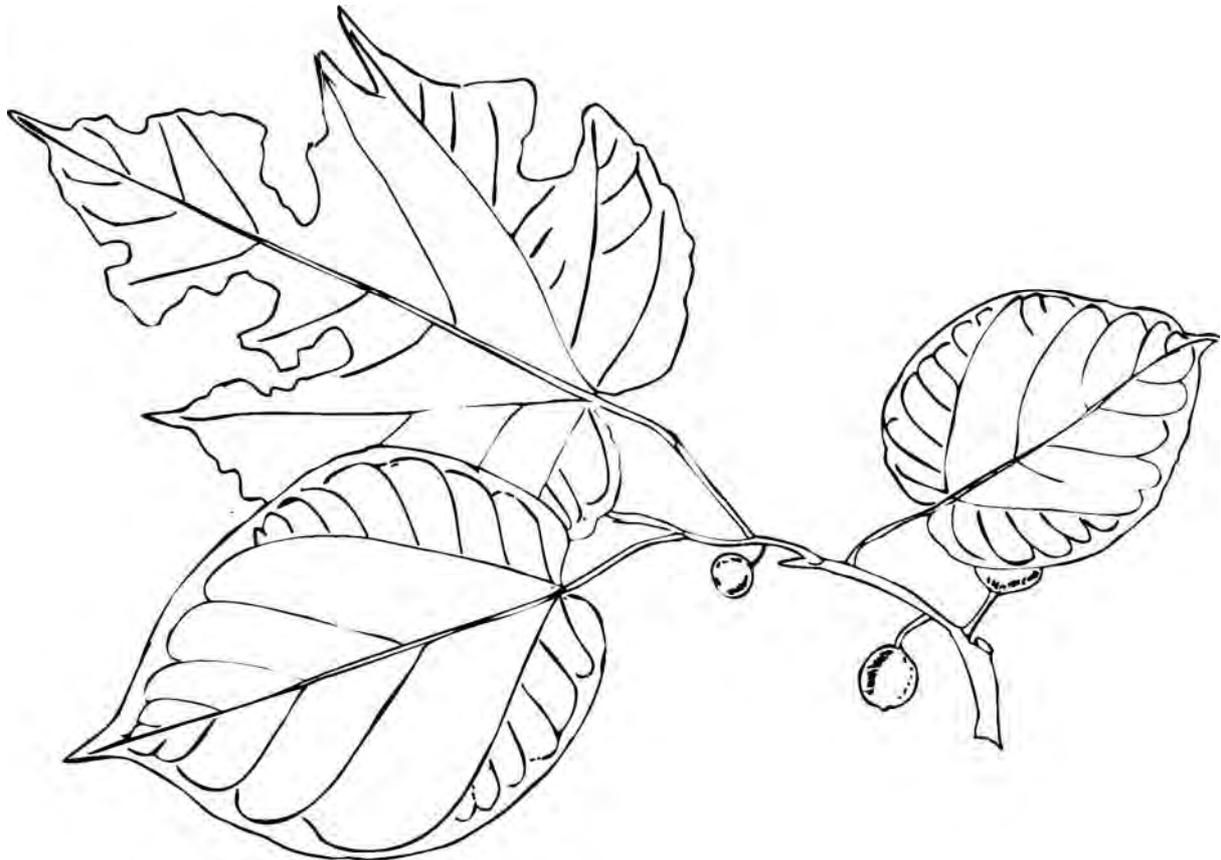
KEY TO THE MALAGASY *FIGUS*
(modified after Berg, 1986)

1	Ostiole circular, at least three ostiolar bracts visible, only the lower or none of the ostiolar bracts descending.....	2
---	Ostiole slit-shaped, all ostiolar bracts descending	20
2	Stipules not fully amplexicaul ; bracts (2-4) below the receptacle usually spread on the peduncle ; dioecious trees or shrubs (sect. <i>Sycidium</i>)	3
---	Stipules fully amplexicaul ; bracts (2 or 3) below the receptacle in a whorl ; monoecious trees or shrubs.....	9
3	Lamina hirtellous (to puberulous) beneath.....	4
---	Lamina hispidulous beneath	7
4	Hairs on the leafy twigs (partly) brown with ± swollen bases; glandular spots on or for the greater part on the base of the midrib beneath	<i>F. brachyclada</i> (p. 10)
---	Hairs on the leafy twigs white or if brownish, then without swollen bases ; glandular spots in the axils of the (main) basal lateral veins beneath	5
5	Base of the lamina cordate or subcordate and/or the petiole 2.5-5(-13) cm long.....	<i>F. pachyclada</i> (p. 6)
---	Base of the lamina acute to obtuse or the petiole up to 1 cm long.....	6
6	Lamina usually up to 10 cm long or, if longer, then mostly sublinear or lobed ; figs when dry 0.5-0.8(-1) cm in diameter, usually in the leaf axils or just below the leaves	<i>F. politoria</i> (p. 12)
---	Lamina usually longer than 10 cm and usually obovate to subobovate ; figs when dry 0.8-1.2 cm in diameter, often on spur-like branchlets (already formed in the leaf axils) on the older wood.....	<i>F. brachyclada</i> (p. 10)
7	Lamina usually subobovate to obovate ; glandular spots on or for the greater part on the midrib beneath ; figs mostly on spur-like branchlets (already formed in the leaf axils) on the older wood	<i>F. brachyclada</i> (p. 10)
---	Lamina usually elliptic to oblong or ovate to subovate ; glandular spots in the axils of the (main) basal lateral veins beneath ; figs in the leaf axils or just below the leaves	8
8	Lamina usually up to 10 cm long, if longer, then sublinear or lobed ; gall fruits stipitate (Madagascar).....	<i>F. politoria</i> (p. 12)
---	Lamina usually longer than 10 cm ; gall fruits not stipitate (Comoro Islands and Madagascar : Nossi-Bé and near Diego Suarez).....	<i>F. bajeri</i> (p. 8)
9	Figs usually solitary in the leaf axils or on branchlets on the older wood ; staminate flowers subtended (and enclosed) by two bract(eole)s ; stamens (usually) 2 (subg. <i>Sycomorus</i>).....	10
---	Figs usually in pairs in the leaf axils or just below the leaves ; staminate flowers not subtended by two bract(eole)s ; stamen (usually).....	17
10	Indument of the leafy twigs (partly) brown.....	<i>F. torrentium</i> (p. 20)
---	Indument of the leafy twigs whitish or yellowish.....	11
11	Basal lateral veins branched	12
---	Basal lateral veins unbranched	14
12	Apex of the lamina short-acuminate to subacute ; petiole up to 9(-13) cm long ; figs in the leaf axils or also on branchlets on the older wood, 1.5-2.5 cm in diameter.....	<i>F. tiliifolia</i> (p. 18)
---	Apex of the lamina rounded ; petiole up to 3 cm long.....	13
13	Figs on branchlets on the older wood. Figs mature up to 4 cm in diameter.....	<i>F. sycomorus</i> (p. 14)
---	Figs if in the leaf axils or just below the leaf, sometimes on the trunc on short branchlets. Diameter of the fresh figs up to 9 cm	<i>F. sakalavarum</i> (p. 16)
14	Figs on branchlets on the older wood (0.7-)1-2.5(-7) cm long pedunculate ; basal bracts ca. 4 mm.....	<i>F. botryoides</i> (p. 24)

---	Figs axillary (or also on branchlets on the older wood), subsessile or up to 0.8 cm long pedunculate ; basal bracts 1.5-3 mm long.....	15
15	Lateral veins 2x(3-)8-10(-11) ; periderm of the leafy twigs not flaking off ; figs subsessile or up to 0.4 cm long pedunculate, not stipitate ; basal bracts 2-3mm long ; lenticels few, large, in the upper part of the internodes.....	<i>F. polyphlebia</i> (p. 22)
---	Lateral veins 2x(5-)8-10(-11) ; periderm of the leafy twigs flaking off ; figs 0.4-0.8 cm long pedunculate, often stipitate ; basal bracts 1.5-2 mm long ; lenticels inconspicuous and disperse.....	<i>F. trichoclada</i> (p. 26)
16	Lenticels concentrated in the uppermost part of the internodes ; stigmas 2 (<i>Oreosyce</i>).....	17
---	Lenticels (if present) disperse ; stigma I (<i>Urostigma</i>).....	18
17	Apex of the lamina acute to faintly acuminate ; lateral veins 2 x 7-14.....	<i>F. assimilis</i> (p. 28)
---	Apex of the lamina rounded to obtuse or very shortly and obtusely acuminate ; lateral veins 2 x 6-8.....	<i>F. ampana</i> (p. 30)
18	Figs pedunculate.....	<i>F. humbertii</i> (p. 36)
---	Figs sessile.....	20
19	Lateral veins 2 x (3-)12-22 ; petiole 0.5-2 cm long ; fruits yellowish ; interfloral bracts present.....	<i>F. menabeensis</i> (p. 34)
---	Lateral veins 2 X 7-12 ; petiole 0.5-5 cm long ; fruits brown ; interfloral bracts lacking.....	<i>F. madagascariensis</i> (p. 32)
20	Figs ovoid to ellipsoid.....	<i>F. bivalvata</i> (p. 48)
---	Figs (sub)globose or obovoid.....	21
21	Figs sessile (or subsessile, peduncle at most 1.5 mm long).....	22
---	Figs pedunculate (peduncle at least 2 mm long).....	24
22	Petiole (1.5-)4-13(-17) cm long, 2-4 mm thick, its epidermis flaking off.....	<i>F. lutea</i> (p. 38)
---	Petiole 0.3-3(-4) cm long, 1-2 mm thick, its epidermis persistent.....	23
23	Stipules 0.2-0.5 cm long, caducous ; lamina usually elliptic to obovate ; figs when dry 0.8-1.3 cm in diameter and usually dark brown to blackish.....	<i>F. antandronarum</i> (p. 64)
---	Stipules 0.5-2 cm long, usually subpersistent ; lamina usually oblong to subobovate ; figs when dry 0.5-0.8 cm in diameter and (pale) brown.....	<i>F. reflexa</i> (p. 52)
24	Figs on spurs on the older wood, when dry (l-)2-4 cm in diameter.....	<i>F. polita</i> (p. 54)
---	Figs axillary or just below the leaves, when dry up to 1.5 cm in diameter.....	25
25	Basal bracts caducous.....	<i>F. grevei</i> (p. 42)
---	Basal bracts persistent.....	26
26	Stipules 0.2-0.5 cm long ; petiole up to 2 cm long. Figs when dry 0.7-1.3 cm in diameter ; lamina elliptic to obovate.....	<i>F. antandronarum</i> (p. 50)
---	Stipules 0.5-1.5 cm long ; petiole up to 7 cm long.....	27
27	Stipules densely puberulous to hirtellous.....	<i>F. trichopoda</i> (p. 40)
---	Stipules glabrous.....	28
28	Leafy twigs 3-5 mm thick, glabrous (or minutely puberulous) ; apex of the lamina obtuse, sub-acute, or short-acuminate ; figs when dry 0.6-1 cm in diameter, glabrous (or minutely puberulous)...	<i>F. rubra</i> (p. 44)
---	Leafy twigs 1.5-3 mm thick, densely puberulous ; apex of the lamina ± distinctly and often long-acuminate ; figs when dry 0.2-0.8 cm in diameter, puberulous to hirtellous.....	<i>F. marmorata</i> (p. 46)

Ficus pachyclada Baker (1887)

Sycidium



SYNONYMS :

F. broussonetiifolia Baker

F. soroceoides Baker var. *arborea* H. Perrier

DISTRIBUTION AND HABITAT :

Widespread in Madagascar, reported from the east and the south. Relatively common from sea level to 1300 m in altitude. The species lives along rivers, in temporary inundated areas and in riverine forests. It can also be encountered in marshy places and along the coasts.



DESCRIPTION :

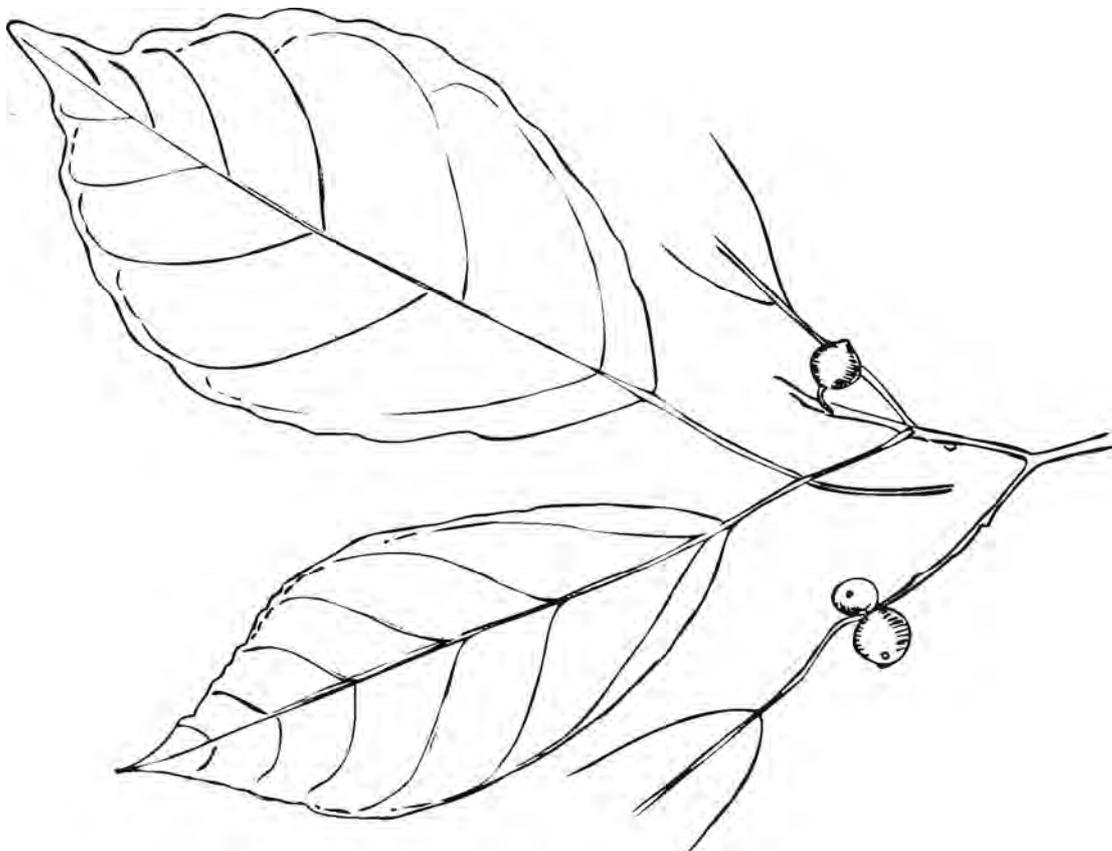
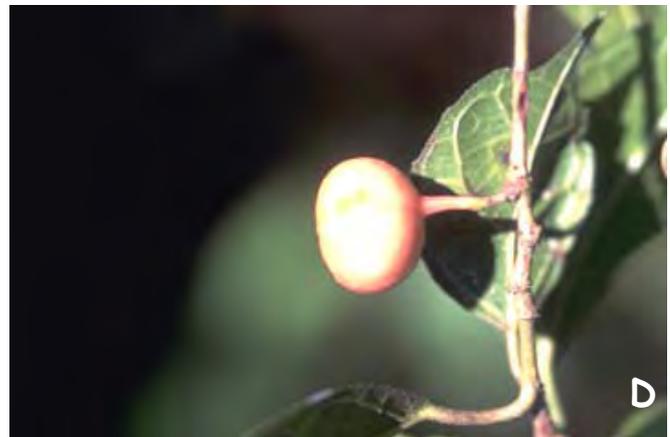
Tree up to 25(-35) m tall. Leafy twigs 1.5-4 mm thick, usually scabrous, whitish-hispidulous or sometimes to brownish-hirtellous, the bases of the hairs not swollen, when dry (red-)brown, periderm (of older parts) flaking off. Leaves in spirals; lamina cordiform to ovate, sometimes subobovate or elliptic, (2-)4.5-14(-22) x (1.8-)4-8(-14) cm, equal-sided (or unequal-sided), chartaceous, apex short-acuminate, base cordate to subcordate (to rounded to obtuse), margin crenate-dentate; both surfaces scabrous, densely hispidulous, the lower surface hirtellous or subhirtellous to puberulous as well; venation plane above, (very) prominent beneath, lateral veins 2(3)-4-6, (main) basal pair + distinctly branched, reaching the margin at about the middle of the lamina, below the main basal pair of lateral veins 1-3 pairs of minor basal veins, these usually on both sides of the midrib not equal in number and position, tertiary venation scalariform, in small leaves reticulate; glandular spot present in the axils of the (main) basal lateral veins, mostly inconspicuous; petiole (1)2.5-5(-13) cm long, hispidulous; stipules 0.1-0.5 cm long, hispidulous, caducous. Figs usually solitary in the leaf axils or below the leaves on previous season's growth; peduncle 0.5-2(-2.5) cm long, 1-2 mm thick, hispidulous; peduncular bracts 3, ovate, ca. 1 mm long; receptacle subglobose to subpyriform, when dry ca. (0.8-) 1-1.5 cm in diameter, hispidulous, at maturity red; ostiole ca. 0.5-0.6 mm in diameter, prominent. Staminate flowers also among the gall flowers, subsessile or up to 3 mm long pedicellate; tepals 4, free, oblanceolate to subspathulate, 1.5-2 mm long; filament up to 1 mm long, anther 0.8-1 mm long, apiculate, apiculus reflexed. Pistillate flowers: tepals 4-5(-6), subspathulate to oblanceolate, 1.5-2 mm long; seed flowers sessile or up to 3 mm long pedicellate, style (including stigma) ca. 1.5-2 mm long; gall flowers sessile or up to 3(-3.5) mm long pedicellate, style (including stigma) ca. 0.4-0.5 mm long. Fruits ellipsoid to ovoid, ca. 1-1.2 mm long; "gall fruits" ellipsoid to subglobose, ca. 1 mm long. In juvenile specimens the lamina is often subpalmately lobed to parted, the segments and their first divisions may be lobed as well.

- Subsp. *pachyclada*. Leafy twigs 2-6 mm thick. Lamina 4-14(-22) X 2-8(-14) cm; lower surface sparsely hispidulous and hirtellous (to subhirtellous); tertiary venation for the greater part scalariform, the smaller veins mostly very prominent. Receptacle when dry up to 1.5 cm in diameter.

- Subsp. *arborea* (H. Perrier). Leafy twigs 1.5-3 mm thick. Lamina 3-8 x 2-6 cm; lower surface sparsely hispidulous and subhirtellous to puberulous; tertiary venation predominantly (loosely) reticulate, the smaller veins slightly prominent to plane. Receptacle when dry up to 1 cm in diameter.

Ficus bojeri Baker (1877)

Sycidium



DISTRIBUTION AND HABITAT :

The species seems to be widespread in Madagascar but is most commonly encountered in the north (prov. Diego Suarez & Nossi Be) and the center. It inhabits forests and secondary growth at elevation (up to 1400m high).

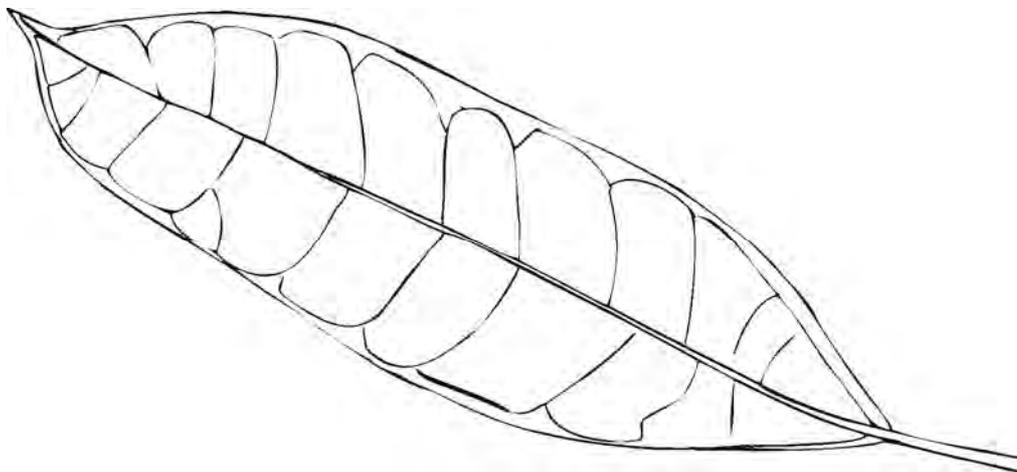


DESCRIPTION :

Tree up to 12 m tall. Leafy twigs 1-3 mm thick, usually very sparsely hispidulous and nearly smooth, when dry (yellowish-) brown, older parts often orange-brown or red-brown, periderm of older parts flaking off. Leaves (tending to) distichous, often subopposite; lamina oblong to elliptic or to (sub)ovate, (3.5)10-17(-24) x (1.5)4-6.5(-10) cm, equal-sided or unequal-sided, chartaceous, apex (faintly) acuminate, base acute to rounded (or subcordate), margin (sub)entire or crenate to dentate towards the apex, sometimes sublobate; both surfaces scabridulous to scabrous, sparsely hispidulous; venation slightly prominent above, prominent beneath, lateral veins 2 x 5-9, basal pair unbranched or (faintly) branched, reaching the margin below or at the middle of the lamina, sometimes smaller basal veins present below the main basal pair, tertiary venation partly scalariform; glandular spots in the axils of the basal pair of lateral veins, rather inconspicuous; petiole (0.5-)1-5 cm long, (0.5-)1-1.5 mm thick, sparsely hispidulous, and usually nearly smooth; stipules 0.2-0.5 mm long, minutely puberulous, caducous. Figs solitary (or in pairs) in the leaf axils or just below the leaves, or several together on (often ± cushion-shaped clusters of 0.5-1 cm long) spurs on the older wood down to the trunk, subsessile or pedunculate; peduncle (0.3-)0.5-1.5 cm long, ca. 0.5 mm thick, hispidulous; peduncular bracts (ca.) 3, elliptic to ovate, ca. 1 mm long; receptacle (sub)globose, when dry ca. (0.6-)0.8-1.2 cm in diameter, hispidulous, at maturity red (?); ostiole ca. 1.5-3 mm in diameter, prominent. Staminate flowers sessile (or pedicellate?); tepals 2 or 3 (or 4?), oblong to lanceolate, 1-1.5 mm long; anther ca. 0.7-0.8 mm long. Pistillate flowers: tepals 1-6, oblong to (sub) ovate, 1-1.5 mm long; seed flowers sessile or 1.7 mm long pedicellate; style (including stigma) ca. 0.5-1 mm long; gall flowers sessile or up to 1 mm long pedicellate, style (including stigma) ca. 0.3-0.4 mm long. Fruits ellipsoid to ovoid, ca. 1-1.2 mm long; "gall fruits" ellipsoid to subglobose, ca. 1 mm long.

Ficus brachyclada Baker (1883)

Sycidium



SYNONYMS :

F. phanerophlebia Baker

F. soroceoides Baker var. *brachyclada* (Baker) H. Perrier

F. soroceoides Baker var. *macrophlebia* H. Perrier

DISTRIBUTION AND HABITAT :

The species is widespread in Madagascar. It lives in understory, often in riverine forest from sea level to above 1600m. The species is syntopic with *F. pachyclada*.

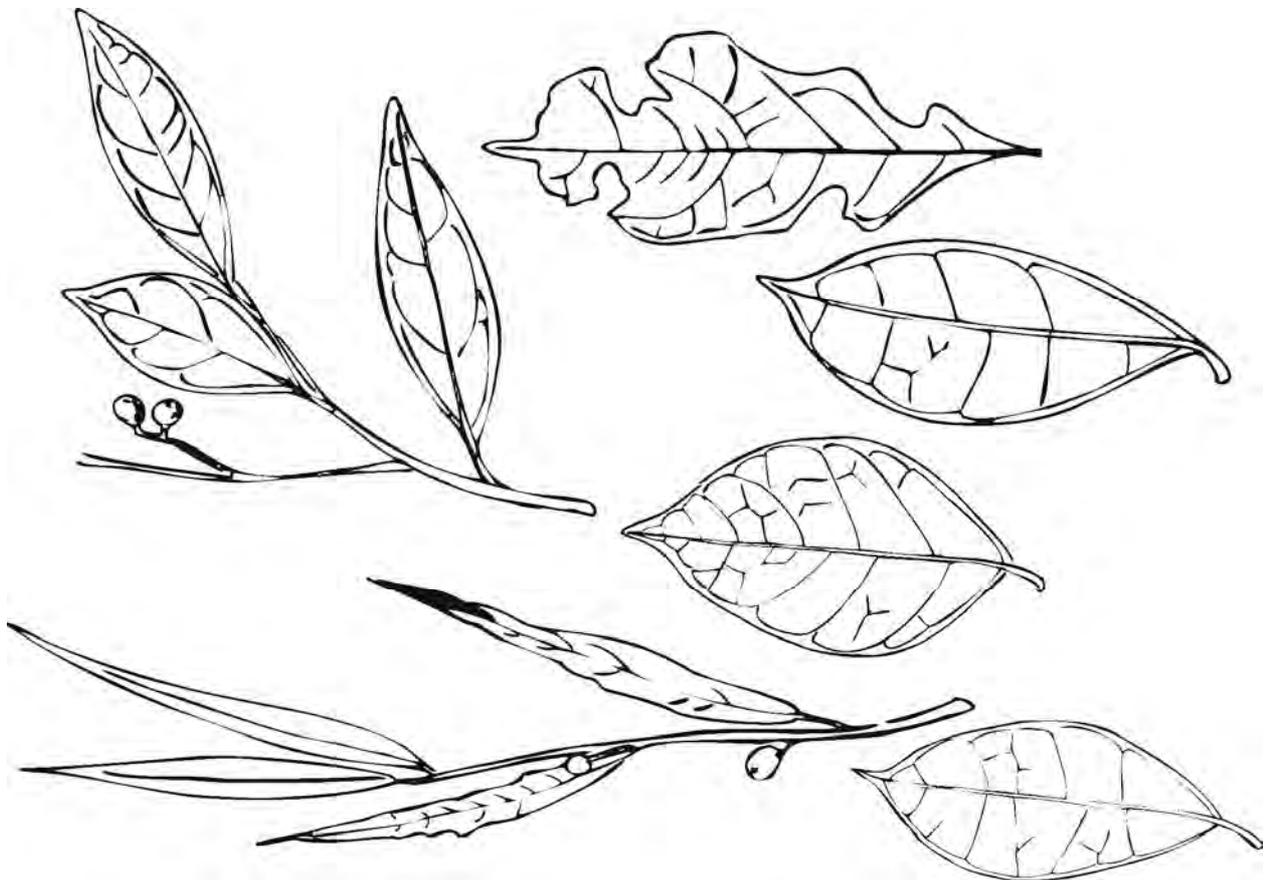


DESCRIPTION :

Shrub or treelet up to 4 m tall. Leafy twigs 1.5-4 mm thick, brownish- (or partly whitish-) hispidulous to -hispid with hairs the bases of which are \pm strongly swollen (or hirtellous or sparsely hispidulous), when dry brown to greyish, periderm persistent. Leaves (in spirals to) distichous, mostly subopposite; lamina mostly subobovate (to obovate) oblong sometimes oblong to elliptic (or to lanceolate), (3.5-)10-17(-26) x (1.5)4.5-7.5 cm, equal-sided, chartaceous, apex (sub)acuminate, base acute (to rounded), margin dent(icul)ate, sometimes pinnately lobed to parted; upper surface scabrous, sparsely hirtellous to hispidulous, lower surface scabridulous (to scabrous), densely hirtellous (or sparsely hispidulous); venation almost plane above, prominent beneath, lateral veins 2 x (4-)6-10(-18), basal pairs unbranched, reaching the margin below the middle of the lamina, tertiary venation tending to scalariform; glandular spots (for the greater part) on the base of the midrib beneath, conspicuous; petiole 0.4-1.5 or 1-7 cm long, 1-2 mm thick, hispidulous; stipules 0.3-1 cm long, strig(ill)ose, or minutely puberulous, caducous. Figs solitary or in pairs in the leaf axils or just below the leaves or several together on up to 2 cm long spur-like branchlets (the development of which already initiated in the leaf axils) on the older wood; peduncle 0.2-1 cm long, 0.5-1 mm thick; peduncular bracts (2 or) 3, ovate, 0.5-1 mm long or 2 or 3 bracts subtending the receptacle and then up to 3 mm long; receptacle globose, when dry 0.5-1 cm in diameter, hispidulous, at maturity red(dish) or red-brown; ostiole 1.5-3 mm in diameter, \pm prominent. Staminate flowers sessile or up to 0.5 mm long pedicellate; tepals 4-6, spatulate to oblanceolate to linear, 1-2 mm long; filament up to 1 mm long, anther 0.4-0.5 mm long, often oblique. Pistillate flowers: tepals 4-6, oblanceolate to spatulate to linear, 1-3 mm long; seed flowers sessile or up to 2.5 mm long pedicellate, style (including stigma) ca. 1- 1.5 mm long; gall flowers sessile or up to 1.5 mm long pedicellate, style (including stigma) ca. 0.3-0.8 mm long. Fruits ovoid to ellipsoid, ca. 1-1.2 mm long; "gall fruits" ellipsoid to obovoid, ca. 1.5-2.2 mm long, (usually) stipitate.

Ficus politoria Lamarck (1788)

Sycidium



SYNONYMS :

F. soroceoides Baker

F. longipes Baker - *F. soroceoides* Baker var. *longipes* (Baker) H. Perrier

F. xiphocuspis Baker - *F. claoxyloides* Baker

F. soroceoides Baker var. *ambongensis* H. Perrier

F. soroceoides Baker var. *mananarensis* H. Perrier

F. soroceoides Baker var. *onivensis* H. Perrier

F. soroceoides Baker var. *calcicola* H. perrier

DISTRIBUTION AND HABITAT :

Common species widespread in Madagascar. It lives in understory and can be abundant locally. Often found along streams, in riverine forest from sea level to 2800 m.

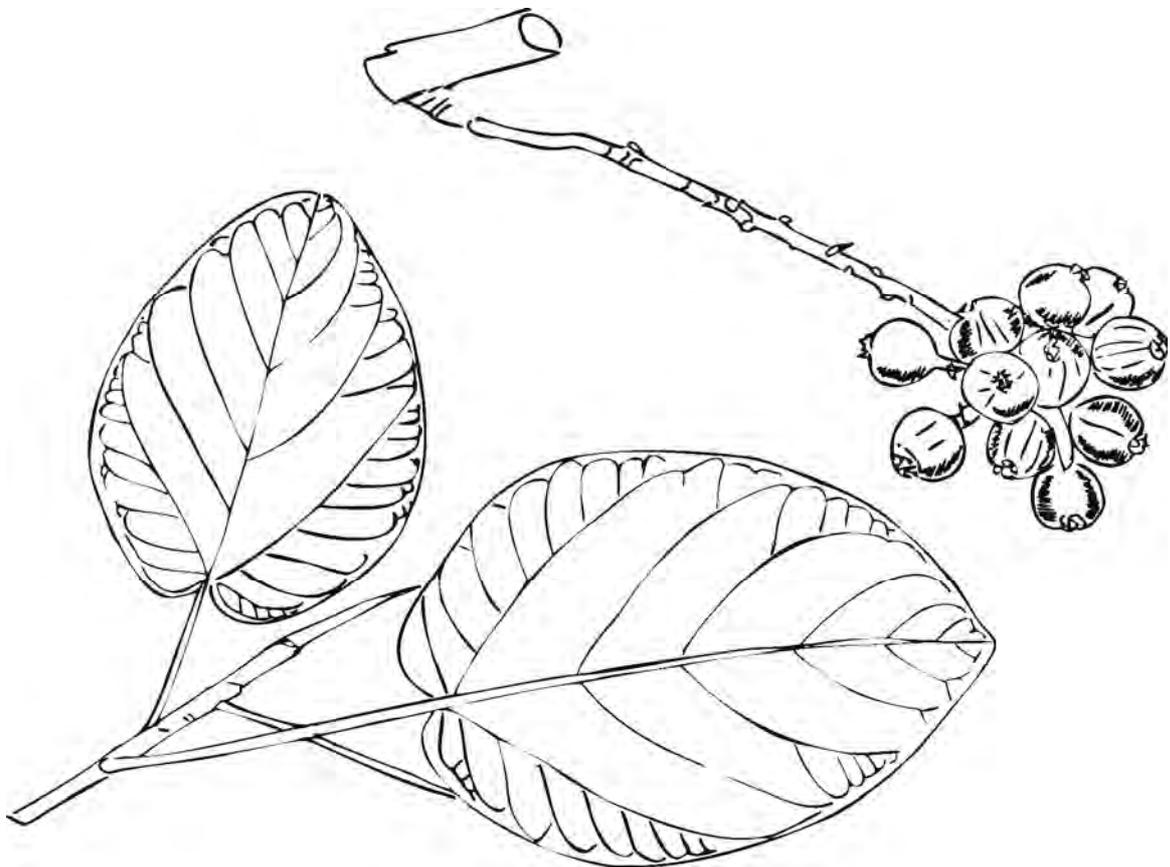


DESCRIPTION :

Shrub or tree up to 8 m tall. Leafy twigs 0.5-2.5 mm thick, scabrous to smooth, hispidulous to subglabrous, when dry dark to pale brown or greyish, periderm of older parts flaking off. Leaves (almost) distichous, some of them subopposite; lamina elliptic to oblong, obovate, subobovate, lanceolate, suborbicular, or sublinear, 1.5-10(-16) × 1-4 (-6.5) cm, often slightly unequal-sided, chartaceous to subcoriaceous, apex acuminate (to subacute), base acute to rounded, margin (towards the apex) irregularly crenate-dentate or subentire, sometimes the apex tridentate, in juvenile specimens lamina to pinnately lobed or even parted; upper surface scabrous, sparsely hispidulous, lower surface hispidulous and scabrous or sometimes on the veins also hirtellous to puberulous; venation almost plane above, prominent beneath, lateral veins 4-8(-10), the basal pair unbranched or (faintly) branched, not reaching up to the middle of the lamina, tertiary venation reticulate; glandular spots in the axils of the basal lateral veins, inconspicuous; petiole 0.3-1 cm long, sometimes up to 3 cm long, ca. 1 mm thick, sparsely hispidulous, epidermis (soon) flaking off; stipules 0.1-0.4 mm long, (sub)glabrous, caducous. Figs solitary or in pairs in the leaf axils or on previous season's growth, sometimes (?) also up to 4 together on up to 0.5 mm long spurs on the older wood; peduncle 0.1-0.8 or sometimes up to 2.5 cm long, ca. 0.5 mm thick, hispidulous; peduncular bracts 3-4, ovate, ca. 0.5 mm long; receptacle (sub)globose, when dry ca. 0.5-0.8(-1) cm in diameter, hispidulous, at maturity red, red-brown or yellow to red; ostiole ca. 2 mm in diameter, plane or prominent. Staminate flowers sessile or short-pedicellate; tepals 4 or 5 (or 6), spatulate to oblanceolate to sublinear, 1-1.5 mm long; filament up to 1 mm long, anther ca. 0.8 mm long. Pistillate flowers: tepals 4-6, subspathulate to oblanceolate to sublinear, (1-) 1.5-2 mm long; seed flowers sessile or up to 1.5 cm long pedicellate, style (including stigma) ca. 1-1.5 mm long; gall flowers sessile or up to 1 mm long pedicellate, style (including stigma) ca. 0.4 mm long. Fruits ellipsoid to ovoid, ca. 1 mm long; "gall fruits" ellipsoid to obovoid, ca. 1 mm long, excl. the 0.1-0.7 mm long stipe.

Ficus sycomorus Linné (1753)

Sycomorus



NOTES :

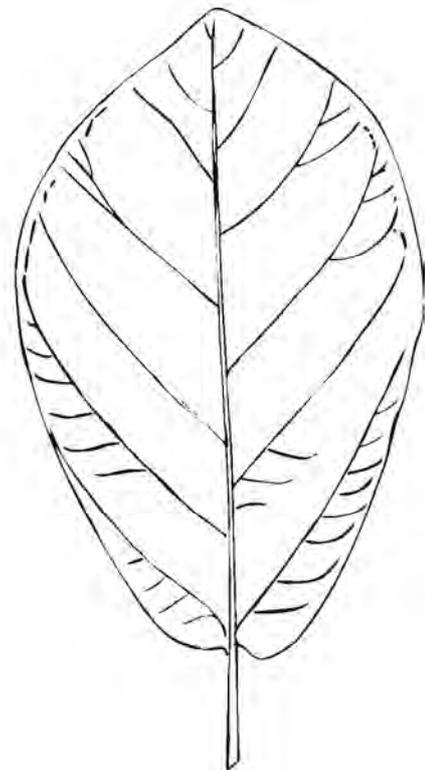
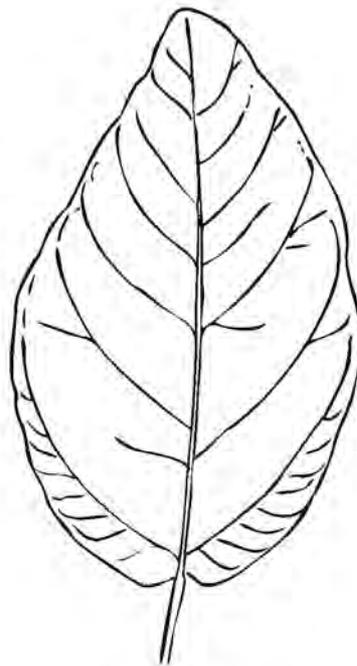
Berg (1986) synonymized *F. sakalavarum* and *F. sycomorus*. We don't follow him in such a conclusion as both species are pollinated by different species of Agaonidae, furthermore they are attacked by different faunas of non pollinating fig wasps and are frequently syntopic. Morphologically they can be differentiated by the fig size and also the leaves.

DISTRIBUTION AND HABITAT :

The malagasy distribution of *F. sycomorus* is poorly known, but it could be widespread in Madagascar up to 1250m high. The species is frequently found along rivers and adjacent riverine forests. It can also be found in woodlands and have probably been planted in villages.



DESCRIPTION :



DISTRIBUTION AND HABITAT :

F. sakalavarum is widespread in Madagascar and can be locally abundant. It occurs mostly along streams but can also be found in humid area, mostly at low elevation.

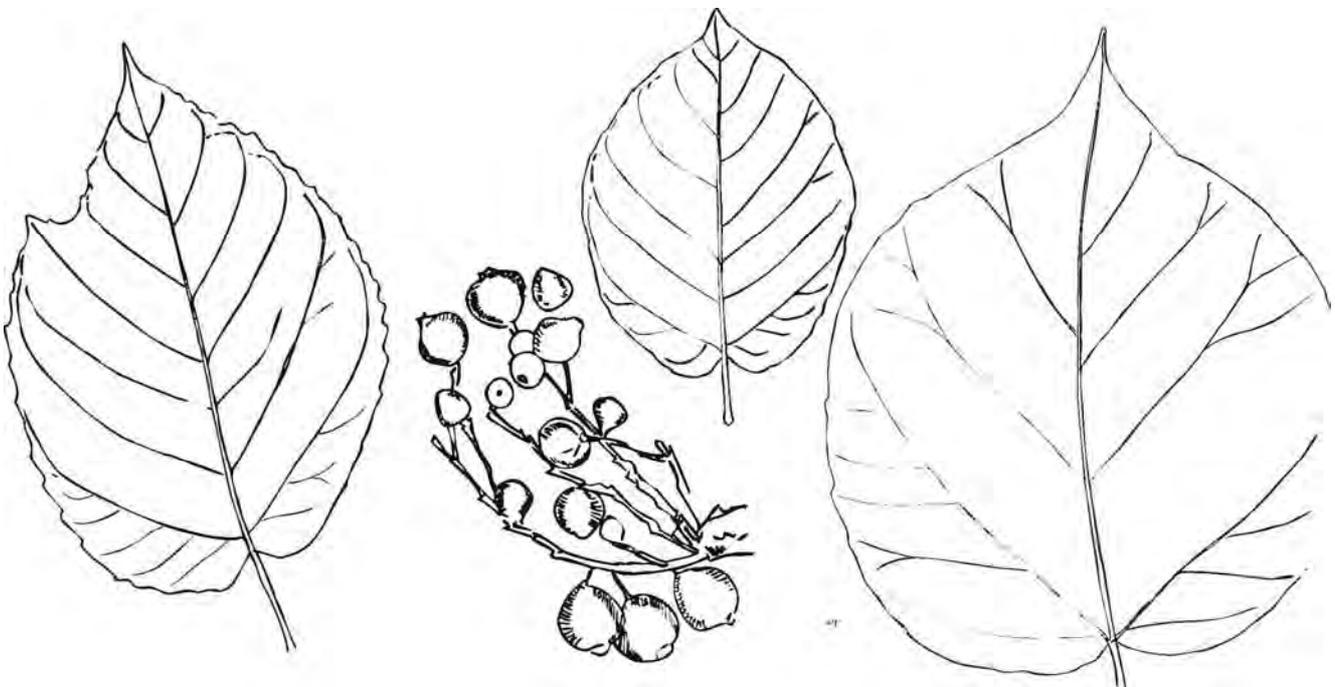


DESCRIPTION :

Tree up to 15 m tall. Leafy twigs white-puberulous, intermixed with much ($> 10 \times$) longer hairs, when dry brown, periderm flaking off. Leaves in spirals (or tending to distichous); lamina elliptic to oblong to (sub)obovate, ovate or subcordiform, 1.5-14 x 1- 10.5 cm, chartaceous, often brittle when dry, apex rounded to obtuse, base cordate to rounded, margin faintly crenate to subentire; upper surface scabrous, hispidulous, on the midrib puberulous to hirtellous or hirsute, lower surface on the veins puberulous to tomentellous, on the main veins intermixed with much ($> 10 \times$) longer hairs; venation plane above, prominent beneath, lateral veins $2 \times 4-7$, the basal pair branched, reaching the margin below to near the middle of the lamina, tertiary venation partly scalariform; petiole 0.5-3 cm long, 1-3 mm thick, puberulous, intermixed with much ($> 10 \times$) longer hairs, epidermis flaking off; stipules 0.5-1.5 cm long, puberulous or partly subsericeous or subhirsute, caducous. Figs on up to 20 cm long, branched branchlets on the main branches, sometimes solitary in the leaf axils or just below the leaves but then the figs mostly very large; peduncle 0.3-0.6 cm long, puberulous, epidermis flaking off; basal bracts ovate, 2.5-3 mm long, puberulous; receptacle globose to broadly obovoid to subpyriform, when dry ca. 1.5-2 cm (or up to 5 cm) in diameter, sparsely puberulous, hirtellous or yellowish-velutinous; wall when dry 1-2 (or 5-7) mm thick; ostiole 4-6 mm in diameter, prominent, several ostiolar bracts visible. Staminate flowers sessile; subtending bracts 2-3 mm long; perianth 1.5-2 mm high; anthers 1-1.5 mm long. Pistillate flowers: tepals 4-6, free or basally connate, 1.5-2.5 mm long, \pm lacinate; seed flowers (sub)sessile, style (including stigma) ca. 1.5-2.5 mm long; gall flowers subsessile or up to 2.5 cm (or up to 8 mm) long pedicellate, style (including stigma) ca. 1-2 mm long. Fruits ellipsoid to ovoid, ca. 1.5 mm long; "gall fruits" ellipsoid to subovoid to oblongoid, 2-2.5 mm (or 3-4 mm) long, often \pm stipitate.

Ficus tiliifolia Baker (1885)

Sycomorus



SYNONYMS :

F. sphaerophylla Baker

F. trichophlebia Baker

F. pulvinifera Baker

DISTRIBUTION AND HABITAT :

F. tiliifolia is widespread in Madagascar. This common species inhabits woodlands and savannas (PN Isalo). The species is sometimes planted and reaches altitude up to 1700m.

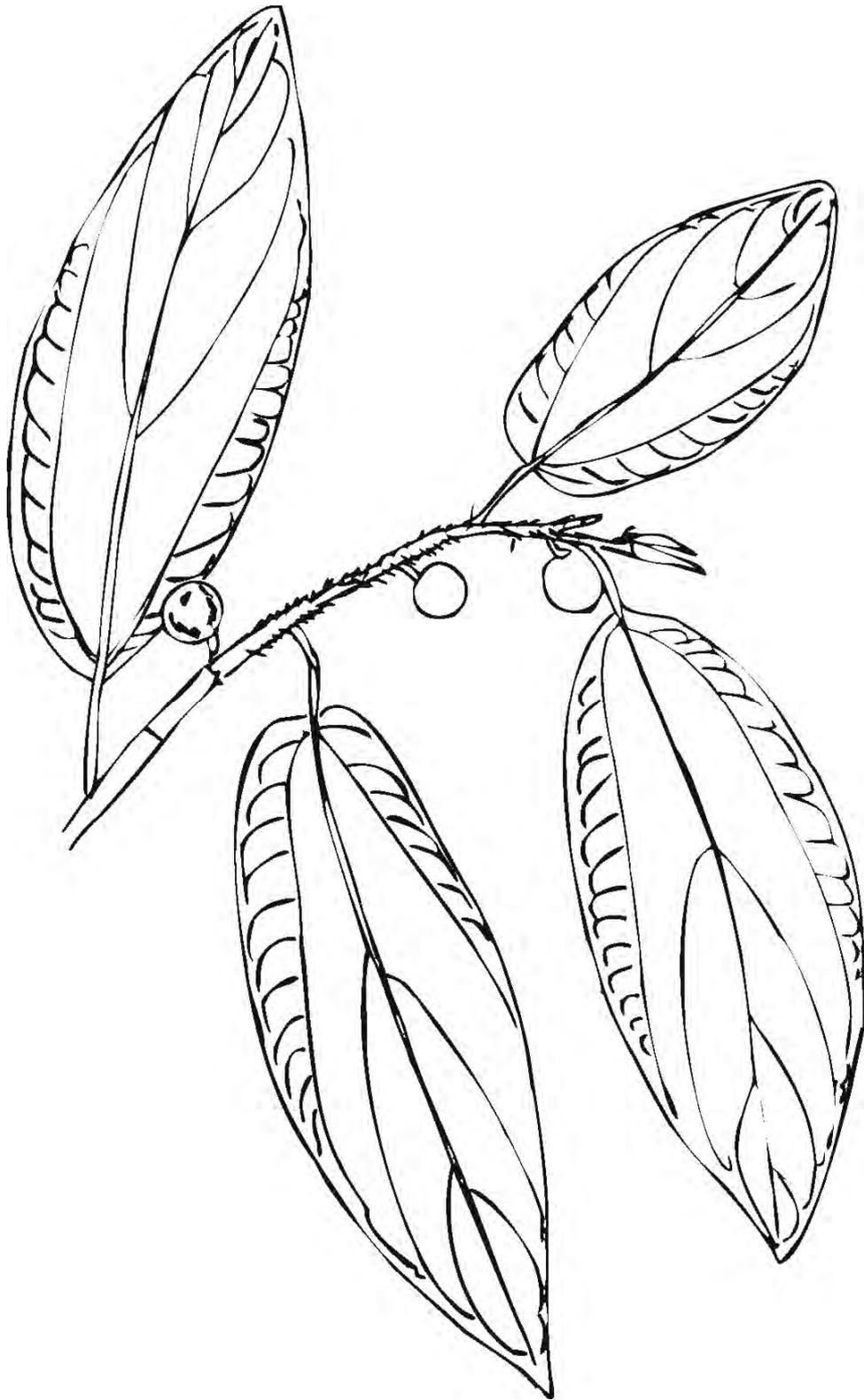


DESCRIPTION :

Tree up to 20 m tall. Leafy twigs 2-6 mm thick, minutely puberulous or on the scars of the stipules white- to yellowish-hirtellous, when dry (red-)brown, periderm flaking off. Leaves in spirals; lamina cordiform to ovate to elliptic, (3.5-)6.5-16(-35) × (2-)3.5-15 (-26) cm, chartaceous to subcoriaceous, apex short-acuminate to subacute, base subcordate to rounded, margin crenate-dent(icul)ate to coarsely crenate or subentire; upper surface scabrous to smooth, sparsely hirtellous, lower surface hirtellous to puberulous on the (main) veins or throughout; venation plane above, prominent beneath, lateral veins 2 × 5-7(-8), the main basal pair branched, reaching the margin near the middle of the lamina, tertiary venation scalariform; petiole (1-)1.5-9.5(-13) cm long, 1.5-2.5(-3) mm thick, sparsely minutely puberulous, the epidermis flaking off; stipules 0.5-2.5 cm long, whitish to yellowish (brown)-subsericeous, hirtellous or subhirsute. Figs solitary in the leaf axils or just below the leaves, sometimes on up to 10 cm long, branched, leafless branchlets on the older wood down to the trunk; peduncle 0.3-1 cm long, minutely puberulous; basal bracts ovate, ca. 2-3 mm long, puberulous; receptacle subglobose, often ± depressed with a concave upper part, when dry 1.5-2.5 cm in diameter, densely yellowish-puberulous; wall when dry ca. 1 mm thick; ostiole ca. 3mm in diameter, prominent. Staminate flowers short-pedicellate; subtending bracts ca. 2.5 mm long; perianth ca. 1.5 mm high; anthers ca. 1 mm long, not apiculate. Pistillate flowers: tepals (3-?)4 (-5?), connate, 1.5-2 mm long, ± lacinate; seed flowers sessile, style (including stigma) ca. 1.5 mm long; gall flowers up to 0.5 mm long pedicellate, style (including stigma) 0.51 mm long. Fruits ellipsoid, ca. 1 mm long; "gall fruits" obovoid to ellipsoid, ca. 1.5mm long.

Ficus torrentium H. Perrier (1928)

Sycomorus



DISTRIBUTION AND HABITAT :

In Madagascar, *F. torrentium* is the less common species belonging to the subgenus *Sycomorus*. Consequently its distribution is poorly known. However the species is widely distributed throughout the country, especially in the center and on the eastern part. It lives along streams from sea level to 1200m altitude.



DESCRIPTION :

Tree up to 20 m tall. Leafy twigs 3-5 mm thick, dark brown-hirsute, with minute whitish hairs among the long brown hairs, when dry brown, periderm + flaking off. Leaves in spirals; lamina oblong to elliptic to (sub)obovate, 5-1.8 x 3-7 cm, subcoriaceous to coriaceous, apex subacute to faintly short-acuminate, obtuse or rounded, base cordate to rounded, margin subentire; upper surface scabrous to scabridulous, sparsely white-hirsute (to puberulous), lower surface rather densely white-hirtellous to -pubescent; venation almost plane above, prominent beneath, lateral veins 2 x 4(-5), the (main) basal pair (faintly) branched, reaching the margin above the middle of the lamina, tertiary venation scalariform; petiole 1-3.5 cm long, ca. 2 mm thick, with long brown hairs, intermixed with minute white hairs; stipules 0.5-1 mm long, white-puberulous to -tomentellous and with long, ± appressed, brown hairs, caducous. Figs solitary in the leaf axils; peduncle 0.3-1 mm long, 1-2 mm thick, densely yellowish-puberulous; basal bracts ovate, 1.5-2 mm long; receptacle (depressed)globose, when fresh 3-4 cm, when dry 1.8-3 cm in diameter, densely yellowish-puberulous and with sparse longer, dark brown hairs, at maturity yellowish; wall when dry 2-4 mm thick; ostiole ca. 5 mm in diameter, prominent. Staminate flowers subsessile or up to 0.5 mm long pedicellate; subtending bracts ca. 3 mm long; perianth 2-2.5 mm high; anthers ca. 1.5 mm long, not apiculate. Pistil- late flowers: tepals 2-4, basally connate, 1.5-2.5 mm long, ± lacinate; seed flowers sessile, style (including stigma) ca. 1.5-2.5 mm long; gall flowers subsessile or up to 1 mm long pedicellate, style (including stigma) ca. 1-1.5 mm long. Fruits ovoid to ellipsoid, ca. 1.5 mm long; "gall fruits" (sub)obovoid, ca. 2 mm long, often slightly stipitate. Pedicels brown hairy.

Ficus polyphlebia Baker (1883)

Sycomorus



SYNONYMS :

F. albidula Baker

DISTRIBUTION AND HABITAT :

F. polyphlebia is widespread in Madagascar but seems to be common mostly in the eastern and northern parts. The species lives on rocks near or in flowing rivers and streams (rheophytic species) from sea level to 1200m altitude.

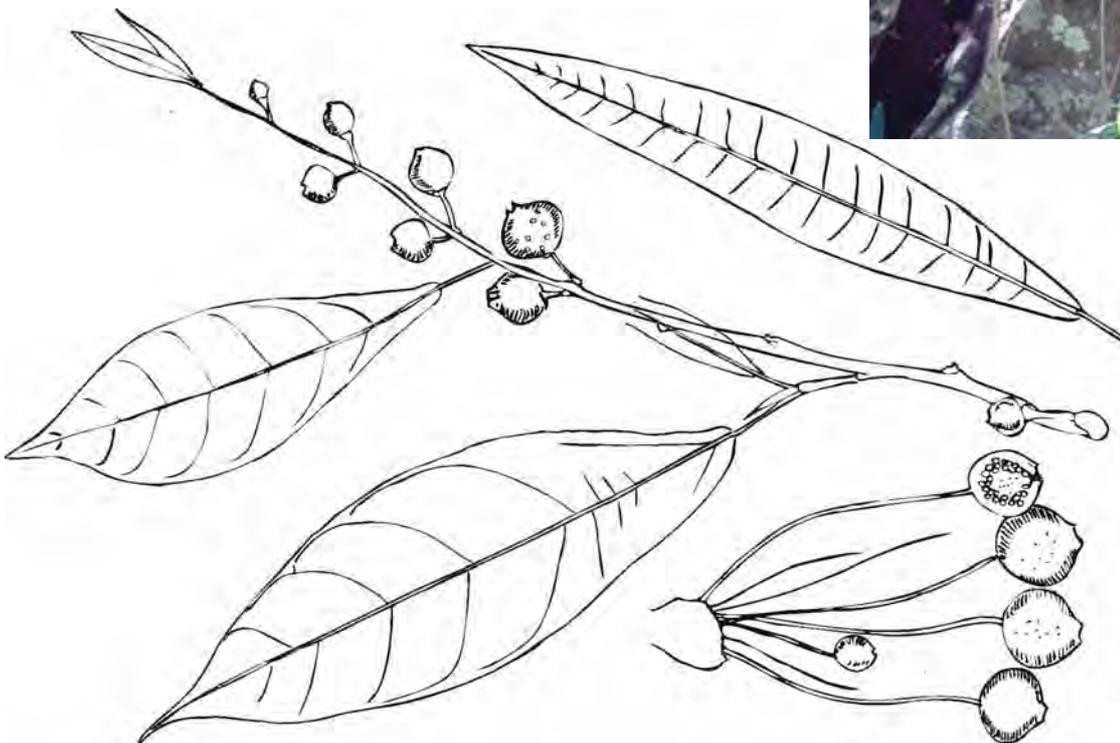


DESCRIPTION :

Shrub or tree up to 10(?) m tall. Leafy twigs 2-4 mm thick, white-hirtellous, white-strigillose or sparsely minutely puberulous, when dry brown, periderm persistent, in the upper part of the internodes a few large lenticels. Leaves in spirals; lamina elliptic to oblong to (sub)obovate, 2-12(-23) × 1-6(-12) cm, subcoriaceous, apex subacute or (faintly) short-acuminate, base cordate to rounded to obtuse, margin entire; upper surface smooth, sparsely (on the midrib more densely) hirtellous, lower surface sparsely to densely hirtellous (to puberulous) or subglabrous; venation plane above, ± prominent beneath, lateral veins 2 × (3-)5-8, the basal pair unbranched (to faintly branched), running almost parallel to the margin and reaching it in or below the middle of the lamina, tertiary venation partly scalariform; petiole 0.3-3(-3.5) cm long, 1-2 mm thick, white-hirtellous, epidermis flaking off; stipules 0.5-2 cm long, white-strigose to -hirtellous or subglabrous, caducous. Figs solitary in the axils or on up to 15 cm long, unbranched, leafless branchlets on the older wood, subsessile or up to 0.4 cm long pedunculate; basal bracts broadly ovate, 2-3 mm long; receptacle (depressed-)globose, when dry ca. 2-3 cm in diameter, yellowish- or white-puberulous to -hirtellous, at maturity red with white spots; wall when dry 1.5-2 mm thick; ostiole ca. 5 mm in diameter, prominent. Staminate flowers short-pedicellate; subtending bracts ca. 2 mm long; perianth ca. 1.5 mm high; anthers ca. 1 mm long, apiculate. Pistillate flowers: tepals 4 (or 5?), basally connate, 1-1.5 mm long, + lacinate or with filiform apices; seed flowers (sub)sessile, style (including stigma) ca. 1.5-2.5 mm long; gall flowers up to 1.5 mm long pedicellate, style (including stigma) ca. 0.5-1.5 mm long. Fruits ovoid, ca. 1.5 mm long; "gall fruits" obovoid to ellipsoid, 1.5-2(-4) mm long, often ± stipitate.

Ficus botryoides Baker (1887)

Sycomorus



SYNONYMS :

F. stenoclada Baker

F. oxystipula Baker

DISTRIBUTION AND HABITAT :

F. botryoides is a common species widespread all over Madagascar. The species inhabits forests and riverine forests from sea level up to 1600m alt.

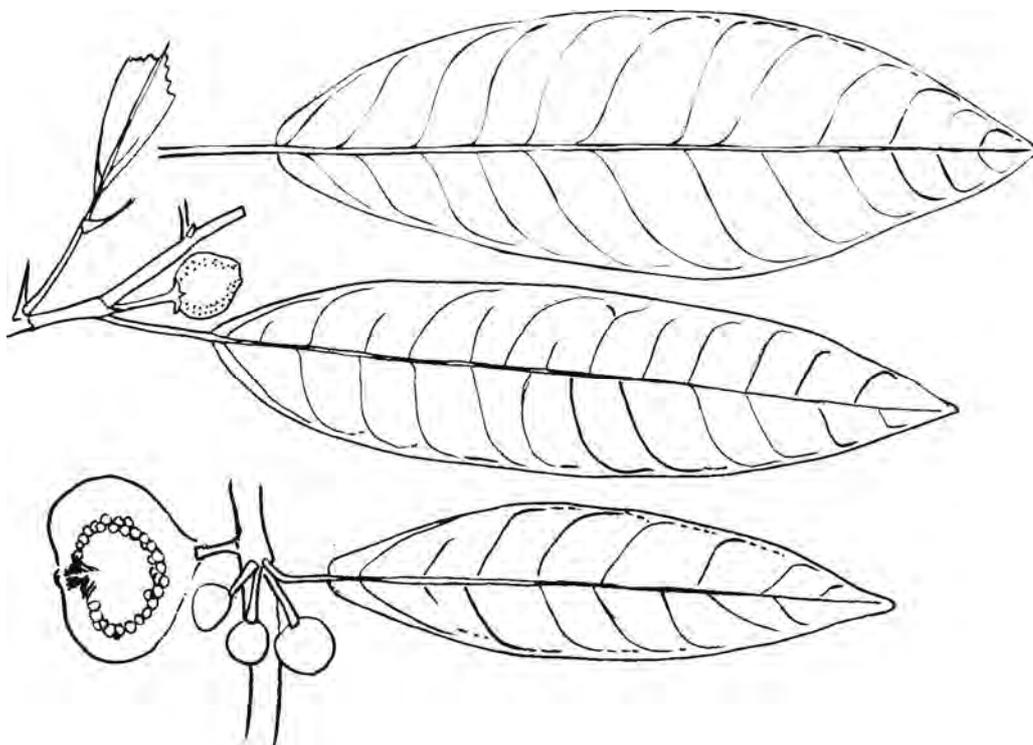


DESCRIPTION :

Tree up to 22 m tall. Leafy twigs 2-2.5 mm thick, minutely appressed-puberulous (or glabrous), when dry brown, periderm ± flaking off. Leaves in spirals; lamina lanceolate to oblong or sublinear, (3-)7-18(-24) x (0.5-)1.5-6(-9) cm, (sub)coriaceous, apex acuminate to acute, base acute to obtuse (to rounded), margin (sub)entire; upper surface glabrous, lower surface glabrous or very sparsely appressed-puberulous on the main veins; venation plane above, beneath the midrib prominent, the other veins plane to slightly prominent. Lateral veins 2 x (5-)7-10(-15), the basal pairs unbranched (or faintly branched), reaching the margin below the middle of the lamina, tertiary venation reticulate; petiole (0.7-)1-3 (-5) cm long, 1-1.5 mm thick, minutely appressed-puberulous (or glabrous), epidermis flaking off; stipules (0.7-)1-3 cm long, glabrous, ciliolate, or very sparsely appressed-puberulous, caducous. Figs on up to 5 cm long, branched branchlets (or in pairs or solitary on up to 30 cm long unbranched branchlets with long internodes and terminally with small leaves) from the base of the trunk up to the main branches; peduncle (0.7-)1-8 cm long, ca. 1.5 mm thick, minutely appressed-puberulous, epidermis flaking off; basal bracts ovate, ca. 4 mm long, minutely appressed-puberulous, inside glabrous and conspicuously veined; receptacle broadly ovoid to depressed-globose, when dry 1.2-2.5 cm in diameter, minutely appressed-puberulous, at maturity red(-brown); wall when dry 1-2 mm thick; ostiole ca. 4 mm in diameter, prominent, many ostiolar bracts visible. Staminate flowers sessile; subtending bracts ca. 2 mm long; perianth ca. 1.5 mm high; anthers ca. 1 mm long, not apiculate. Pistillate flowers: tepals 4, basally connate, ca. 1.5-2 mm long, with filiform apices; seed flowers sessile, style (including stigma) ca. 1.5 mm long; gall flowers up to 1 mm long pedicellate, style (including stigma) ca. 0.5- 1 mm long. Fruits ovoid to subglobose, ca. 1.2 mm long; "gall fruits" obovoid to ellipsoid, ca. 1.5-2.2 mm long.

Ficus trichoclada Baker (1887)

Sycomorus



SYNONYMS :

F. laurus Baillon

DISTRIBUTION AND HABITAT :

F. trichoclada is widespread in Madagascar but most of the collects have been done in the central and southern parts. The species can be found along streams and in adjacent riverine forests from sea level to 1500m in altitude.



DESCRIPTION :

Shrub or tree up to 15 m tall. Leafy twigs 1-4 mm thick, white-puberulous to tomentose, when dry brown, periderm flaking off. Leaves in spirals; lamina lanceolate to oblong (to subovate), (1.5-)5-15(-20) x (1-)1.5-5.5(-6.5) cm, coriaceous, apex subacute to obtuse, base acute to obtuse (or rounded), margin entire; upper surface smooth, sparsely puberulous on the lower part of the midrib, lower surface puberulous (or on the midrib to hirtellous) or subglabrous; venation plane above, only the midrib \pm prominent beneath, lateral veins 2 x (5-)8-13, basal pair \pm distinct, unbranched, reaching the margin (far) below the middle of the lamina, tertiary venation reticulate; petiole (0.5-)0.7-2(-2.5) cm long, 1-1.5 mm thick, puberulous to subtomentose, epidermis flaking off; stipules 0.5-1.2 (-2) cm long, (sometimes sparsely) subsericeous to appressed-puberulous (or pubescent), caducous. Figs solitary in the leaf axils, or just below the leaves, or (sometimes?) on up to ca. 15 cm long, unbranched or branched branchlets on the older wood, down to the trunk; peduncle 0.4-0.8 cm long, 2-2.5 mm thick, puberulous, epidermis flaking off; basal bracts ovate, 1.2-2 mm long, appressed-puberulous; receptacle depressed-globose to subpyriform, when dry 1.5-2.5 cm in diameter, sometimes \pm stipitate, puberulous to subtomentose; wall when dry 2-4 mm thick; ostiole 4-5 mm in diameter, prominent. Staminate flowers short-pedicellate; subtending bracts ca. 2 mm long; perianth ca. 1.5 mm high; anthers ca. 1 mm long, not apiculate. Pistillate flowers: tepals (3 or) 4, basally connate, ca. 1.5 mm long, \pm lacinate; seed flowers sessile, style (including stigma) ca. 2 mm long; gall flowers up to 2 mm long pedicellate, style (including stigma) ca. 1-1.5 mm long. Fruits ovoid to subglobose, ca. 1.5 mm long; "gall fruits" ellipsoid to obovoid to pyriform, 1.5-2 mm long, often \pm stipitate.

Ficus assimilis Baker (1890)

Oreosycea



SYNONYMS :

F. guatteriifolia Baker

DISTRIBUTION AND HABITAT :

The species is very localised and known by relatively few specimens, consequently its distribution is poorly known, but *F. assimilis* seems largely distributed in the west and north of Madagascar. It can be found in relatively dry forests at altitude up to 1000m.

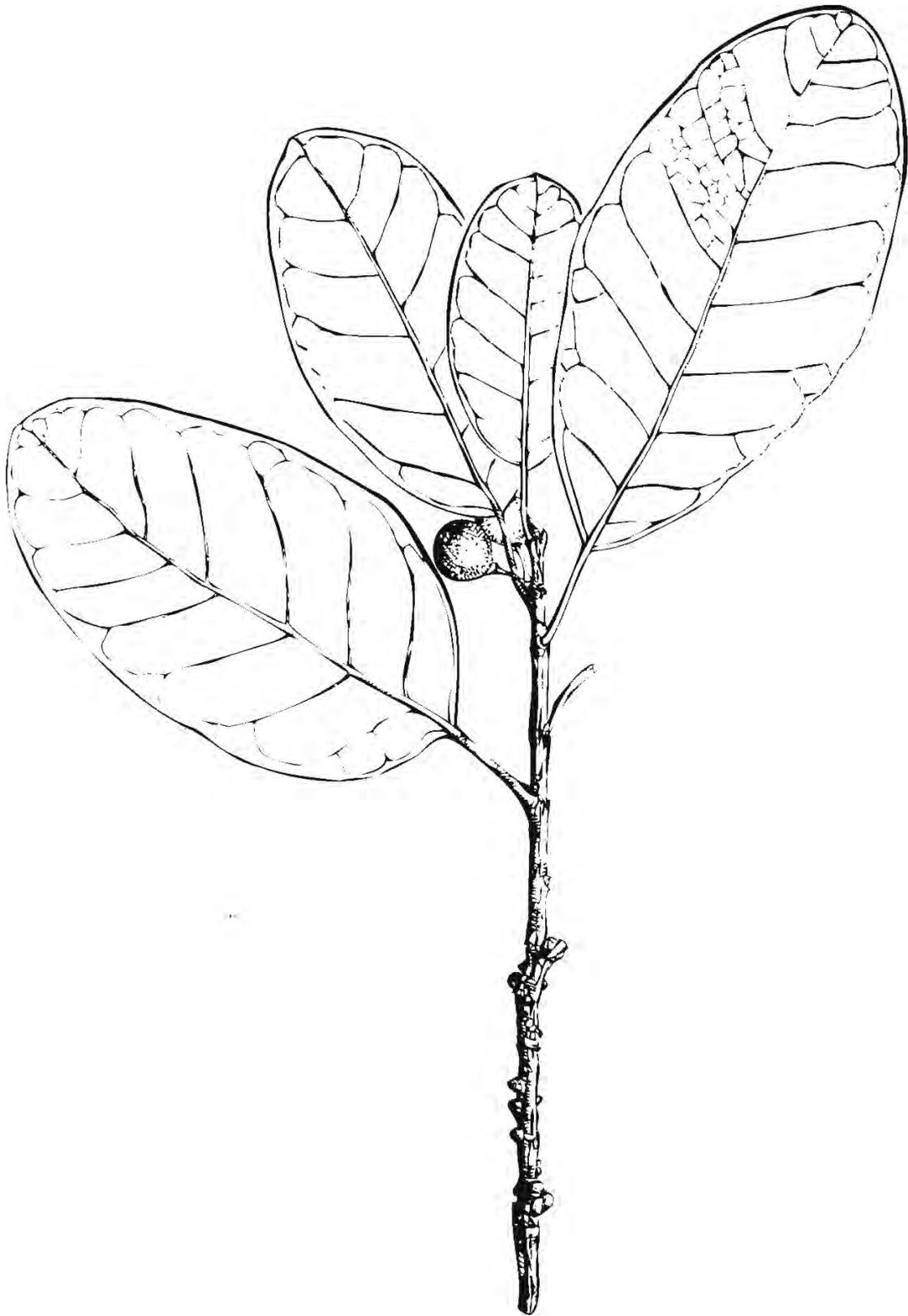


DESCRIPTION :

Tree up to 25 m tall. Leafy twigs 1.5-3(-6) mm thick, glabrous, minutely puberulous or sparsely to densely white-hirtellous to -pubescent, when dry often blackish or dark brown. Leaves in spirals; lamina subovate to oblong, ovate to elliptic or lanceolate, 5.5- 17 x 2.5-6 cm, (sub)coriaceous, apex (faintly) acuminate to acute, base rounded to subcordate or to subacute, margin (sub)entire; upper surface smooth to scabrous, glabrous or white-hirtellous to -pubescent on the midrib, lower surface glabrous or white-hirtellous to -subhirsute to -pubescent on the (main) veins; venation plane to slightly prominent above, ± prominent beneath; lateral veins 2 x 7-14, tertiary venation partly scalariform or reticulate; petiole 1-5 cm long, 0.5-2 mm thick, glabrous, hirtellous or pubescent; stipules 0.3-1.5 cm long, white-subsericeous or -appressed-puberulous, caducous. Figs in pairs in the leaf axils or just below the leaves; peduncle 0.3-1.3 cm long, 0.5- 1 mm thick, puberulous; basal bracts ovate, 1-1.5 mm long, puberulous; receptacle (sub) globose (to ellipsoid or obovoid), when dry (0.5-)1-1.5 cm in diameter, glabrous or minutely puberulous; wall when dry (1-)2-2.5 mm thick; ostiole 1-2.5 mm in diameter, plane or + prominent, 3-5 ostiolar bracts visible. Staminate flowers up to 1 mm long pedicellate; tepals 3-7, 0.7-1.2 mm long; filament to ca. 0.8 mm long, anther ca. 0.5-0.7 mm long. Pistillate flowers: tepals 3-8, ca. 1-2 mm long; seed flowers (sub)sessile, style (including stigmas) 1-3 mm long; gall flowers subsessile or up to 2 mm long pedicellate, style (including stigmas) ca. 0.5-1 mm long. Fruits ovoid to subglobose, ca. 1 mm long, subcarinate; "gall fruits" ellipsoid, ca. 1.2 mm long, subcarinate. Interfloral bracts 0.6-1 mm long; these bracts on the receptacle and on the pedicels, in specimens with more than 3-5 tepals the interfloral bracts not found on the receptacle nor on the pedicel but apparently moved in and included in the perianth.

Ficus ampana C.C. Berg 1986

Oreosycea



DISTRIBUTION AND HABITAT :

This species recently described is rare and localised but seems widespread in Madagascar (south west and east). Probably in forests, at altitude up to 1000m.

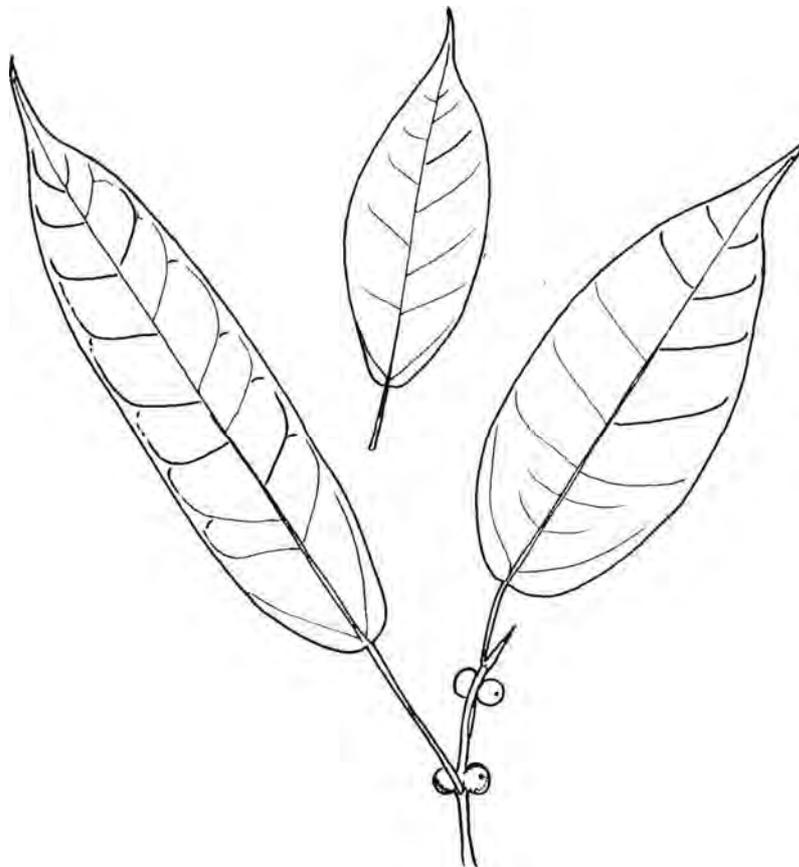


DESCRIPTION :

Shrub or treelet up to 4 m tall. Leafy twigs 1.5-4 mm thick, glabrous, when dry blackish. Leaves in spirals; lamina oblong to elliptic or to lanceolate, 3-7 x 1-4 cm, coriaceous, apex obtuse to rounded or very shortly and obtusely acuminate, base obtuse (to rounded), margin entire; both surfaces glabrous; venation nearly plane above, beneath the midrib prominent, the other veins (almost) plane; lateral veins 2 x 6-8, tertiary venation reticulate; petiole 0.5-1.2 cm long, ca. 1 mm thick, glabrous; stipules 0.3-0.5 cm long, glabrous or sparsely appressed-puberulous, caducous. Figs solitary (or in pairs) in the leaf axils; peduncle 0.3-0.6 cm long, 0.5-1 mm thick, minutely puberulous; basal bracts ovate, ca. 1 mm long, glabrous; receptacle globose, when dry ca. 0.8 cm in diameter, glabrous; ostiole ca. 1.5 mm in diameter, slightly prominent, 3 (or 4) ostiolar bracts visible. Staminate flowers up to ca. 1 mm long pedicellate; tepals 4, free, ca. 0.7-1.2 mm long; anther ca. 0.5 mm long. Pistillate flowers: tepals 4 or 5, free, 1-1.8 mm long; seed flowers sessile, style (including stigmas) ca. 1.5-3 mm long; gall flowers subsessile or up to 2 mm long pedicellate; style (including stigmas) ca. 0.8-1.5 mm long. Fruits ovoid to ellipsoid to subglobose, ca. 1 mm long; "gall fruits" ellipsoid to obovoid, ca. 1 mm long. Interfloral bracts few, 1.5-2 mm long, sometimes on the pedicel of the gall flower (or sometimes lacking?)..

Ficus madagascariensis C.C. Berg 1986

Urostigma



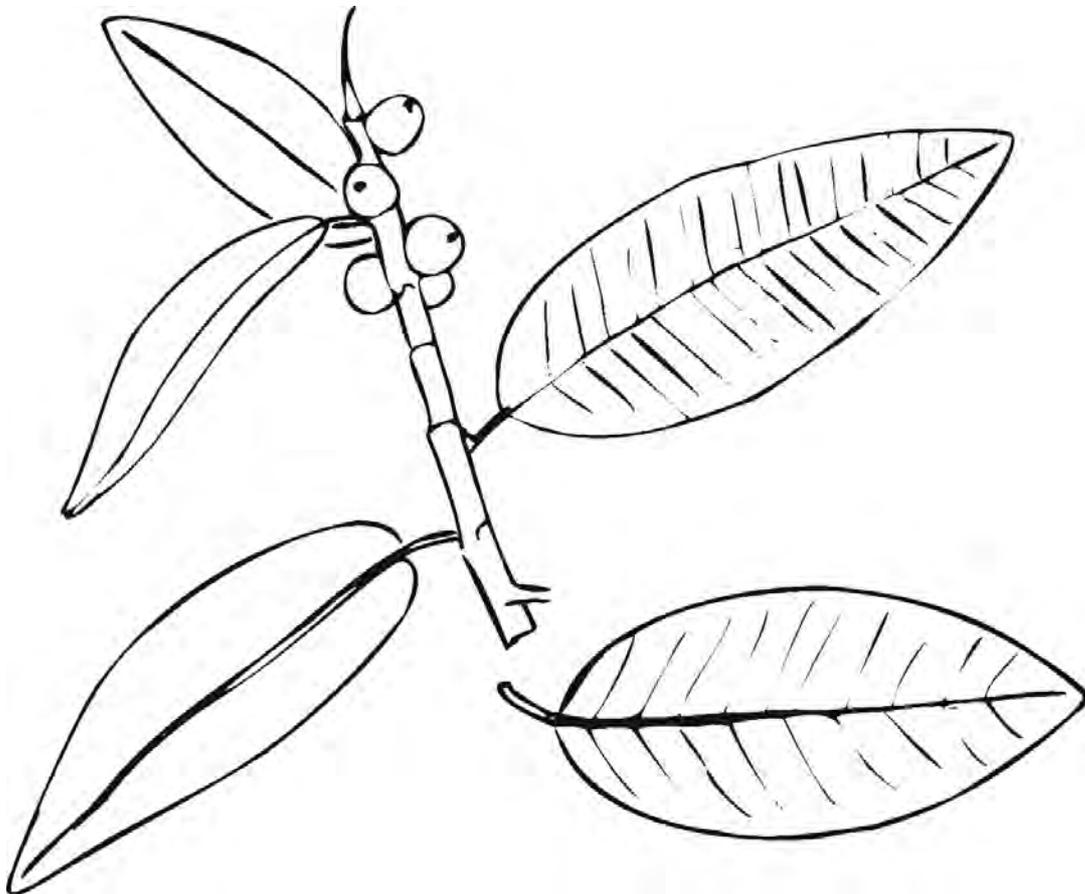
DISTRIBUTION AND HABITAT :

The species is mostly restricted to the south west of Madagascar, however one sample has been found near Toamasina . This recently described species has been confused with *F. marmorata* and is illustrated under this name in *Flora Madagascar* (1952). *F. madagascariensis* is found in dry forests and xerophytic bush at low altitude.



DESCRIPTION :

Shrub or treelet up to 4 m tall. Leafy twigs 1.5-4 mm thick, brownish- (or partly whitish-) hispidulous to -hispid with hairs the bases of which are \pm strongly swollen (or hirtellous or sparsely hispidulous), when dry brown to greyish, periderm persistent. Leaves (in spirals to) distichous, mostly subopposite; lamina mostly subobovate (to obovate) oblong sometimes oblong to elliptic (or to lanceolate), (3.5-)10-17(-26) x (1.5)4.5-7.5 cm, equal-sided, chartaceous, apex (sub)acuminate, base acute (to rounded), margin dent(icul)ate, sometimes pinnately lobed to parted; upper surface scabrous, sparsely hirtellous to hispidulous, lower surface scabridulous (to scabrous), densely hirtellous (or sparsely hispidulous); venation almost plane above, prominent beneath, lateral veins 2 x (4-)6-10(-18), basal pairs unbranched, reaching the margin below the middle of the lamina, tertiary venation tending to scalariform; glandular spots (for the greater part) on the base of the midrib beneath, conspicuous; petiole 0.4-1.5 or 1-7 cm long, 1-2 mm thick, hispidulous; stipules 0.3-1 cm long, strig(ill)ose, or minutely puberulous, caducous. Figs solitary or in pairs in the leaf axils or just below the leaves or several together on up to 2 cm long spur-like branchlets (the development of which already initiated in the leaf axils) on the older wood; peduncle 0.2-1 cm long, 0.5-1 mm thick; peduncular bracts (2 or) 3, ovate, 0.5-1 mm long or 2 or 3 bracts subtending the receptacle and then up to 3 mm long; receptacle globose, when dry 0.5-1 cm in diameter, hispidulous, at maturity red(dish) or red-brown; ostiole 1.5-3 mm in diameter, \pm prominent. tamine flowers sessile or up to 0.5 mm long pedicellate; tepals 4-6, spatulate to oblanceolate to linear, 1-2 mm long; filament up to 1 mm long, anther 0.4-0.5 mm long, often oblique. Pistillate flowers: tepals 4-6, oblanceolate to spatulate to linear, 1-3 mm long; seed flowers sessile or up to 2.5 mm long pedicellate, style (including stigma) ca. 1- 1.5 mm long; gall flowers sessile or up to 1.5 mm long pedicellate, style (including stigma) ca. 0.3-0.8 mm long. Fruits ovoid to ellipsoid, ca. 1-1.2 mm long; "gall fruits" ellipsoid to obovoid, ca. 1.5-2.2 mm long, (usually) stipitate.



SYNONYMS

F. pyrifolia Lam. var. *ambongoensis* H. Perrier

F. pyrifolia Lam. var. *meridionalis* H. Perrier

DISTRIBUTION AND HABITAT :

The species is widespread in Madagascar but is mostly abundant in south and south-west. *F. menabeensis* can be found in dry areas, savannas, dunes, in rocky places, on cliffs but also on riversides at altitude up to 1200m.



DESCRIPTION :

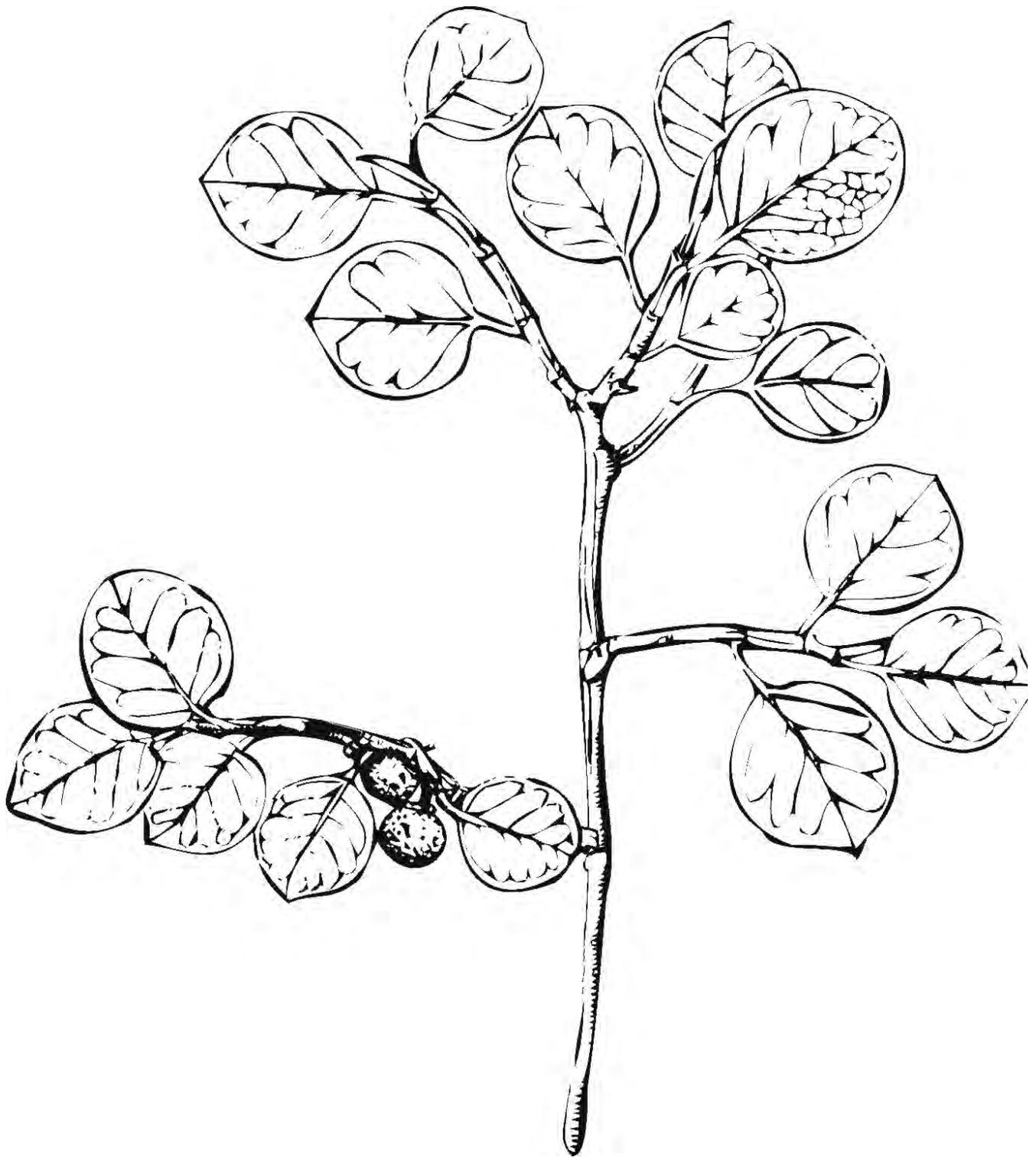
Tree up to 20 m tall, shrub, or epilithic scrambler, (often?) with aerial roots on the branches. Leafy twigs 2-5 mm thick, white-puberulous (or glabrous), often also with dark brown, pluricellular hairs, when dry brownish to greyish (or purplish), periderm of older parts mostly flaking off. Leaves in spirals; lamina oblong to lanceolate or to elliptic, sometimes sublinear or suborbicular, (1-)3-20 x (0.5-)1.5-5.5 cm, coriaceous, apex obtuse, acute or apiculate, base acute to rounded, margin entire; upper surface glabrous or sparsely puberulous on the lower half of the lamina or only on the midrib, lower surface densely puberulous to hirtellous to tomentellous to subglabrous, often also dark brown, pluricellular hairs present; venation slightly prominent above, prominent beneath, lateral veins 2 x (3-)12-22, especially in relatively narrow leaves connected by a slightly arcuate submarginal vein, the basal pair mostly distinct (especially in relatively narrow leaves), tertiary venation reticulate; petiole 0.3-2 cm long, 1-2 mm thick, white-puberulous to -tomentellous to subglabrous; stipules 0.5-1.5(-2.5) cm long, puberulous, caducous.

Figs in pairs in the leaf axils, sessile; basal bracts broadly ovate, 2.5-3 mm long, coriaceous, often subcarinate, puberulous, tomentellous, or subglabrous; receptacle globose, when dry 0.5-0.8 cm in diameter, sparsely to densely white-puberulous and/or with dark brown, pluricellular hairs, at maturity reddish; wall when dry ca. 0.5 mm thick; ostiole ca. 1-1.5 mm in diameter, plane, 3 ostiolar bracts visible.

Staminate flowers disperse, up to 0.5 mm long pedicellate; tepals 3 or 4, free, 0.6-0.8 mm long; anther ca. 0.4 mm long. Staminate flowers: tepals 3 or 4, free, 0.8-1 mm long; seed flowers sessile, style (including stigma) ca. 0.7-1 mm long; gall flowers up to 1 mm long pedicellate or sessile, style (including stigma) ca. 0.5-0.7 mm long. Fruits ovoid to ellipsoid, ca. 1-1.2 mm long, pale yellow; " gall fruits " ellipsoid to ovoid, ca. 1 mm long, mostly short-stipitate. Interfloral bracts up to 1.2 mm long.

Ficus humbertii C.C. Berg (1986)

Conosycea



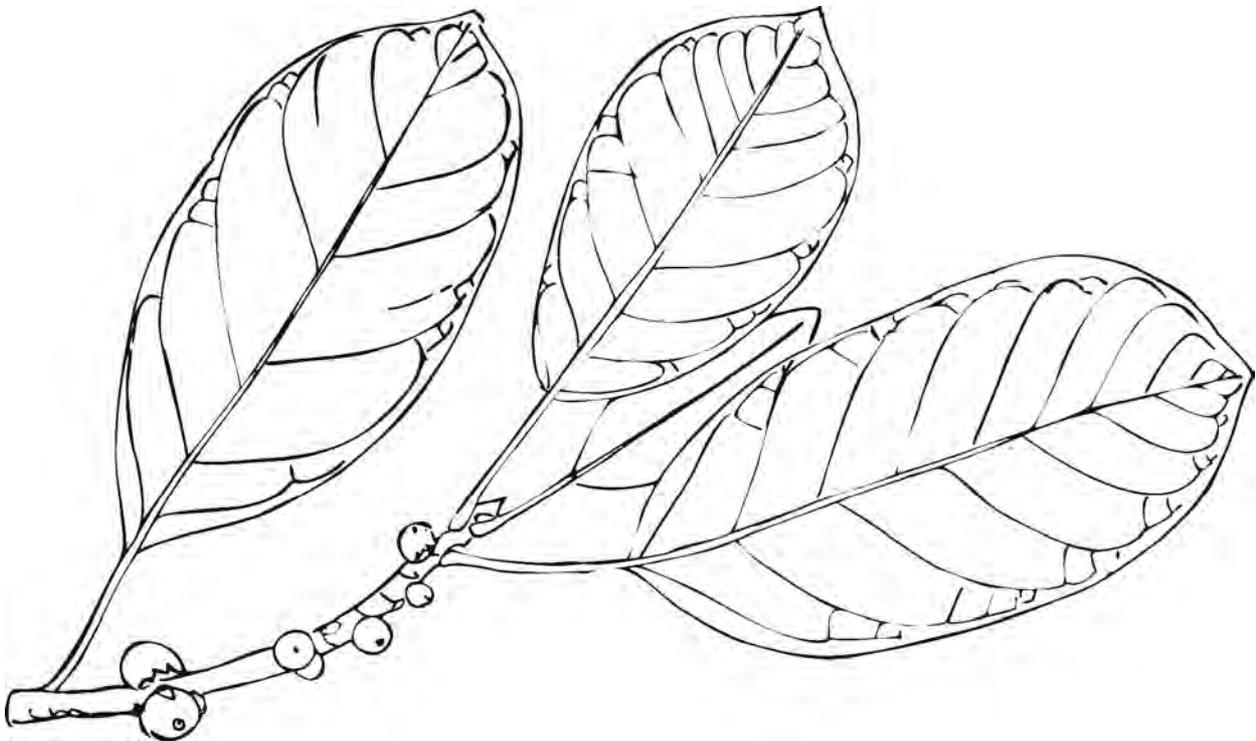
DISTRIBUTION AND HABITAT :

This recently described species is only known from the vicinity of Lake Tsimanampetsotsa in south west Madagascar.



DESCRIPTION :

Shrub up to 2 m tall. Leafy twigs 1.5-2 mm thick, white-puberulous, when dry greyish to dark (red-)brown to blackish, periderm persistent or slightly flaking off. Leaves in spirals; lamina suborbicular to elliptic, 0.5-2 x 0.5-1.5 cm, coriaceous, apex rounded, obtuse, or apiculate, base rounded to truncate, margin entire; upper surface sparsely puberulous in the lower half of the lamina, lower surface (sparsely) minutely puberulous; venation plane above, only the midrib slightly prominent beneath, lateral veins 2 x 3-5, the basal pair slightly distinct, the middle ones often furcate far from the margin, tertiary venation reticulate; petiole 0.1-0.5 cm long, 0.5-1 mm thick, puberulous; stipules 0.2-0.5 cm long, puberulous, caducous. Figs in pairs (or solitary) in the leaf axils; peduncle 0.1-0.2 cm long, 0.5 mm thick, minutely puberulous; basal bracts ovate, ca. 1 mm long, puberulous; receptacle globose, when dry 0.4-0.7 cm in diameter, minutely puberulous; wall when dry ca. 1 mm thick; ostiole ca. 1 mm in diameter, slightly prominent to plane, 4 or 5 ostiolar bracts visible, these bracts small and the lower part thickened. Staminate flowers near the ostiole, sessile; tepals 3, free, ca. 1 mm long; anther ca. 0.5 mm long. Pistillate flowers: tepals 4, free, 1-1.2 mm long; seed flowers sessile, style (including stigma) ca. 1.5 mm long; gall flowers up to 0.5 mm long pedicellate, style (including stigma) 0.8-1.2 mm long. Fruits ovoid, ca. 1.2 mm long, pale yellow with a dark spot below the base of the style; "gall fruits" ellipsoid to obovoid, ca. 1.2-1.5 mm long. Interfloral bracts ca. 1-1.5 mm long.



SYNONYMS

F. nautorum Baker - *F. baronii* Baker - *F. trichosphaera* Baker - *F. apodocephalia* Baker - *F. pachyclada* Baker - *F. vestito-bracteata* Baker - *F. akaie* De Wild. - *F. arimensis* Britton - *F. cabrae* Warb. - *F. holstii* Warb. - *F. incognita* De Wild. - *F. lanigera* Warb. - *F. nekbudu* Warb. - *F. neumanii* Kunth & Bouché - *F. pseudo-vogelii* A. Chev. - *F. quebeba* Ficalho - *F. senegalensis* Miq. - *F. subcalcarata* Warb. - *F. utilis* Sim - *F. verrucocarpa* Warb. - *F. vogelii* (Miq.) Miq. - *F. vogelii* var. *pubicarpa* Mildbr. & Burret.

DISTRIBUTION AND HABITAT :

The species is widespread in Madagascar (and in continental Africa) but seems less common in the west. It can be found in forests at altitude up to 1400m and is often planted in village near temples .

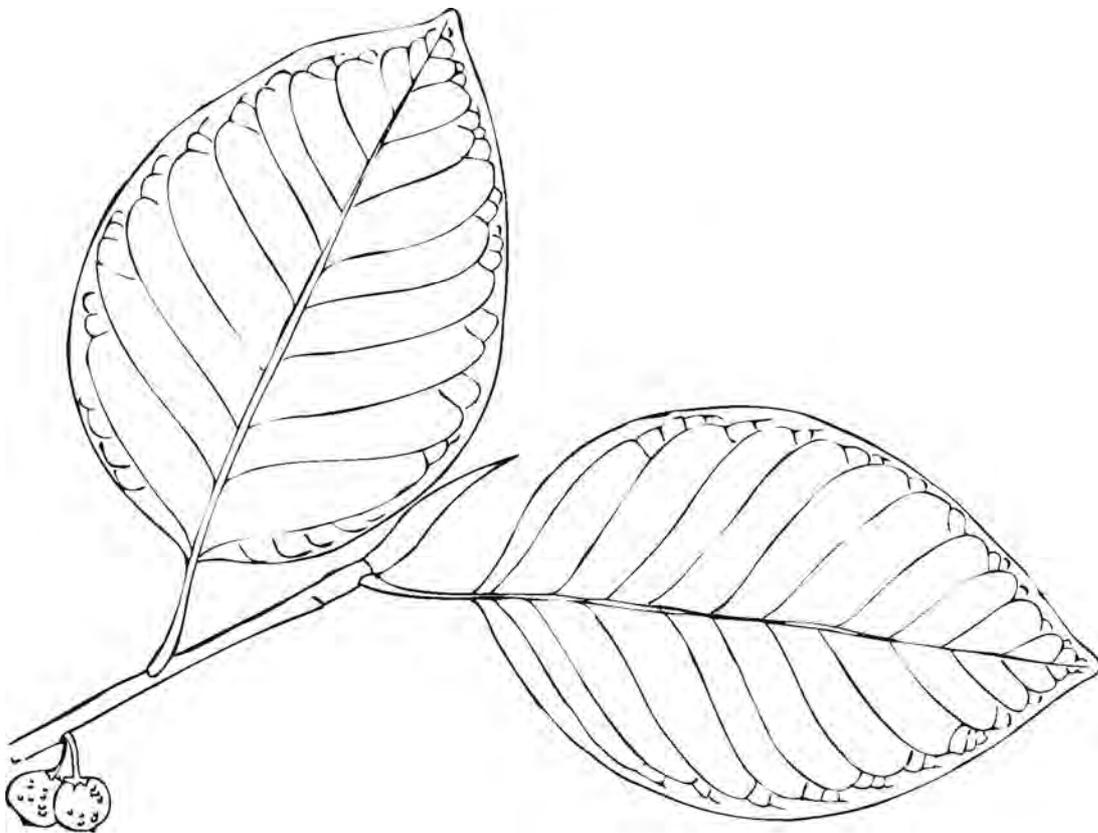


DESCRIPTION :

Tree up to 20 m tall. Leafy twigs 5-12(-20) mm thick, puberulous, white-, to yellow- tomentose to -subhirsute or glabrous, when dry brown, periderm flaking off. Leaves in spirals; lamina elliptic to oblong to (sub)obovate, sometimes (ob)lanceolate, 7-25(-45) × 3- 12(-20) cm, coriaceous, apex short-acuminate, base obtuse to acute or to subcordate, margin entire; upper surface glabrous or minutely puberulous on the midrib, lower surface sparsely (to densely) puberulous to hirtellous to (sub)tomentose, on the main veins to subhirsute or entirely glabrous; venation almost plane above, ± prominent beneath, lateral veins 2 × (4-)6-8(-10), basal pair not distinct, tertiary venation reticulate to partly scalariform; petiole (1-)1.5-13(-17) cm long, 2-4(-8) mm thick, glabrous or white-pilose, epidermis flaking off; stipules 0.5-2.5 cm (on flush up to 12 cm) long, sparsely to densely white- to yellowish-puberulous to -subsericeous, caducous. Figs up to 4 together in the leaf axils or (just) below the leaves, sessile; basal bracts broadly ovate to semicircular, 3-6 mm long, puberulous to strigose; receptacle when dry 0.8-1.7 cm in diameter, puberulous, white-pubescent or (partly) yellowish-villous, at maturity yellow to orange to brownish; wall when dry 1-2 mm thick; ostiole plane. Staminate flowers (sub)sessile; tepals 3, free or basally connate, 1-1.2 mm long; anther ca. 0.7 mm long. Pistillate flowers: tepals 3, basally connate, 1-1.5 mm long; seed flowers sessile, style (including stigma) ca. 0.8-1.3 mm long; gall flowers subsessile or up to 1.5 mm long pedicellate, style (including stigma) ca. 0.5-1 mm long. Fruits ellipsoid to subglobose, ca. 1 mm long, bicolorous; "gall fruits" oblongoid to ellipsoid, 1.2-1.5 mm long. Interfloral bracts 1-1.5 mm long.

Ficus trichopoda Baker (1883)

Galoglychia



SYNONYMS

F. buddensis Hutch. – *F. congensis* Engl. – *F. congensis* var. *mollis* Hutch. – *F. hippopotami* Gerstner – *F. zuvalensis* Sim.

DISTRIBUTION AND HABITAT :

The species is widespread in Madagascar but localised. It can be found in marshy places, in humid forests, along ponds at altitude up to 1100m.

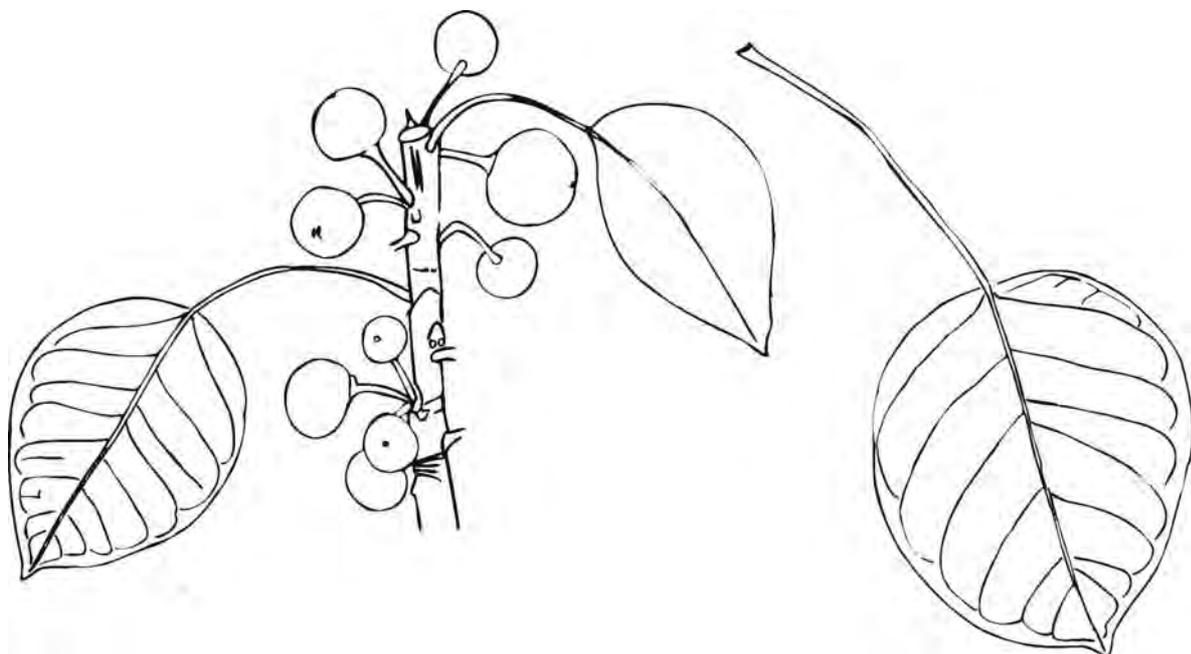


DESCRIPTION :

Tree up to 20 m tall. Leafy twigs 5-12(-20) mm thick, puberulous, white-, to yellow- tomentose to -subhirsute or glabrous, when dry brown, periderm flaking off. Leaves in spirals; lamina elliptic to oblong to (sub)obovate, sometimes (ob)lanceolate, 7-25(-45) × 3- 12(-20) cm, coriaceous, apex short-acuminate, base obtuse to acute or to subcordate, margin entire; upper surface glabrous or minutely puberulous on the midrib, lower surface sparsely (to densely) puberulous to hirtellous to (sub)tomentose, on the main veins to subhirsute or entirely glabrous; venation almost plane above, ± prominent beneath, lateral veins 2 × (4-)6-8(-10), basal pair not distinct, tertiary venation reticulate to partly scalariform; petiole (1-)1.5-13(-17) cm long, 2-4(-8) mm thick, glabrous or white-pilose, epidermis flaking off; stipules 0.5-2.5 cm (on flush up to 12 cm) long, sparsely to densely white- to yellowish-puberulous to -subsericeous, caducous. Figs up to 4 together in the leaf axils or (just) below the leaves, sessile; basal bracts broadly ovate to semicircular, 3-6 mm long, puberulous to strigose; receptacle when dry 0.8-1.7 cm in diameter, puberulous, white-pubescent or (partly) yellowish-villous, at maturity yellow to orange to brownish; wall when dry 1-2 mm thick; ostiole plane. Staminate flowers (sub)sessile; tepals 3, free or basally connate, 1-1.2 mm long; anther ca. 0.7 mm long. Pistillate flowers: tepals 3, basally connate, 1-1.5 mm long; seed flowers sessile, style (including stigma) ca. 0.8-1.3 mm long; gall flowers subsessile or up to 1.5 mm long pedicellate, style (including stigma) ca. 0.5-1 mm long. Fruits ellipsoid to subglobose, ca. 1 mm long, bicolorous; "gall fruits" oblongoid to ellipsoid, 1.2-1.5 mm long. Interfloral bracts 1-1.5 mm long.

Ficus grevei Baillon (1895)

Galoglychia



DISTRIBUTION AND HABITAT :

The species is widespread in Madagascar but mostly found in the south-west. It can be found in dry forest near the water, at low altitude up to 200m.



DESCRIPTION :

Tree up to 20 (or more) m tall. Leafy twigs 2.5-6 mm thick, glabrous or minutely puberulous, when dry (dark) brown, periderm persistent. Leaves in spirals; lamina elliptic to ovate to subcordiform (or oblong to subovate), 6-16(-25) x 4.5-13.5(-16.5) cm, coriaceous, apex obtusely short-acuminate, base cordate to rounded, margin entire; upper surface glabrous or puberulous on the midrib, lower surface (sparsely) puberulous to hirtellous on the (main) veins, reticulum usually glabrous; venation above almost plane, beneath the midrib \pm prominent, the other veins slightly prominent to plane, lateral veins 2 x 6-9, the basal pair slightly distinct, tertiary venation reticulate; petiole 2.5-8 cm long, 2-2.5(-3) mm thick, glabrous or sparsely puberulous to hirtellous, epidermis persistent; stipules (0.5-)1-6 cm long, glabrous or minutely puberulous, caducous. Figs in pairs or solitary in the leaf axils or just below the leaves; peduncle 1-2 cm long, 1.5-2 mm thick, puberulous to hirtellous, sometimes cupula-like broadened at the apex; basal bracts caducous; receptacle (sub)globose, when dry (0.8-)1-1.7 cm in diameter, puberulous to hirtellous; wall when dry 0.5-1 mm thick; ostiole plane to slightly prominent. Staminate flowers subsessile or up to 0.6 mm long pedicellate; tepals 3, free, ca. 1 mm long; filament short, anther ca. 0.6 mm long, connective thick. Pistillate flowers tepals 3, free, 1.5-1.8 mm long, styles subterminally attached; seed flowers sessile, style (including stigma) ca. 1.5-2 mm long; gall flowers subsessile or up to 1.5 mm long pedicellate, style (including stigma) 0.5-1 mm long. Fruits ovoid to ellipsoid to subglobose, ca. 1-1.2 mm long, bicolourous; "gall fruits" obovoid to ellipsoid, ca. 2 mm long, \pm distinctly stipitate. Interfloral bracts up to ca. 1.5 mm long.

Ficus rubra Vahl (1805)

Galoglychia



SYNONYMS

F. pyrifolia Lamarck
F. avi-avi Blume
F. consimilis Baker
F. pyrifolia Lam. var. *consimilis* (Baker)
F. cinerea Cordem.

DISTRIBUTION AND HABITAT :

The species is more frequent in the north (Diego Suarez) but seems to be widespread in Madagascar. It can be found in rocky places and in forests at altitude up to 1000m.



DESCRIPTION :

Tree up to 8 m tall. Leafy twigs 3-5 mm thick, glabrous or sometimes sparsely and minutely puberulous, when dry reddish-brown, periderm persistent. Leaves in spirals; lamina ovate to subovate to (broadly) elliptic, 2.5-10(-16) x 1.5-6.5(-8) cm, (sub)coriaceous, apex obtuse to subacute or to short-acuminate, base rounded to truncate to acute or to emarginate, margin entire; both surfaces glabrous; midrib prominent, the other veins plane to slightly prominent; lateral veins 2 x 6-10(-12), basal pair not or hardly distinct, tertiary venation reticulate; petiole 0.7-4.5(-7) cm long, ca. 2 mm thick, glabrous; stipules 0.3-1.5 cm (on flush up to 10 cm) long, glabrous, caducous. Figs in pairs in the leaf axils or just below the leaves; peduncle 0.2-0.8 cm long, minutely puberulous or glabrous; basal bracts broadly ovate to semicircular, ca. 2 mm long, glabrous or minutely puberulous; receptacle globose (to ellipsoid), when dry 0.6-1 cm in diameter, glabrous or minutely puberulous, at maturity (dark) red to (dark) purple; wall when dry 0.5-1 mm thick; ostiole plane to prominent. Staminate flowers up to 0.8 mm long pedicellate; tepals 3, (almost) free, ca. 1-1.3 mm long; anther ca. 0.7-0.8 mm long; pistillate flowers: tepals 3, (almost) free, ca. 1-1.5 mm long; seed flowers sessile or up to 0.5 mm long pedicellate, style (including stigma) ca. 0.5-0.8 mm long; gall flowers subsessile or up to 1.5 mm long pedicellate, style (including stigma) ca. 0.3-0.5 mm long. Fruits ovoid to ellipsoid, 0.8-1 mm long, (almost) unicolourous; "gall fruits" ellipsoid to subglobose, ca. 1 mm long. Interfloral bracts ca. 1.5 mm long.



DISTRIBUTION AND HABITAT :

The species is localised in the south and the south west of Madagascar, where it grows in forest at low altitude up to 300m.



DESCRIPTION :

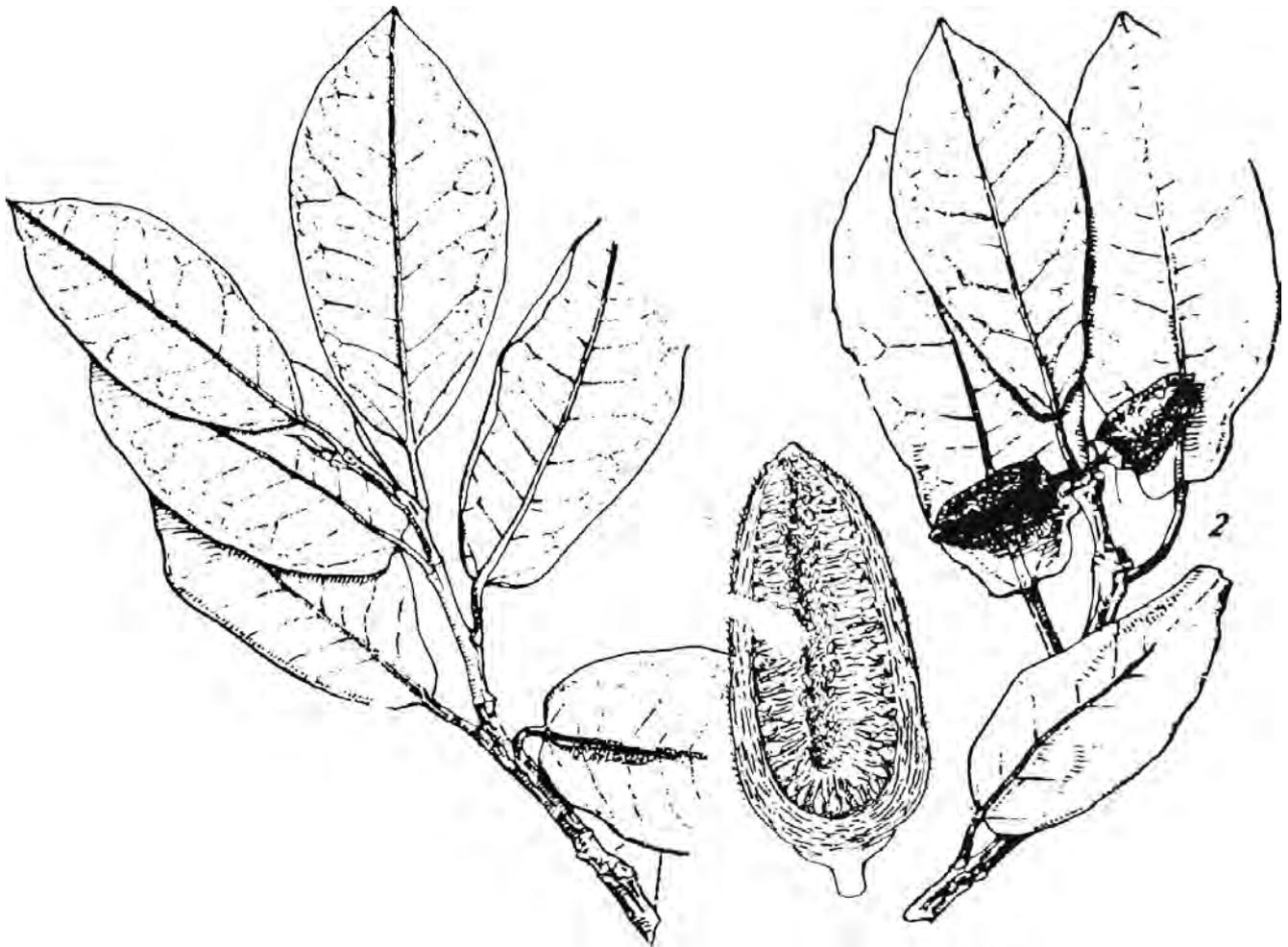
Tree up to 15 m tall. Leafy twigs 1.5-3 mm thick, (rather) densely puberulous, when dry brown to blackish, periderm persistent. Leaves in spirals; lamina elliptic to lanceolate or ovate to subovate, sometimes subovate, 2-8 x 1.2-4.5 cm, (sub)coriaceous, apex acuminate, base rounded to subcordate, margin entire; both surfaces glabrous; venation almost plane above, beneath only the midrib prominent, lateral veins 2 x (5-)7-10, basal pair hardly distinct, tertiary venation reticulate; petiole (0.8-)1.5-6 cm long, 0.5-1.5 mm thick, glabrous, epidermis persistent; stipules 0.5-1.5 cm (on flush up to 4 cm) long, (sub)glabrous, caducous.

Figs in pairs in the leaf axils or just below the leaves; peduncle 0.2-0.5 cm long, 0.5- 1 mm thick, puberulous; basal bracts semicircular, ca. 2.5 mm long, sparsely puberulous, persistent; receptacle globose, when dry 0.5-0.8 cm in diameter, white-hirtellous to -puberulous, sometimes pusticulate; wall when dry 0.5 mm thick; ostiole plane.

Staminate flowers up to 0.7 mm long pedicellate; tepals 3, free, ca. 1 mm long; anther ca. 0.8 mm long. Pistillate flowers: tepals 3, free, ca. 1 mm long; seed flowers sessile or up to 0.4 mm long pedicellate, style (including stigma) ca. 1.2-1.5 mm long; gall flowers up to 1.2 mm long pedicellate, style (including stigma) ca. 0.8-1 mm long. Fruits ellipsoid to ovoid, ca. 1.5 mm long, bicolourous, (the endocarp body released); "gall fruits" ovate to ellipsoid to obovoid, ca. 1-1.2 mm long, bicolourous. Interfloral bracts a few, 0.5-0.7 mm long.

Ficus bivalvata H. Perrier

Galoglychia



DISTRIBUTION AND HABITAT :

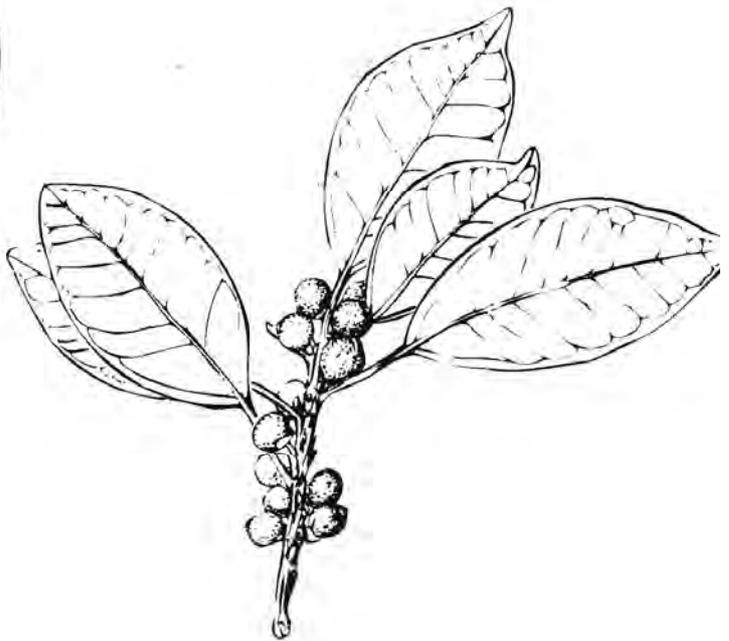
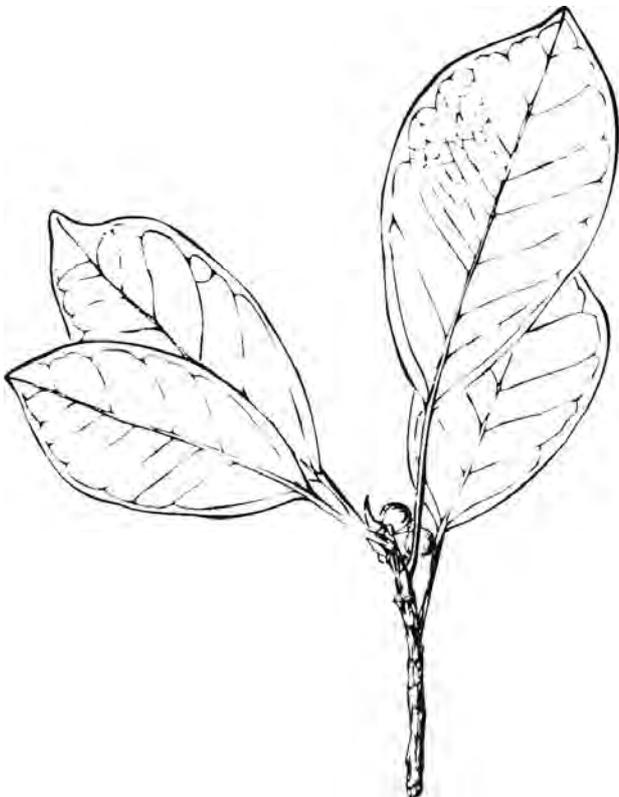
An extremely rare species collected only twice and always in the northern central part of Madagascar (Antsiranana mountain and Marojejy NP). The species seems to be localised in mountains at altitude up to 1700m and can be found in forests.



DESCRIPTION :

Tree up to 30 m tall. Leafy twigs 2.5-4 mm thick, minutely puberulous, when dry brown, periderm persistent. Leaves in spirals; lamina oblong to elliptic, 4-9.5 x 2.5-5 cm, coriaceous, apex short-acuminate, base rounded to truncate to subcordate, margin entire; both surfaces glabrous; venation plane above, ± prominent beneath, lateral veins 2 x 10-12, basal pair not distinct, tertiary venation reticulate; petiole 0.5-1.6 cm long, ca. 2 mm thick, minutely puberulous; stipules 0.5-1 cm long, puberulous, caducous. Figs in pairs in the leaf axils, subsessile or up to 0.4 cm long pedunculate; basal bracts caducous, leaving a discoid persistent part; receptacle ovoid to ellipsoid, when dry ca. 2-2.5 x 1-1.2 cm, puberulous to strigillose, pusticulate; wall when dry ca. 2 mm thick; ostiole prominent. Staminate flowers up to 1 mm long pedicellate; tepals 3, free, ca. 1 mm long; anther ca. 1 mm long. Pistillate flowers: tepals 4, free, 1-1.8 mm long; seed flowers sessile, style (including stigma) ca. 1.5-2 mm long; gall flowers up to 2 mm long pedicellate, style (including stigma) ca. 0.5-0.7 mm long. Fruits ovoid to ellipsoid, ca. 1.5 mm long, (almost) unicolourous, (the endocarp body possibly released); "gall fruits" ellipsoid ca. 1.5 mm long. Interfloral bracts lanceolate to linear, 1.5-2 mm long.

Ficus antandronarum (H. Perrier) C.C. Berg 1986 **Galoglychia**



SYNONYMS

F. pyrifolia Lam. var *antandronarum* H. Perrier

DISTRIBUTION AND HABITAT :

A widely distributed species which can be found in forests, and along streams but also in dry habitats (tsingy Ankarana) at altitude up to 1600m.

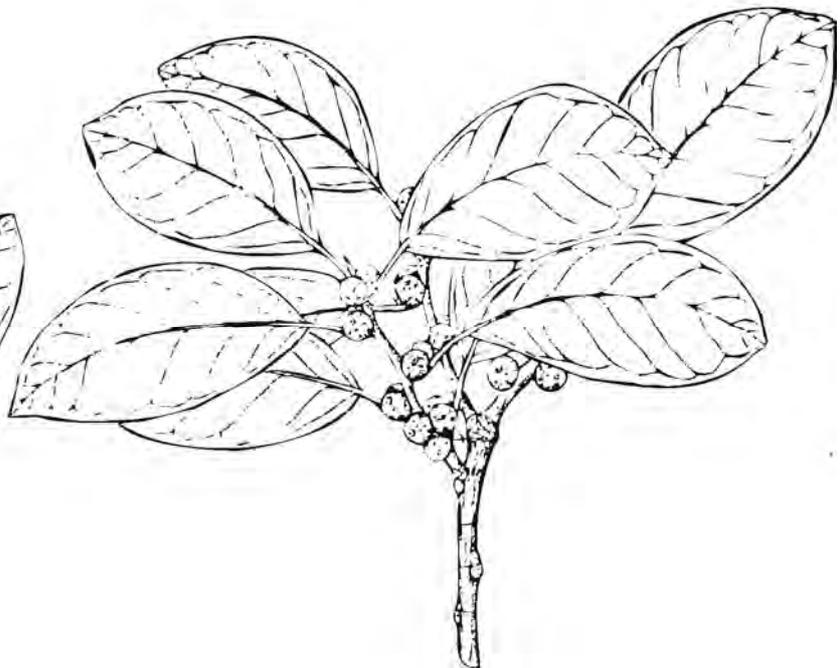


DESCRIPTION :

Shrub or tree up to 20 m tall. Leafy twigs 2-3 mm thick, glabrous or minutely puberulous, when dry brown, periderm persistent. Leaves in spirals (or tending to distichous); lamina elliptic to oblong to (sub)obovate (or to suborbicular), 2-7 x 1.5-5 cm, coriaceous, apex short-acuminate to obtuse to subacute or to rounded, base acute to rounded, margin entire, often \pm revolute; both surfaces glabrous; venation above (almost) plane, beneath \pm prominent, lateral veins 2 x 4-8, basal pair \pm distinct, tertiary venation reticulate; petiole 0.3-1.5(-2) cm long, 1-1.5 mm thick, glabrous or minutely puberulous; stipules 0.2-0.5 mm long, glabrous or minutely puberulous, caducous. Figs in pairs in the leaf axils, subsessile or up to 0.4 mm long pedunculate; basal bracts semicircular, 1.5-2.5 mm long, subglabrous; receptacle when dry 0.4-0.5 or 0.7-1.3 cm in diameter, glabrous, when dry often dark brown to blackish; wall when dry 0.5-2 mm thick, ostiole plane to prominent. Staminate flowers sessile or up to 0.7 mm long pedicellate; tepals 2 or 3; anther 0.6-0.8 mm long. Pistillate flowers: tepals 2-4, free, 0.6-0.8 mm long; seed flowers sessile, style (including stigma) 0.7-1.5 mm long; gall flowers subsessile or up to 1 mm long pedicellate, style (including stigma) ca. 0.5-0.8 mm long. Fruits ovoid to subglobose, 0.6-1 mm long, + distinctly bicolourous; "gall fruits" ellipsoid to ovoid, ca. 0.8-1.2 mm long. Interfloral bracts (sometimes very few) up to 2 mm long. Subsp. *antandronarum*. Lamina usually elliptic to obovate, sometimes to suborbicular. Figs subsessile or up to 4 mm long pedunculate; receptacle (0.7-)0.8-1.3 cm in diameter, when dry often dark brown to blackish; wall when dry ca. 1-2 mm thick. Staminate flowers pedicellate. Interfloral bracts numerous, up to 2 mm long.

Ficus reflexa Thunberg (1786)

Galoglychia



SYNONYMS

F. punctata Lamarck
F. aggregata Vahl
F. terebrata Wildemann
F. melleri Baker
F. pyrifolia var. *melleri* (Baker)
F. pyrifolia var. *occidentalis* H. Perrier
F. pyrifolia var. *imerinensis* H. Perrier
F. pyrifolia var. *tsaratananensis* H. Perrier

DISTRIBUTION AND HABITAT :

A common species widely distributed in Madagascar especially in the east and the north. Frequently in forests (various types) at altitude up to 1400m.

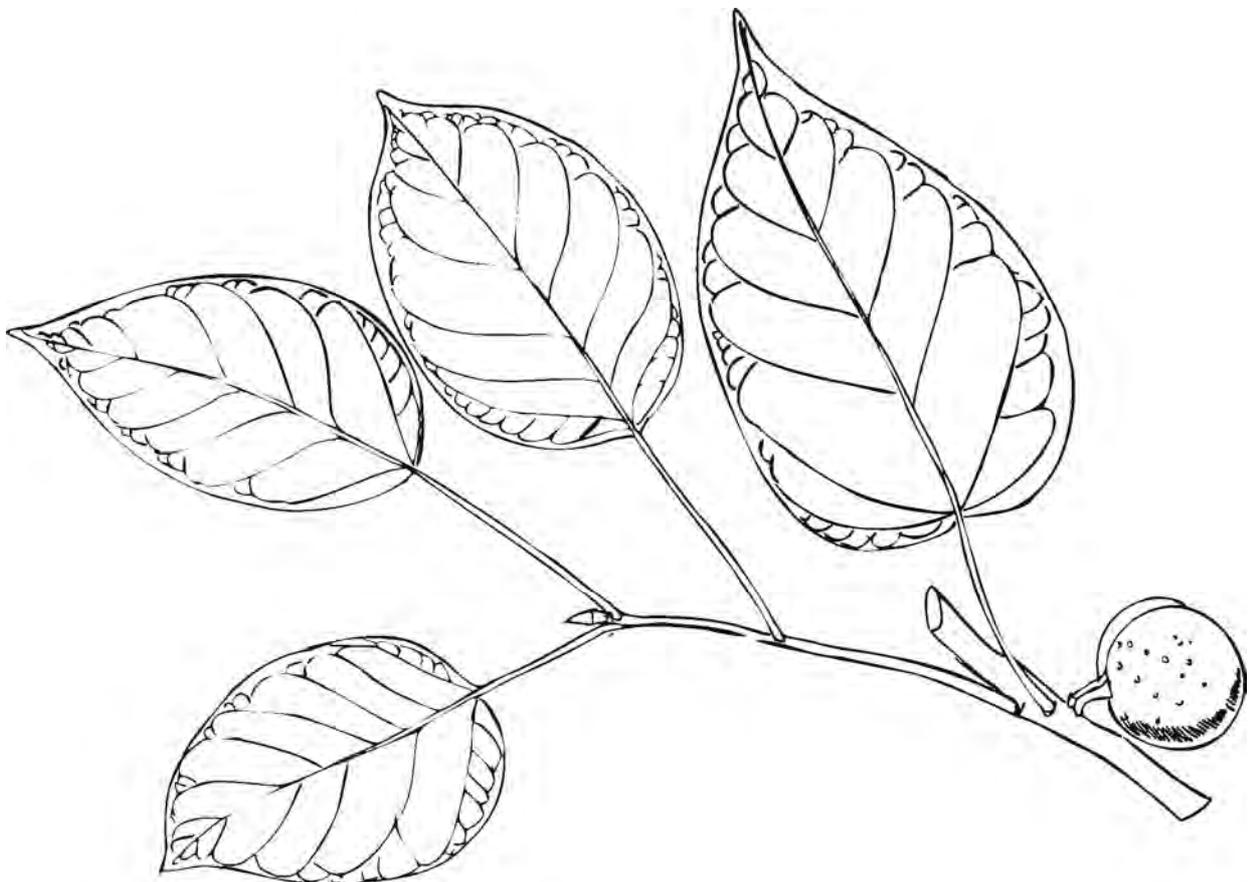


DESCRIPTION :

Shrub or tree up to 10 m tall. Leafy twigs 1.5-4(-8) mm thick, glabrous or puberulous, when dry dark (red-)brown, pale brown or greyish, periderm flaking off. Leaves in spirals; lamina oblong to elliptic to (sub)obovate to (ob)lanceolate, 1.5-12 x 1-5(-5.5) cm, coriaceous, apex acute to rounded or short-acuminate, base acute to obtuse (emarginate with a notch narrower than the petiole), margin entire; both surfaces glabrous; venation above plane, beneath only the midrib + prominent, lateral veins 2 x 5-11, basal pair not distinct, midrib often not reaching the apex of the lamina, tertiary venation reticulate; petiole 0.3-3(-4) cm long, 1-2 mm thick, glabrous (or puberulous), stipules 0.5-1.5(-2) cm long, membranous, glabrous or sparsely and minutely puberulous, usually subpersistent. Figs in pairs in the leaf axils or just below the leaves, sessile; basal bracts semicircular to broadly ovate, 1.5-2 mm long, puberulous to subglabrous; receptacle (sub)globose, when dry 0.5-0.8(-1.2) cm in diameter, glabrous, minutely puberulous or sometimes tomentose, at maturity red to red-brown or to purplish; wall when dry 0.5-1 mm thick; ostiole plane to prominent. Staminate flowers (sub)sessile; tepals 3 (or 4), free or basally connate, ca. 1-1.5 mm long; filament ca. 1.5 mm long; anther ca. 0.5 mm long. Pistillate flowers: tepals 3 (or 4), free or basally connate, ca. 1-1.5 mm long; seed flowers sessile or up to 0.5 mm long pedicellate, style (including stigma) 0.5-1 mm long; gall flowers up to 1 mm long pedicellate, style (including stigma) ca. 0.5 mm long. Fruits ovoid to subglobose, ca. 1 mm long, bicolourous; "gall fruits" subglobose to obovoid, 1-1.5 mm long, ± stipitate. Interfloral bracts ca. 1 mm long.

Ficus polita Vahl (1847)

Galoglychia



SYNONYMS

F. megapoda Baker
F. podophylla Baker
F. barombiensis Warb.
F. niarniammensis Warb.
F. syringifolia Warb.
F. umbrosa Sim.

DISTRIBUTION AND HABITAT :

Species widely distributed in Madagascar especially in the east and the north. It grows in evergreen forests (humid and gallery) and along streams at altitude up to 700m.



DESCRIPTION :

Tree up to 15(-40) m tall. Leafy twigs 2-5 mm thick, glabrous or minutely yellowish- puberulous, glabrescent, when dry greyish, brownish, or blackish, lenticels often conspicuous, periderm persistent. Leaves in spirals; lamina ovate to (almost) elliptic, 5-16 (-24) x 3.5-10(-15) cm, (sub)coriaceous, apex acuminate, base cordate to truncate, margin entire; both surfaces glabrous; venation plane above, ± prominent beneath, lateral veins 2 x 5-8(-9), basal pair ± (faintly) branched, tertiary venation reticulate; petiole 2-12 cm long, 1-2 mm thick, glabrous; stipules 0.5-2 mm long, glabrous, caducous. Figs up to 4 together on up to 3 cm long spurs on the older wood; peduncle 1-2 cm long, 1-3 mm thick, puberulous; basal bracts ovate, 2-3 mm long, puberulous; receptacle globose to obovoid (when dry often ± stipitate), when fresh (2-)3-4 cm, when dry (1.5-)2- 4 cm in diameter, puberulous, at maturity greenish to purplish; wall when dry 2-3 mm thick, wrinkled; ostiole prominent. Staminate flowers 1-1.5 mm long pedicellate; tepals 2 (or 3?), free, 1.5-2 mm long; filament ca. 1 mm long, anther ca. 1 mm long. Pistillate flowers: tepals 2 (or 3?), free, ca. 1-2 mm long; seed flowers sessile or up to 1 mm long pedicellate, style (including stigma) 2-3.5 mm long; gall flowers 2-3.5 mm long pedicellate, style (including stigma) ca. 0.5 mm long. Fruits ellipsoid, 1.5-2 mm long, pericarp partly mucilaginous, endocarp body released; "gall fruits" obovoid to ellipsoid, 4-5 mm long, 2.5-3 mm long stipitate. Interfloral bracts 1.5-2 mm long.

**AN ILLUSTRATED KEY TO GENERA OF CHALCIDOIDEA
ASSOCIATED WITH FIGS IN AFRICA**

- 1 Fully winged (macropterous) or almost fully winged (females and some males).....2
 --- Apterous or brachypterous, in latter case wing stumps not exceeding middle of gaster; body mostly yellowish and without eyes or with eyes unusually small (only males)..... 45
- 2(1) Scapes always distinctly enlarged, mandibles underneath with conspicuous flat appendages which bear distinct transverse ridges and adhere to the underside of head (figs 98, 108, 121, 144, 154, 155, 157); third segment of the antenna produced into a curved spine (figs 102, 109, 116, 117, 128, 143), antennae usually placed in a broad median channel; head often prognathous, often longer than broad; fore tibia always much shorter than the femur; ovipositor simple, thin, usually shorter than body. **Agaonidae** (females)..... 32
 --- Scape not distinctly enlarged. Mandibles often normal, without appendages (except in some *Sycoecinae* (figs. 175-176). Third antennal segment anelliform and scape not enlarged; head often orthognathous; fore tibia often as long as femur; ovipositor or the narrowly tubular gastral tail often longer than body (figs 57, 62, 73, 78)..... 3
- 3(2) Gaster with narrow tail, this formed either by protruding ovipositor with its valvulae (figs 57, 62, 73) or also by the last tergite (or 2) which is (are) unusually narrow and tubular, covering part or whole of ovipositor (figs 78, 83, 84); only females.....4
 --- Gaster without narrow tail at apex; (here both sexes) 13
- 4(3) Ovipositor clearly shorter than the gaster (fig. 168, 171, 182). Cuticle smooth without reticulation. Head prognathous. [One genus of *Otitesellinae* (*Comptoniella* see fig. 42 and paragraph 15) have a short ovipositor, but the cuticle is reticulated and the head not prognathous]. **Sycoecinae** (females).....5
 --- Ovipositor longer than the gaster, if a little shorter than the cuticle reticulated.....8

Sycoecinae females

- 5(4) Fore tibial spur expanded, plate-like, with many small teeth (fig. 159); propleura excavated (fig. 158); first funicle segment expanded antiaxially (fig. 162); 2 labial and 4 maxillary palp segments..... **Sycoecus Waterston**
 Afrotropical. Ten described species probably gall-makers in the flowers of *Ficus* subsection *Cyathitipulae*. Key to species : Van Noort (1993b).
 --- Fore tibial spur normal (fig. 166); propleura not excavated; first funicle segment not expanded (fig. 164); two or three maxillary palp segments6
- 6(5) Propodeal spiracles medially situated (fig. 165); propodeal plicae (sometimes weak) extend from the spiracles to the posterior propodeal margin (fig. 165) **Seres Waterston**
 Afrotropical. Four described (2-3 undescribed) species, probably gall makers and restricted the *Ficus* of the *caulocarpae* subsection. Key to the species : Van Noort (1993a).
 --- Propodeal spiracles anteriorly situated (fig. 179); propodeal plicae absent 7
- 7(6) 8th urotergite spiracular peritremata expanded (fig. 180); marginal vein thin (more than 8x longer than wide); I labial, 2 maxillary palp segments; ventral tentorial pits usually distinctly and widely separated, or if in close apposition, then the toruli are situated more than their length below an imaginary line joining the base of the eyes and the head is elongate (more than 1.5x longer than wide) **Crossogaster Mayr**
 Afrotropical. Sixteen described species, few undescribed, the host association is less tight than those of *Seres* and *Sycoecus*. Most species develop in figs of the subsection *Platyphyllae* and *Chlamydodora*. Very probably gall maker. Key to species : Van Noort (1994a).

- 8th urotergite spiracular peritremata not expanded (fig. 171); marginal vein thickened (less than 8x longer than wide); 2 labial and 3 maxillary palp segments; ventral tentorial pits indistinguishable as separate, or in very close apposition; toruli usually situated between or in line with the base of the eyes, if below then a plate of teeth is present on the fore tibia and the head is less than 1.25x longer than wide **Philocaenus Grandi**
Philocaenus contains 22 described species, all afrotropical. They are associated with *Ficus* of the section *Galoglychia*, and of the subsections *Platyphyllae* and *Chlamydodora*. Key to species : Van Noort (1994c).
- 8(4) Gastral tail formed only by ovipositor and its sheaths (valvulae)(figs 57, 62, 63, 65, 70) not by last tergite which (at apex of gastral body) is very short and bears distinct cerci on its sides; fore tibia often strongly shortened (fig. 57) **9**
- Tail dorsally (at least in basal half) covered by tubular extension of one or two terminal tergites (78, 83, 84, 95); cerci very small or indistinct, situated at end of the narrowed last tergite, far behind gastral body; fore tibia normal, always more than half as long as femur. **Pteromalidae Sycoryctinae** **11**
- 9(8) Body completely smooth, black. Head prognathous. Anterior tibia shortened (fig. 57). Posterior tibia short, bearing characteristic teeth laterally (fig. 59, 61) **Sycophaga Westwood**
Four afrotropical species, all entering the figs of *Ficus* subgenus *Sycomor*, through the ostiole and oviposit into the flowers from inside (fig. 58). Gall makers (Galil et al. 1970). Currently under revision (Rasplus unpublished).
- Body reticulated (fig. 68), brownish, yellowish or metallic green. Head hypognathous (fig. 62, 72). Anterior tibia normal (fig. 62, 70). Posterior tibia long without teeth 10
- 10(9) Scutellum with conspicuous lateral (axillular) grooves (fig. 68); marginal vein mostly not or barely longer than the stigmal (fig. 62); gastral sternites not lengthened and hind coxa much shorter than the thorax high, and directed backward; antenna 13-segmented, with 2 anelli and 6 funicular segments. **Sycophaginae** **Platyneura Mostchoulsky (= Apocryptophagus)**
Six described species, but this genus known as *Apocryptophagus* contains about 30 undescribed species. All species are gall makers and are associated with *Ficus* subgenus *Sycomor*. Currently under revision (Rasplus unpublished).
- Scutellum in dorsal view simple, without any lateral grooves; marginal vein much longer than the stigmal (fig. 70); gaster compressed from side-to-side, with great capability of telescoping; basal sternites and hind coxa extremely long, coxa directed slightly forward (fig. 73); fore tibia slender, normal, at least half as long as the femur; ovipositor very long; antenna 12-segmented, with 2 anelli and 5 funicular segments. **Pteromalidae, Sycoryctinae, Apocryptini**..... **Apocrypta Coquerel**
This genus contains 11 described species, but I know some undescribed species from Tanzania and Guinea. All species oviposit through the fig wall (fig. 74) and are supposed to be gall makers within the figs of the subgenus *Sycomor*, however recent studies strongly suggest a seed feeding biology (Kerdelhué et al., 2000). Key to species : Ulenberg (1985).
- 11(8) Gastral tail consisting of two or three parts (fig. 84, 85); broader anterior part formed by two narrowed last tergites and posterior thin part consisting only of ovipositor and its sheaths; [notauli complete, linear; antenna almost always with 3 anelli]..... **Philotrypesis Forster**
This genus contains 8 described species in Africa, however several new species are known to me. *Philotrypesis* species oviposit from the outside of the fig (fig. 65-66). The larva competes for food with agaonid pollinators. Associated with most *Ficus* sections. No key to species.
- Tail undivided, thin, only base and apex usually appearing a little thicker (figs 78, 83, 92); whole length of ovipositor covered by the thin epipygium **12**
- 12(11) Fore femur strongly swollen (fig. 84); pronotum dorsally at least as long as broad; body yellow, only gaster sometimes with dark bands; wings rather densely and extensively pilose; antenna with 3 anelli **Watshamiella Wiebes**
Three described afrotropical species, but several wait descriptions. The female oviposits from the outside and the species are mostly associated with *Galoglychia*, but also with *Sycomor*.

- Fore femur not unusually swollen (fig. 78); pronotum transverse; body often dark-coloured, then usually with metallic tinge; antenna with 1 or 2 anelli **Sycoscapter** Saunders
About 23 described species, this genus urgently need revision and the different species was before Boucek (1988) classified in several genera, some of which could be valid. Female oviposit from outside and are supposed to be parasitic on pollinator larvae but this biology remains to be confirmed and *Sycoscapter* could be gall makers or seed feeders. Associated with most *Ficus* in Africa. No key to the species.
- 13(3) Gaster with at least some coarse sculpture (figs 183, 184, 187); marginal vein very long (fig. 185), at least seven times as long as short stigmal vein; antenna thirteen-segmented, with two anelli (fig. 184). **Ormyridae** **Ormyrus**
Three afro-tropical species known to be associated with *Ficus*, but several remain to be described. They are obligatory parasitoid of other species galling the seeds. *Ormyrus* are always parasites of insect galls (Diptera, Hymenoptera). Key to the species associated with *F. thonningii*: Boucek *et al.* 1981.
- Gaster without any coarse sculpture, either smooth or virtually so; marginal vein never so much longer than the stigmal vein..... 14
- 14(13) Body mostly with some metallic gloss (figs. 51, 52), thorax often finely densely reticulate; only females here, with gaster tapering posteriorly (curving ventrad) (Figs 36, 53), apex mostly compressed from side-to-side and curving downward. **Pteromalidae Otitesellinae** 15
- Body non-metallic, frequently either almost smooth or with distinct sculpture on thorax and mostly also on head; apex of gaster, often curving dorsad, never ventrad..... 16

Otitesellinae females

- 15(14) Gaster ending with a short but clearly exerted "ovipositor" forming by the ninth and the ovipositor valves (fig. 42). Antenna with one anellus. Pronotum almost as long as the mesonotum **Comptoniella Wiebes**
Only one known species *C. vannoorti* associated with *Ficus cordata cordata*, in south Africa, probably as a gall maker.
- Gaster not elongated into a "tail" (fig. 36, 51), if so (fig. 53), then antenna with 2-3 anelli and pronotum shorter than the mesoscutum. Four genera come here. They can only be identified from the male morphology and need revision.....
.....**Micranisa** Walker, **Otitesella** Westwood, **Philosycus** Grandi, **Walkerella** Westwood
- 16(15) Thorax (and head) with distinct sculpture and pubescence; stigmal vein usually at acute angle or short marginal vein distinctly expanded. **Eurytomidae**..... 17
- Body without distinct sculpture, although often microscopically alutaceous; thorax always with pubescence reduced to pairs of bristles; marginal vein not so short or, if so, then stigmal vein arising at nearly right angle..... 20

Eurytomidae

- 17(16) Gena posteriorly with strong and distinctly raised carina extending up the temple; thorax densely umbilicately punctured 18
- Gena posteriorly with an edge which is blunt or at most indistinctly carinate in middle or at mandible; umbilicate punctures, if present on thorax, usually not very dense 19
- 18(17) Marginal vein distinctly swollen (fig. 198); gaster on distinct petiole which has anteriorly a transverse crest (figs 200-201); fore coxa antero-ventrally flat; mesosternal shelf very short, in middle with small rounded projection which is hollowed from both sides (fig. 199); genal carina smoothly joining mouth margin; body usually extensively rufous (fig. 201), in darkest specimens at least ventrally **Syceurytoma** Boucek
Several species in Africa, only two described. The species are associated with the galls of *Epichrysomallinae*.
- Marginal vein normal, slender (fig. 188); gaster virtually sessile (fig. 188); fore coxa on antero-ventral surface with strong oblique carina; mesosternal shelf separated by sinuate cross-carina; genal carina with a tooth at base of mandible; body black, legs beyond coxae usually or-

ange.....**Eurytoma** Illiger
 One described species associated with *Ficus* (*E. ficusgallae*) whether the species is phytophagous or parasitic is still unknown (both biology occur within the genus *Eurytoma*). But from the presence of the genal carina, the species should be parasite (all other genus with this morphological character are parasitic in habits).

19(17) Mesosternal part of thorax with distinct though not high median projection excavated from the sides and, sublaterally, with slight carina marking off mesosternal shelf (fig. 191); marginal vein in average not longer than stigmal vein which is usually distinctly curved (fig. 190); wing sometimes without fuscous spot (macula)(fig. 190).....**Ficomila** Boucek
 Two described species, but few others undescribed. *Ficomila* and *Sycophila* are always associated with the Epichrysomallinae, and could be either parasites or inquilines (consuming gall tissue produced by the Epichrysomallinae).

--- Mesosternum regularly sloping (fig. 195), posteriorly with median hairy depression (at mid coxae), but without any indication of delimited mesosternal shelf; marginal vein always with fuscous macula (fig. 197) and frequently longer than the stigmal vein (fig. 195)...**Sycophila** Mayr
 About 40 species in Africa, associated with figs, mostly undescribed. Other species are associated with other gall-makers (Cynipidae etc...). They are probably inquilines.

20(16) Only males: fore wing wholly pilose, narrow, marginal vein very long and postmarginal fully twice as long as the stigmal; antennal flagellum not or hardly longer than scapus **21**
 --- Both sexes; in male venation different, wing at base extensively bare, flagellum longer..... **22**

21(20) Fore femur conspicuously swollen (as in fig. 94); propodeal spiracles situated distinctly before middle of sclerite; forewing with reduced speculum and regularly pilose along marginal vein; hypostomal margin (in slide mountings) almost straight**Watshamiella** Wiebes (alate males)
 --- Fore femur only moderately swollen (fig. 87); propodeal spiracles equidistant from anterior and posterior margin of sclerite or slightly behind middle; in forewing bare part extending far along marginal vein; hypostomal margin deeply emarginate in middle **Philotrypesis** Forster (alate males)

22(20) Only males: marginal vein thickened (fig. 181) and at least 1.9 times as long as the stigmal, wing in area below marginal vein and parastigma pubescent; head flat, with long mandibles (fig. 181). **Sycoecinae** males..... **23**
 --- Both sexes: in male marginal vein not so long and thickened (fig. 2), area below this vein at least partly bare; head different (fig. 11). **Epichrysomallinae** **26**

Sycoecinae males

23(22) Propodeal spiracles medially situated (fig. 165) with a plica (which may be indistinct) present from the spiracle to the posterior propodeal margin **Seres** Waterston
 --- Propodeal spiracles anteriorly situated (fig. 179), plica absent **24**

24(23) Two apical mandibular teeth and a single ventral tooth, mandible short and squat (fig. 163), head always testaceous; vertex produced medially between the lateral ocelli (fig. 160) **Sycoecus** Waterston
 --- Mandible more elongate with two apical teeth and no ventral tooth (figs 172, 173, 177, 178), or if the ventral tooth is present then the head is metallic green; vertex evenly rounded (fig. 181) **25**

25(24) Outer mandibular apical tooth usually distinctly shorter than the inner (fig. 177-178), or if only marginally shorter then a small ventral tooth is present (fig. 177) and the toruli are separated by at least three-quarters of a torulus width **Crossogaster** Mayr
 --- Outer mandibular apical tooth usually distinctly longer than the inner (fig. 172-173), or if only marginally longer then no ventral tooth is present (fig. 172) and the toruli are separated by less than a quarter of a torulus width **Philocaenus** Grandi

Epichrysomallinae males and females

- 26(22)** Tarsi 4-segmented. Funicular segments asymmetric or pectinate (figs 1, 4) **27**
 --- Tarsi 5-segmented. Notauli reaching the transcutal line. Funicular segments different, symmetric (fig. 18) **29**
- 27(26)** Occipital carina present and obvious. Female funicular segments (female 6-segmented, male 5-segmented) clearly separated, the four last asymmetric (fig. 4) and sometimes pectinate (fig. 1). Male gaster subsessile. Male mandible normal, non developed. In most species the notauli don't reach the transcutal line (fig. 3) **Sycotetra** Boucek
Afrotropical genus, including one described species Sycotetra serricornis which developed into the figs of Ficus thonningii and two undescribed species one of them is associated with F. natalensis. Gall makers.
 --- Occipital carina absent. Female funicular segment not modified, and never pectinated **28**
- 28(27)** Female head transverse. Antennal formula 1163 (fig. 5), scape long reaching the median ocellus. Supraclypeal area not delimited. Scutellum bearing 2x2 setae. Axillar grooves well marked. *Male*: mandible long and falcate (fig. 6). Petiole apparent (figs 8, 10, 12, 13), sometimes with a ventral hook or lateral teeth **Odontofroggatia** Ishii
Odontofroggatia species could be introduced, everywhere in Africa with F. microcarpa, an oriental and ornamental fig tree (Wiebes, 1980).
 --- Female head subglobose (fig. 30). Antennal area formula 11(1)53 (fig. 30), the annellus hardly visible in *J. microcarpae*; scape short not reaching the median ocellus. Supraclypeal area well delimited, subquadrate. Scutellum bearing at least 2x3 setae. Axillar grooves shallow or obliterated. *Male*: mandible normal. Petiole short **Josephiella** Narendran
One species J. microcarpae has been recently described from leaf galls of F. microcarpa. The species has been found in the Canary Islands and could occur in Africa (Beardsley & Rasplus 2000).
- 29(26)** Notauli strongly convergent backward, fusing to form a short median line just before the transcutal line (fig. 18). Female funicular 5-segmented, article transverse, annellus un conspicuous (fig. 18). Male flagellum club-like, segment fused so the flagellum appears bisegmented (fig. 17) **Camarothorax** Mayr
One afrotropical species developing in figs of Ficus ingens in South Africa and Ivory Coast.
 --- Notauli different, not strongly convergent (figs 19, 25, 28). Female funicular 6-segmented, annellus often present (*Lachaisea* & *Sycomacophila*) **30**
- 30(29)** Clypeal margin straight, without lobes. Female funicular without annellus (fig. 19) and composed of 6 transversal segments. Malar sulcus present (fig. 19). Scutellum broadly bordering on scutum, bearing laterally fine punctuation (fig. 19) **Acophila** Ishii
One undescribed afrotropical species associated with Ficus ingens in South Africa.
 --- Clypeal margin bilobed (fig. 21). Female funicular always with one annellus and 6-7 articles. Malar sulcus always present. Scutellum narrow, pointed anteriorly **31**
- 31(30)** Scutellum bearing 4 setae (2+2)(fig. 25). Scape reaching the lower margin of the median ocellus. Occipital carina always present and conspicuous, situated near the foramen magnum, laterally following the post-occipital bridge to fuse with the hypostomal carina **Lachaisea** Rasplus
Seven described afrotropical species. The genus include about 50 undescribed species in Africa all of which are associated with Ficus subgenus Urostigma section Galoglychia. The species are gall makers (fig. 26) within the flowers or the fig wall.
 --- Scutellum bearing several setae distally and 1-2 laterally (fig. 28). Scape short never reaching the lower margin of the median ocellus (fig. 27). Occipital carina inconspicuous, sometimes absent, which stop at the level of the foramen magnum **Sycomacophila** Rasplus
At least 5 species, gallmakers within figs of the subgenus Sycomorus.

Agaoninae, females (key to species in Berg and Wiebes, 1992)

- 32(2)** Mandibular appendage fused with the body of the mandible; it bears ventral lamellae (figs 98, 108). Third antennal segment with a separation between the main part and the produced apex (figs 102, 109), which itself may be divided into two parts; the pedicel with axial spines (fig. 102). **Blastophaginae** **33**
- Mandibular appendage truly appended to the mandible; in most species it bears ventral rows of fine teeth or small crenulations (figs. 121, 144, 154, 155, 157). Third antennal segment more simple: the produced apex, if at all prominent, not separate from the main part of the segment (figs 134, 143); the pedicel without axial spines. **Agaoninae** **38**
- 33(32)** Spiracles of sixth tergite surrounded by large concave and elongate peritremal areas (fig. 96) with granulate surface **Ceralosolen** Mayr
Thirteen afrotropical species, one undescribed from Madagascar. All species are active pollinators of *Ficus* subgenus *Sycomor*.
- Spiracular peritremata of the eighth urotergite small, subcircular **34**
- 34(33)** Fore tibia with four to six teeth in the dorso-apical comb (fig. 104). Fore coxa without a corbicula..... **Kradibia** Saunders
One continental species, others in Madagascar and Mascareigne islands. All species pollinate *Ficus* of the section *Sycidium*. *K. gestroi afrum* supposed to pollinated several species of *Ficus* living in sympatry (*F. exasperata*, *F. asperifolia* and *F. capreifolia*). Active pollinator.
- Fore tibia with two or three teeth in the dorso-apical comb. Fore coxa with a corbicula..... **35**
- 35(34)** Mesosternum without pollen pockets. The only species found in Africa is not encountered between the tropics..... **Blastophaga** Gravenhorst
Only one species in Africa, mostly known in the mediterranean region and in Ethiopia, also introduced with *Ficus carica* elsewhere. Passive pollinator.
- Mesosternum with pollen pockets..... **36**
- 36(35)** Antenna consisting of ten segments and bearing long sensilla chaetica (figs 112, 113); maxilla with a bacilliform process..... **Dolichoris** Hill
Only one afrotropical species which actively pollinate two different species of *Ficus*: *F. dicranostyla* and *F. variifolia*.
- Antenna consisting of eleven segments, occasionally ten, but then the maxilla without a bacilliform process..... **37**
- 37(36)** Pigmentation of venation ending with a knob on parastigma (fig. 118), rest of veins colourless, indistinct (fig. 118); so the venation appear incomplete : marginal, stigmal and post marginal absent. Antennal segments, from the fifth onwards, more and more cup-shaped, bearing one row of long sensilla chaetica that project over the apical edge of their segment for their total length (figs 116-117)..... **Eupristina** Saunders
Only one introduced species known in Africa associated with *Ficus microcarpa*, an ornamental tree. Active pollinator.
- Venation complete. The sensilla of the eighth to eleventh segments strongly project over the apex of the segment, those of the fifth to seventh segments do not project or more than a third or half of their length (fig. 109) **Platyscapa** Motschoulsky
Six afrotropical species, another species could be introduced with *Ficus religiosa* L. The host figs belong to the section *Urostigma* and *Conosycea*. Active pollinator.
- 38(32)** Median ocellus present (fig. 138)..... **39**
- Median ocellus absent (fig. 126)..... **43**
- 39(38)** Funicular segments of antenna with sensilla linearia (fig. 149) **40**
- Funicular segments of antenna with sensilla chaetica (figs 128, 134, 141, 153) and rarely sensilla

	linearia in addition.....	41
40(39)	Mandibular appendage with ridges, laterally produced into teeth (figs 155, 157)..... Nigeriella Wiebes Afrotropical. Four species associated with <i>Ficus</i> subsections <i>Platyphyllae</i> and <i>Crassicostae</i> . It could be only a species-group of <i>Elisabethiella</i> . Active pollinator.	
---	Mandibular appendage with rows of many fine teeth or denticulations (fig. 154)..... Elisabethiella Grandi About 15 species in Africa associated with <i>Ficus</i> subsections <i>Platyphyllae</i> , <i>Chlamydodora</i> and <i>Crassicostae</i> . Active pollinator.	
41(39)	Mandible unidentate (fig. 139)..... Paragaon Joseph Afrotropical. Only two species known, only one <i>Ficus</i> host is known, it belongs to the subsection <i>crassicostae</i> . Active pollinator.	
---	Mandible with two or more teeth (figs 127, 154).....	42
42(41)	Eye half as long as the cheek, or shorter (fig. 140)..... Courtella Kieffer Afrotropical. Fourteen species (13 described) strictly associated with <i>Ficus</i> of the subsection <i>Caulocarpae</i> .	
---	Eye (mostly much) more than half as long as the cheek (fig. 148)..... Elisabethiella Grandi	
43(38)	Funicular segments of antenna with sensilla linearia (figs 120, 122)..... Allotriozoon Grandi Afrotropical. Three species pollinating figs of the subsection <i>Galoglychia</i> .	
---	Funicular segments of antenna with sensilla chaetica (figs 128, 132).....	44
44(43)	Funicular antennal segments more than twice as long as wide (fig. 128). Postmarginal vein of fore wing longer than stigma (fig. 125)..... Agaon Dalman Thirteen afrotropical species (11 described) strictly associated with <i>Ficus</i> of the subsection <i>Cyathitipulae</i> . Active pollinator.	
---	Funicular antennal segments subquadrate. Postmarginal vein of fore wing half as long as stigmal (fig. 133)..... Alfonsiella Waterston Afrotropical. Seven species associated with <i>Ficus</i> subsection <i>Platyphyllae</i> and <i>Chlamydodora</i> , the host specificity is not known but records suggest several hosts. Active pollinator.	
Sycophaginae etc., males		
45(1)	Posterior gastral segments soft, long and narrow, telescoping, usually turned in U-shape forward under the body (fig. 111, 114, 124, 136, 142, 145); fore and hind femora enormously enlarged (figs 103, 136, 142), middle femora less so or not enlarged; antennae cylindrical or slightly clavate, sometimes retractable into special cavities which may be over roofed dorsally. Agaonidae	55
---	Gaster different: posterior segments not strongly telescoping, either quite short or dorso-ventrally flattened, gastral apex not strongly turned forward (figs 33, 71, 77, 90). All femora sometimes enlarged; antennae never in a deep united cavity and if gaster soft as in alternate (e.g. some <i>Sycoryctinae</i>) the antennal sockets are shallow, clearly visible, distinctly apart	46
46(45)	Antennae inserted in anterior quarter of the head or, if slightly behind one quarter then sockets close to each other	47
---	Antennae inserted behind anterior third of head, their sockets usually wide apart. most Otitesellinae	52
47(46)	Mesonotum, mesoscutum and propodeum fused (fig. 43)..... Comptoniella Wiebes --- at least propodeum not fused with other parts (fig. 54, 71, 75).....	48

- 48(47) Apex of gaster with 2 long appendages (figs 60, 64) formed by tail-like extensions of peritremal areas of spiracles on sixth tergite; head strongly elongate, with 2 darker submedian lines; scapes flat, very broad. The males of two genera are for the time being not separable
 **Platyneura** Motschoulsky (= *Apocryptophagus*) and *Sycophaga* Westwood
 --- Apex of gaster without long appendages 49
- 49(48) Tibiae normal, with some setae, sometimes with sparse bristles but not with dense stout spines; lateral panels of pronotum vertical, closely applied to body; head elongate or not (fig. 15, 16), but never strongly flattened. **Epichrysomallinae** *Camarothonax* Mayr (apterous male) see 29
 --- Tibiae more or less shortened and widened (figs 71, 77, 90), with at least some groups of stout spines (figs 77, 90); pronotum often without vertical lateral panels but with sides usually projecting as thin roof. **Sycoryctinae**..... 50
- 50(49) Head subcylindrical, very long (fig. 71), bare, with antennal toruli close to each other in one broad cavity; scapes stout-cylindrical; [mandibles short and high, not flattened; gaster simple, long] **Apocrypta** Coquerel
 --- Head more or less flattened, different from above (figs, 75, 76, 88, 89, 91); scapes usually strongly flattened and closely applied to head surface 51
- 51(50) Both antennae in a common broad cavity (fig. 90, 91), toruli slightly apart, their inner margins low but separated in middle by a low keel; scapes not flattened, flagellar segments regular; head posteriorly often with thin long bristles. Hypostomal margin (on back of head) deeply distinctly emarginate in middle *Philotrypsis* Forster
 --- Antennae not in common cavity, toruli close or apart; scapes usually flattened and enlarged, adpressed to head surface (figs 75, 76). Hypostomal margin at most shallowly emarginate in middle. Each torulus on inner side slightly overroofed by a fold, as if base of antenna was pushed towards median line (fig. 76); second flagellar segment often unusually larger than the third
 **Sycoscapter** Saunders
- Otitesellinae, males**
- 52(46) Head subquadrangular. Antennal toruli close to each other, or about as much apart as distant from eyes (figs 31, 32, 33)..... *Walkerella* Westwood
 At most two species occur in Africa associated with the introduced *Ficus microcarpa*.
 --- Toruli far apart, much closer to eyes than to each other (figs 37, 38, 46, 49, 50, 54, 55)..... 53
- 53(52) Scape broadest beyond middle, tapering to base; clypeus often with anterior margin broadly produced but truncate or broadly emarginate (fig. 49); head often slightly longer than broad (figs 46, 50, 52), last segment of hind tarsus often greatly inflated; legs different from alternate **Otitesella** Westwood
 Eleven afro-tropical species described but tens await descriptions. The species are phytophagous within the galled flowers. Female oviposit from outside when the fig is still small. Key to the described Afro-tropical species van Noort and Rasplus (1997). The genus is currently under revision by S. van Noort.
 --- Scape quadrangular or angularly expanded at base (fig. 37, 38, 54, 55, 56)..... 54
- 54(53) Epistomal emargination without median tooth (fig. 38). Propodeum, mesoscutum and mesonotum fused (fig. 37) [mandibles usually slightly shorter than in alternate] *Micranisa* Walker
 Only one species occur in Africa associated with the introduced *Ficus microcarpa*.
 --- Epistomal margin with small median tooth or tubercle (fig. 54, 55). Propodeum + mesoscutum not fused with mesonotum (fig. 54)..... **Philosycus** Grandi
 Two described species, but 7 new species are currently under description (Rasplus unpublished). The species are mostly associated with *Ficus* subsections *Cyathistipulae* and *Caulocarpae*. This genus could be reduced to a species group of *Otitesella*.

Agaonidae, males

55(45) All tarsi, including the fore tarsi, essentially pentamerous (which may be seen in the dorsal subdivisions)..... **56**
 --- Fore tarsi bi- or trimerous **59**

56(55) Antennae slender, placed in deep channels which are anteriorly separated by a triangular raised area bearing on front margin usually 3 (rarely 2) short teeth (figs 97); pronotal sides long and converging forward, anteriorly without rim; mid tarsi well developed, in most species 5-segmented, hind tarsi sometimes unusually large and densely hairy. All thoracic terga distinctly separate (fig. 97) **Ceratosolen** Mayr
 --- Antennal insertion different, never with a raised triangle between sockets; antennae relatively shorter and usually slightly clavate; otherwise also mostly different. Mesonotum, metanotum, and often (dorsally) also the propodeum, fused..... **57**

57(56) Antennae situated in a common, anterior groove (figs 151, 152) **Elisabethiella** Grandi
 --- Antennae situated in separate sockets (figs 130, 156)..... **58**

58(57) Head pear-shaped (fig. 130) **Alfonsiella** Waterston
 --- Head more subquadrate (fig. 156)..... **Nigeriella** Wiebes

59(55) Also the mid and hind tarsi oligomeric **60**
 --- Mid and hind tarsi pentamerous **64**

60(59) Mid leg reduced, at most with three tarsal segments (fig. 103). Thoracic terga separate (fig. 105)..... **Kradibia** Saunders
 --- Mid leg not reduced; the mid and hind tarsi tetramerous (figs 142, 145). Thoracic terga fused or free **61**

61(60) All thoracic terga separate (fig. 123). Antennae often long, horn-like..... **Allotriozone** Grandi
 --- At least the meso- and metanotum fused dorsally (figs 110, 135)..... **62**

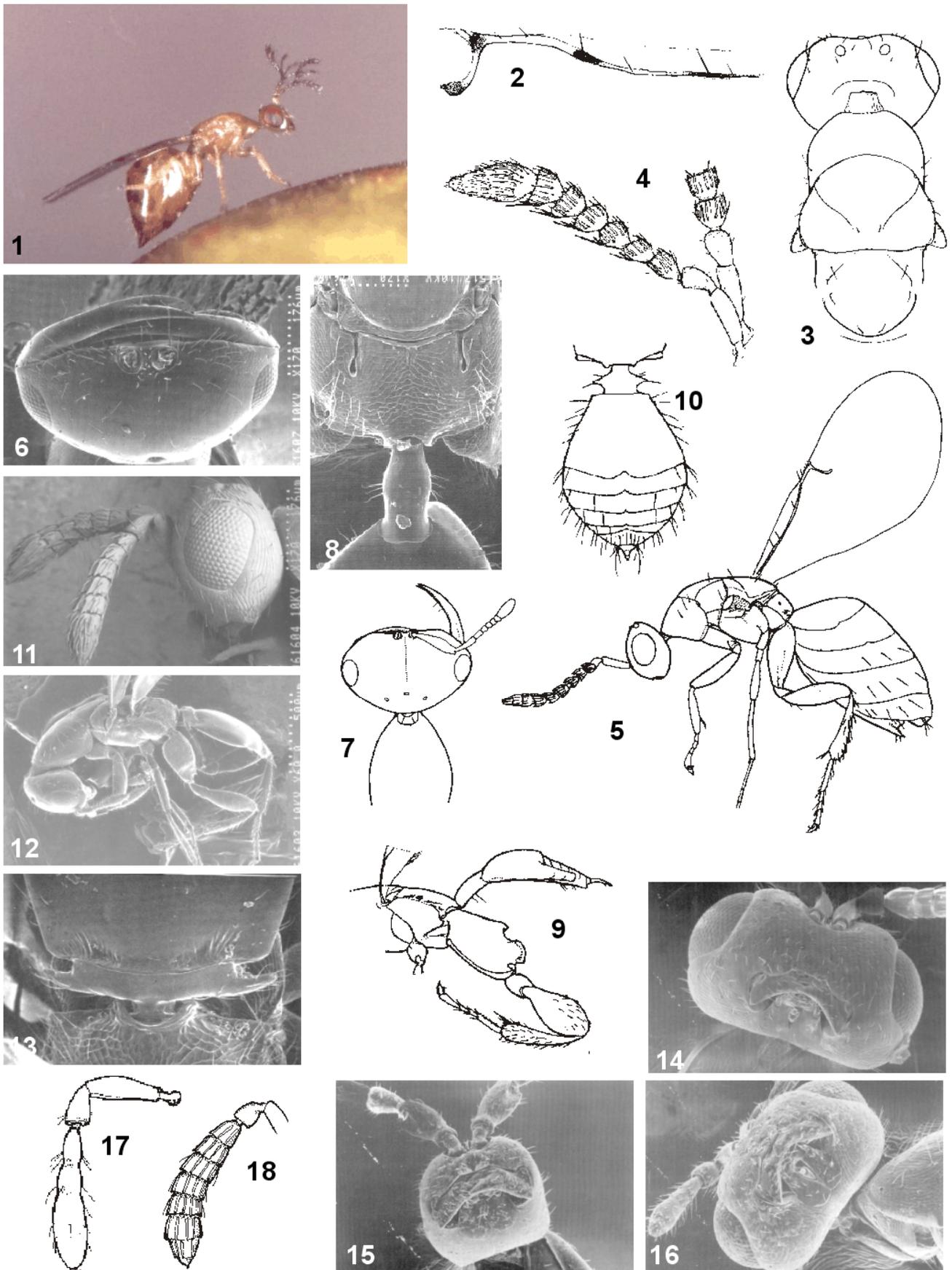
62(61) Pronotum with lateral lobes prominent (fig. 119). Also the propodeum dorsally fused with the meso- and metanotum (fig. 48, g)..... **Eupristina** Saunders
 --- Pronotum different. Propodeum for the greater part dorsally separate **63**

63(62) Antennae, separately, borne in an anterior groove, in between lateral elevations (fig. 124). Antenna with two or three anelli. Head and thorax, fig. 124..... **Agaon** Dalman
 --- Antennal sockets widely separate, the head without lateral elevations (fig. 135). Antenna with one anellus. Head and thorax, fig. 136..... **Paragaon** Joseph

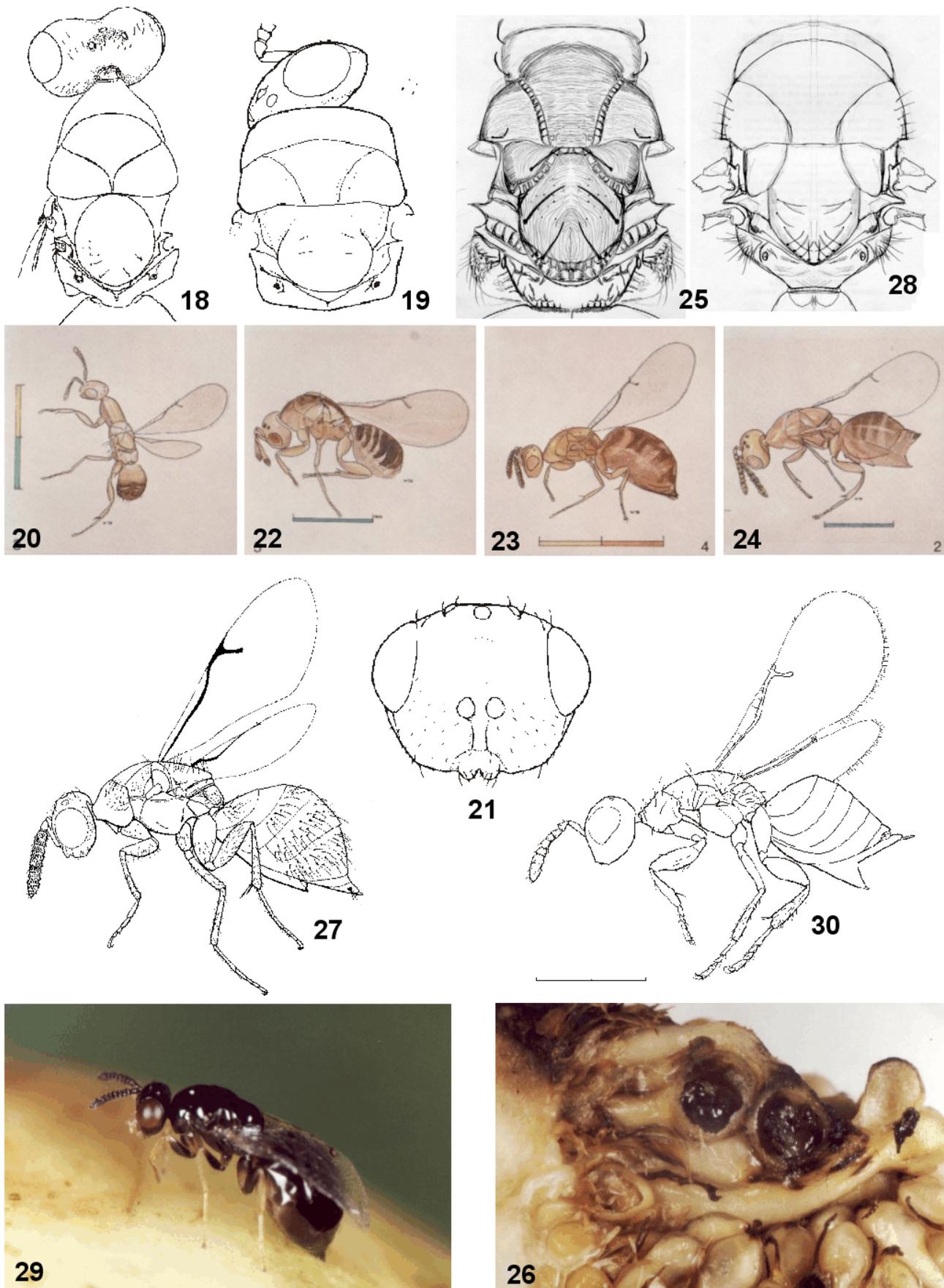
64(59) Metanotum dorsally visible as two separate, sublateral sclerites (fig. 114).....
 --- **Blastophaga** Gravenhorst
 --- Metanotum, if separate dorsally, not divided (figs 110)..... **65**

65(64) Metanotum and propodeum separate dorsally (fig. 110)..... **Dolichoris** Hill
 --- Metanotum and propodeum for the greater part fused dorsally (figs 140, 142, 145)..... **66**

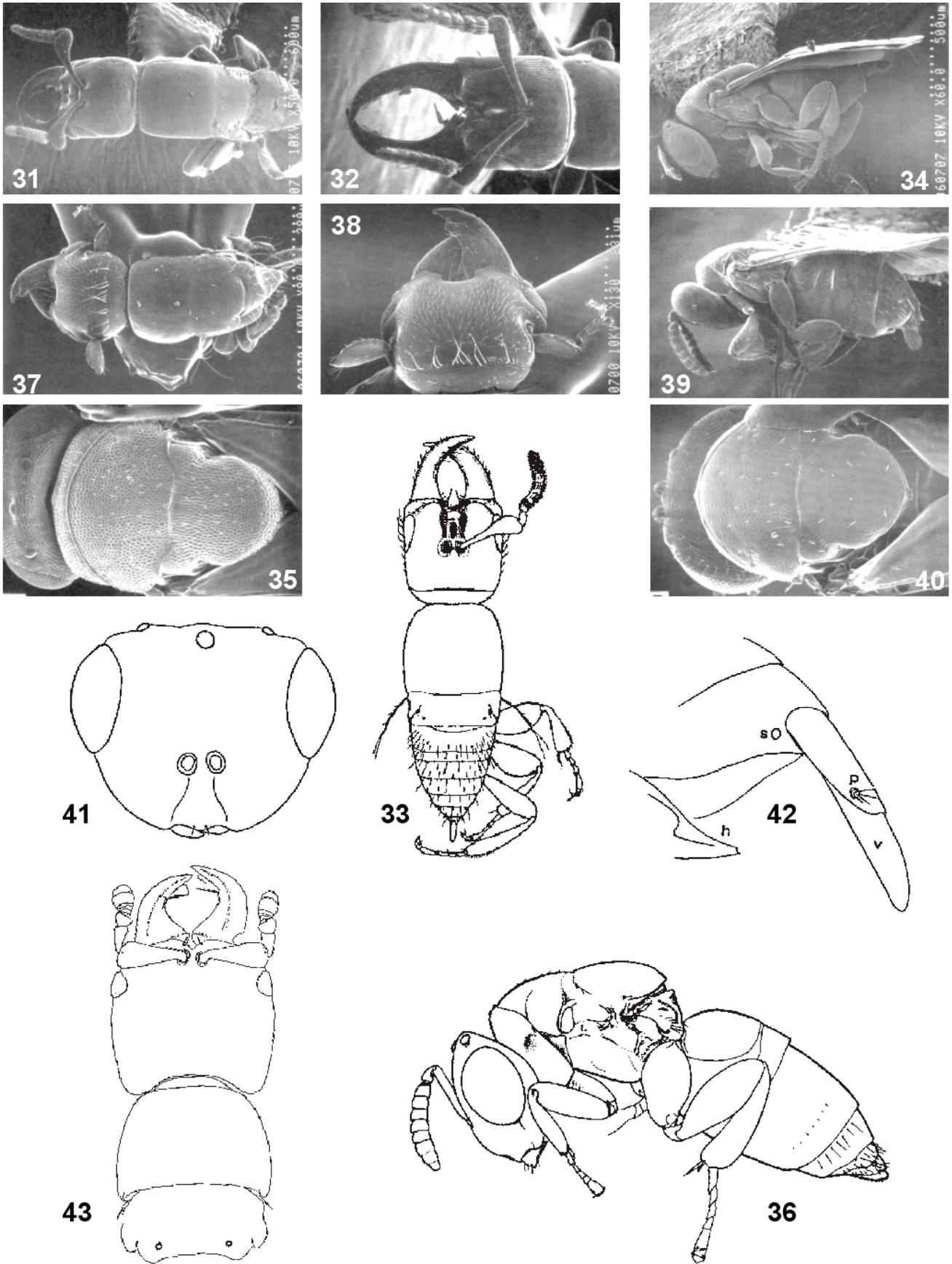
66(65) Head subquadrate or wider than long, also the pronotum transverse (fig.).....
 --- **Platyscapa** Motschoulsky
 --- Head oblong, also the pronotum longer than wide (figs 142, 145, 146)..... **Courtella** Kieffer



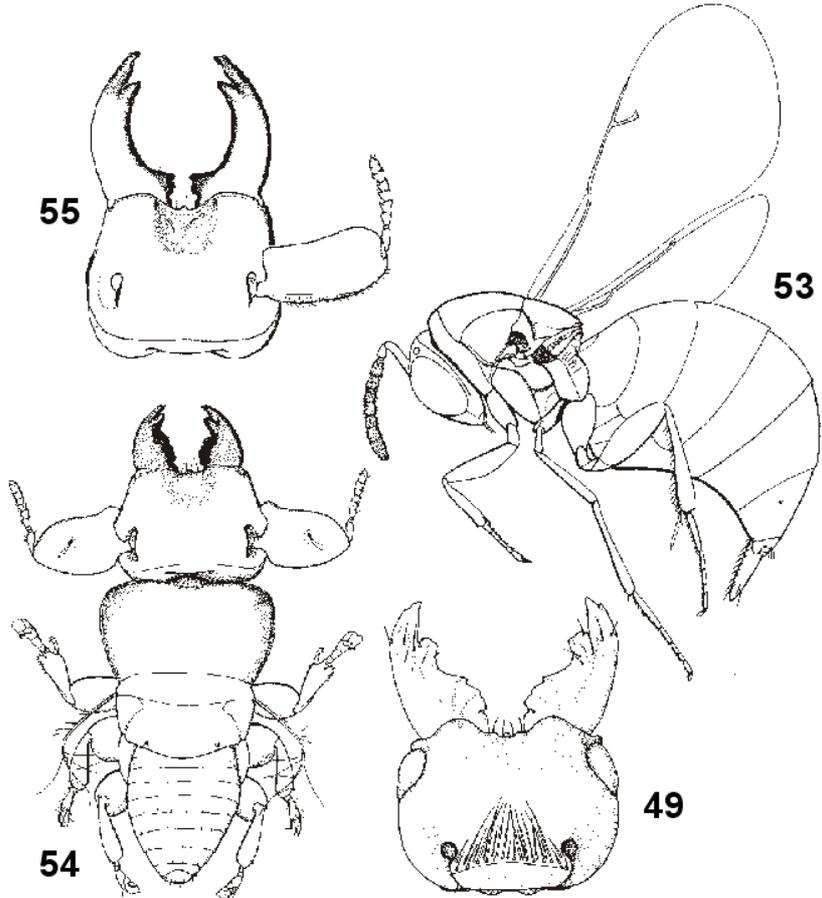
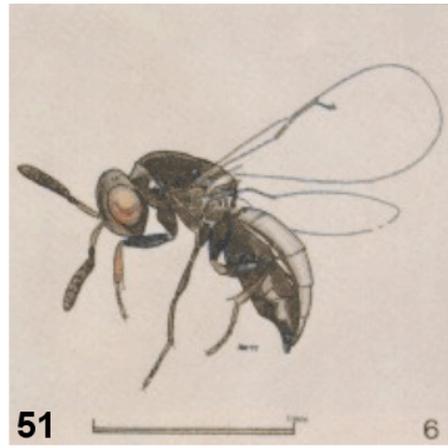
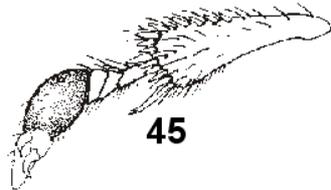
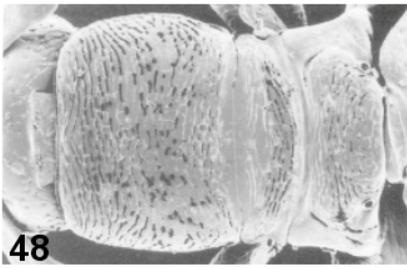
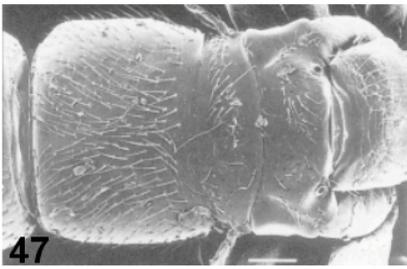
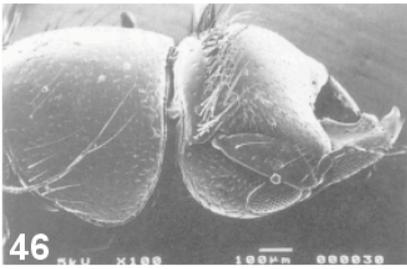
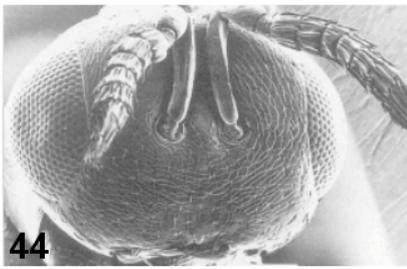
Figures 1-17. **Epichrysomallinae**. 1. *Sycotetra pectinicornis*: female ex *F. natalensis*. - 2-4. *Sycotetra pectinicornis*: female nervation (2), mesosoma (3) and antennae (4). - 5-9. *Odontofroggattia galili*: female (5), male head (6-7), male petiole (8), male hind part of body (9). - 10. *O. ishii*: male petiole. - 11-13. *O. gajimaru*?: female head (11), male (12) and male petiole (13). - 14-18. *Camarothorax mutabilis*: male head, apterous (14), winged (15), female head (16), antenna male (17) and female (18).



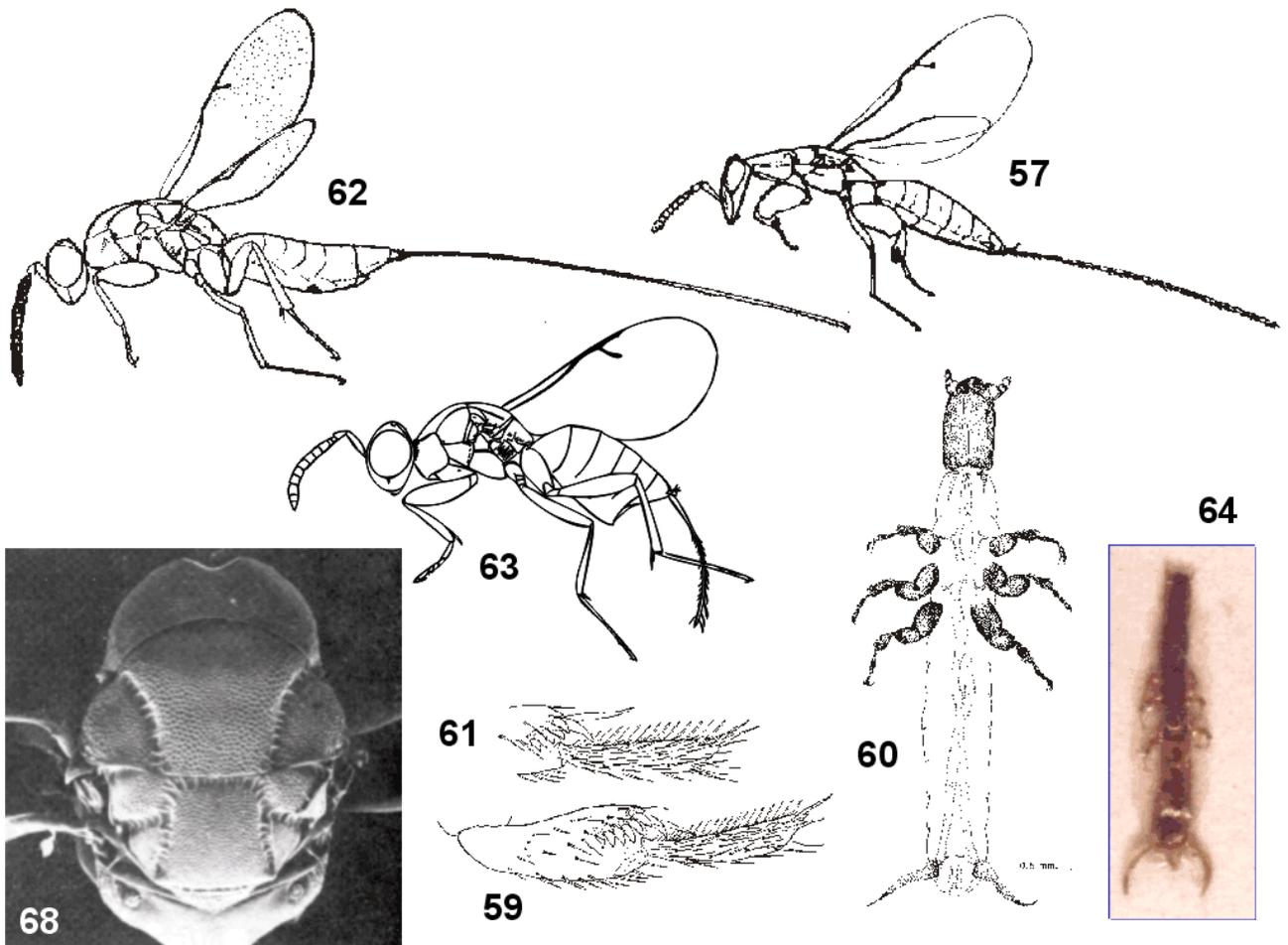
Figures 18-30. Epichrysomallinae. 18. *Canarothorax mutabilis*: female mesosoma. - 19. *Acophila* sp.: female mesosoma. - 20-21. *Lachaisea equicollis*: male (20), female head (21). - 22. *Lachaisea brevimucro*: male. - 23. *Lachaisea longimucro*: female. - 24. *Sycotetra serricornis*: female. - 25. *Lachaisea* sp.n. (ex *F. polita*): female mesosoma. - 26. *Lachaisea* sp.n. (ex *F. ovata*): galls containing adults. - 27-28. *Sycomacophila carolae*: female (27), mesosoma (28). - 29. *Sycomacophila montana*: female. - 30. *Josephiella microcarpae*: female.



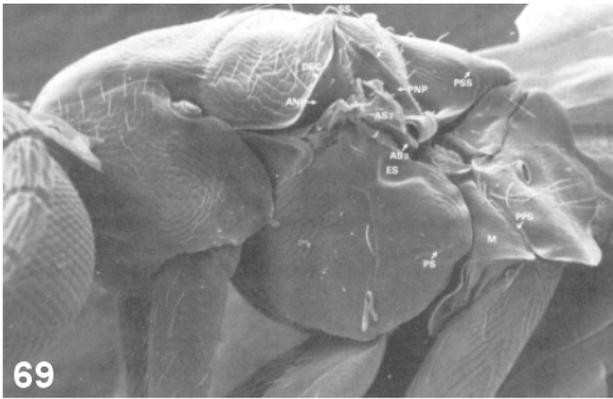
Figures 31-45. **Otitesellinae**. 31-38. *Walkerella microcarpae*: male (31-33), female (34-35), female mesosoma (36).- 37-40. *Micronisa yashiroi*: male (37-38), female (39), female mesosoma (40).- 41-43. *Comptoniellavannortii*: female head (41), female gaster (42), male(43).



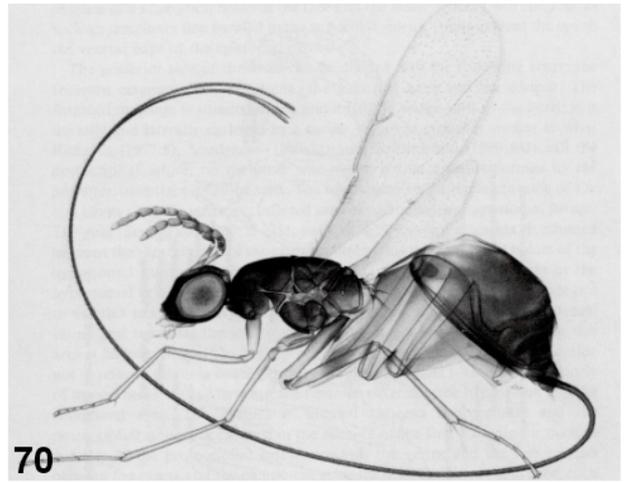
Figures 44-56. **Otitesellinae**. 44-45. *Otitesella nefsi*: female head (44), male fore tibia, digitata morph (45).- 46. *O. pseudoserrata*: male head, religiosa morph.- 47. *O. rotunda*: male mesosoma, digitata morph.- 48-49. *O. longicauda*: male mesosoma, digitata morph (48); male head, digitata morph (49).- 50-51. *O. tsanvi*: male (50), female (51).- 52. *Otitesella sp.*: male fight and female.- 53-54. *Philosycus collaris*: female (53), male (54).- 55. *Philosycus sp.* (ex. *F. artocarpoide*s): male head.- 56. *Philosycus collaris*: male.



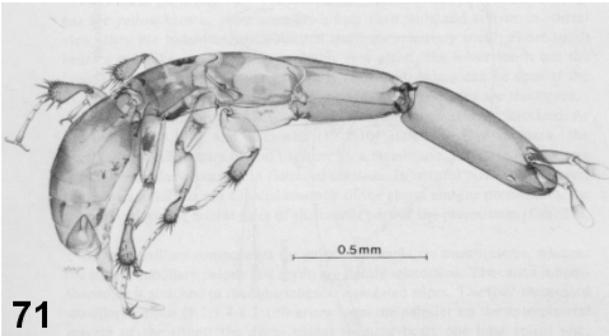
Figures 57-68. **Sycophaginae**. 57-59. *Sycophaga sycomori*: female (57-58), hind tibia female (59).- 60-61. *Sycophaga cyclostigma*: male (60), hind tibia female (61).- 62. *Platyneura* (= *Apocryptophagus*) sp.n. (ex *Ficus sur*): female.- 63. *Platyneurarobustus*: female.- 64-67. *Platyneura* sp.: male (64), female (65-67).- 68. *Platyneuraexplorator*: mesosoma female.



69



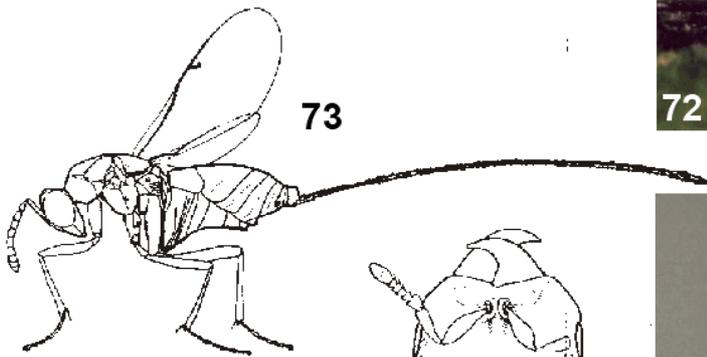
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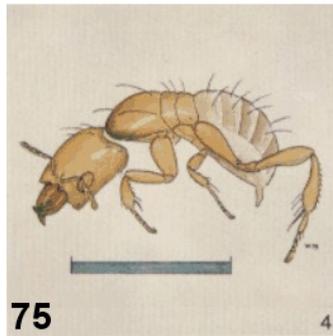
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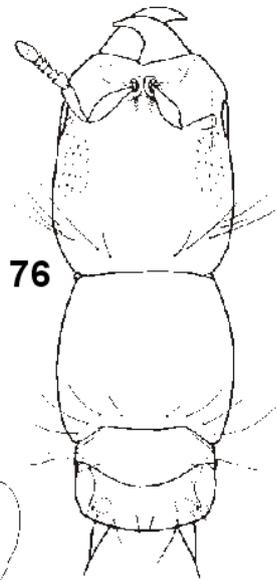
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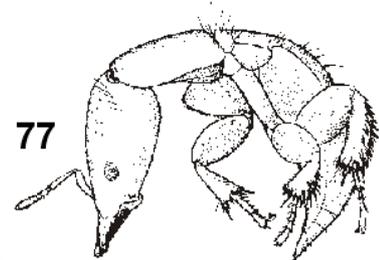
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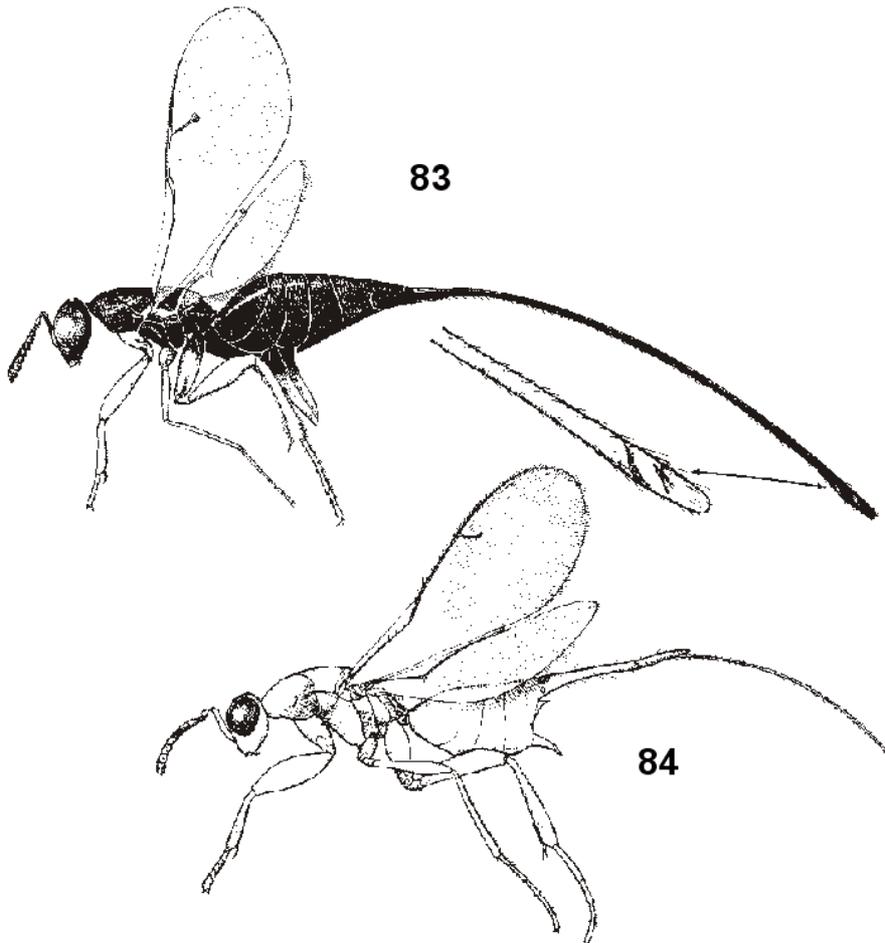


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78

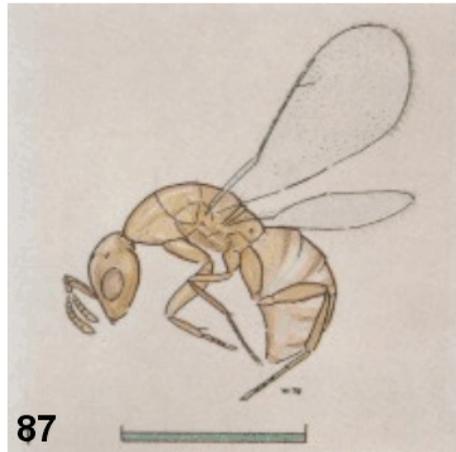
Figures 69-77. *Sycoryctinae*. 69-71. *Apocrypta perplexa*: female mesosoma (69), female (70), male (71).- 72-73. *Apocrypta guineensis*: female.- 74. *Apocrypta robusta*: female.- 75. *Sycoscapter renus*: male.- 76. *Sycoscapter* sp.: male.- 77. *Sycoscapter australis*: male.- 78. *Sycoscapter bambeyi*: female.



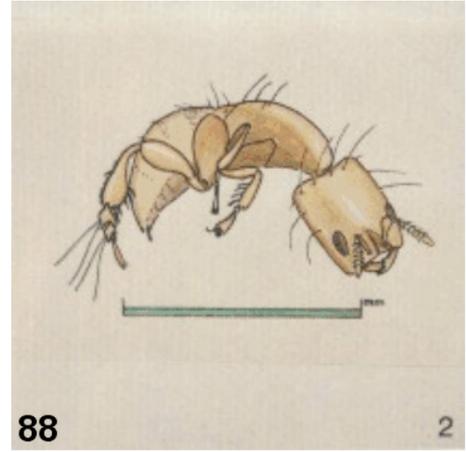
Figures 79-85. **Sycoryctinae**. 79. *Sycoscapter* sp. (ex *F. ovata*): mating.- 80-81. *Sycoscapter* sp.: male (80), female (81).- 82. *Sycoscapter cornutus*: female.- 83. *Sycoscapter australis*: female.- 84. *Philotrypesis longicauda*: female.- 85. *Philotrypesis caricae*: female.



86

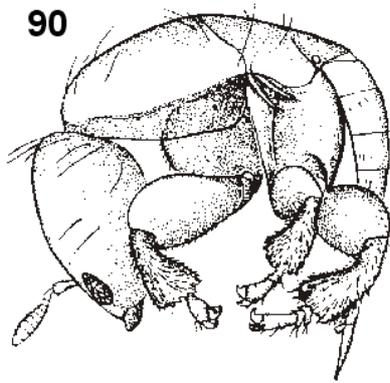


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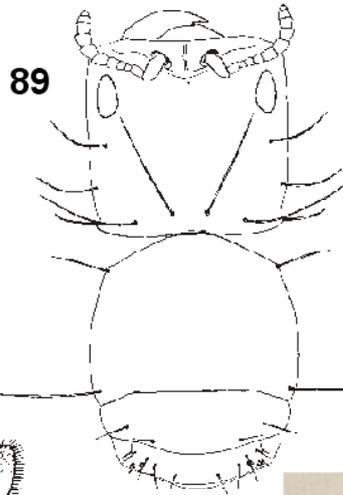


88

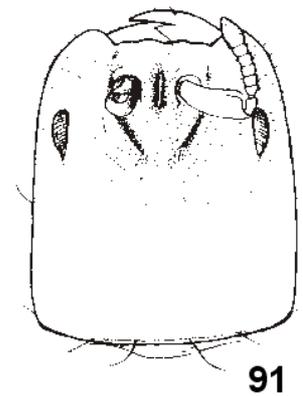
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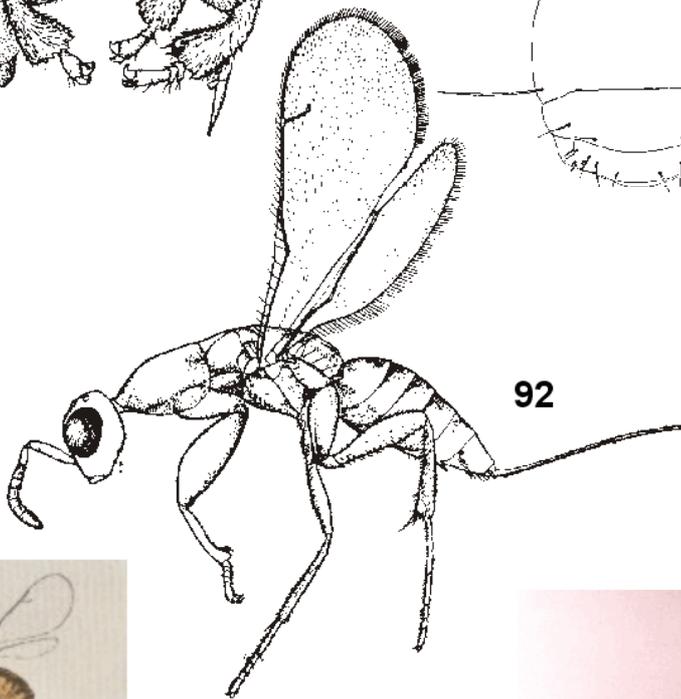
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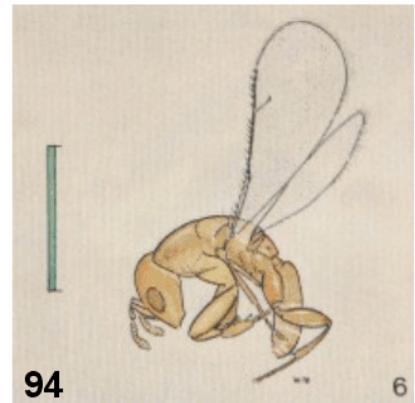
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91

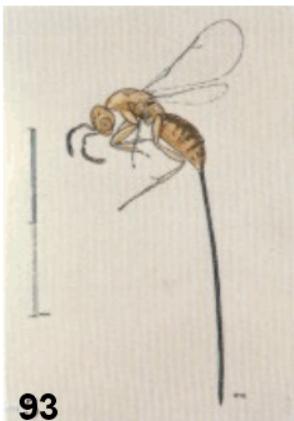


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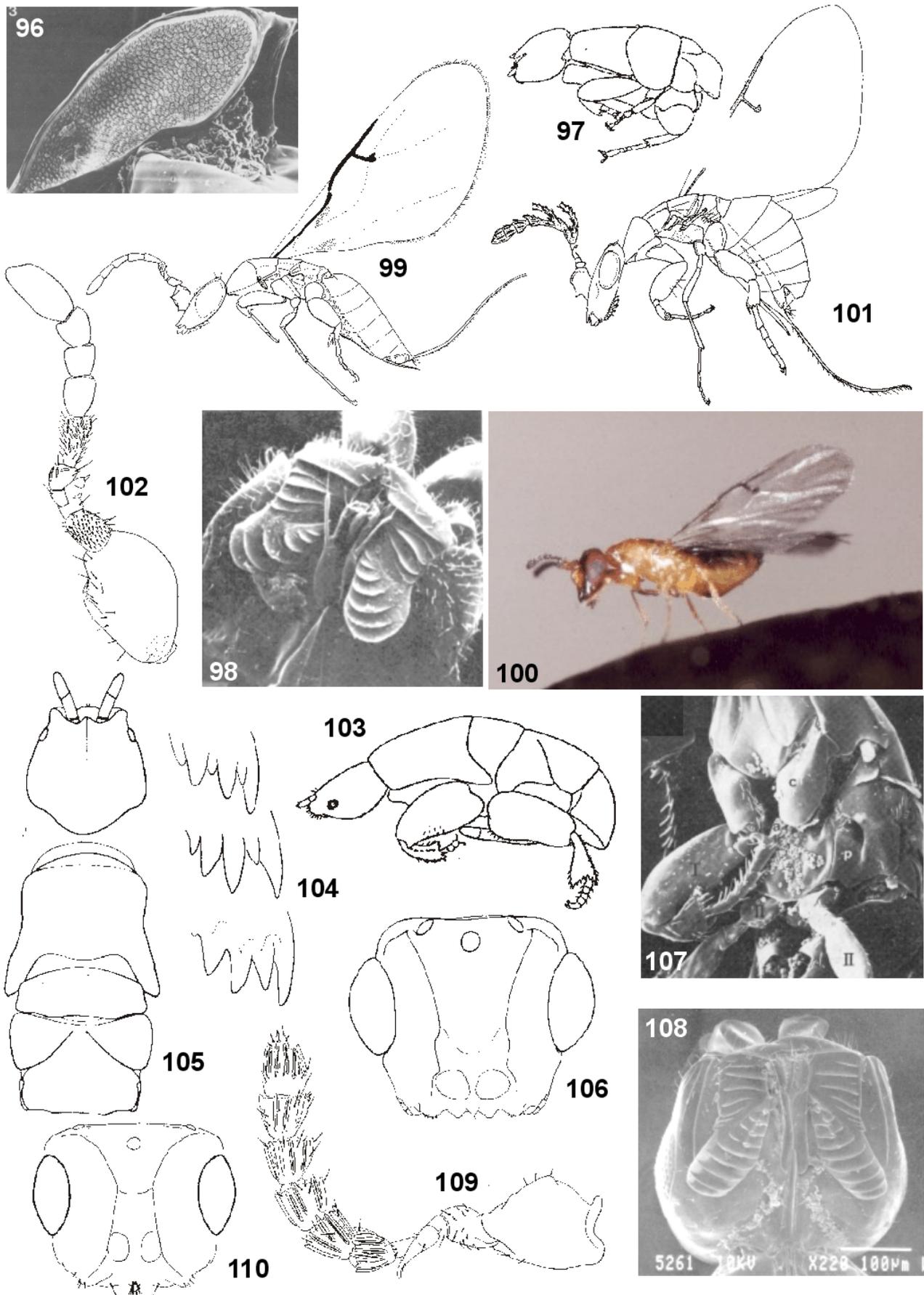


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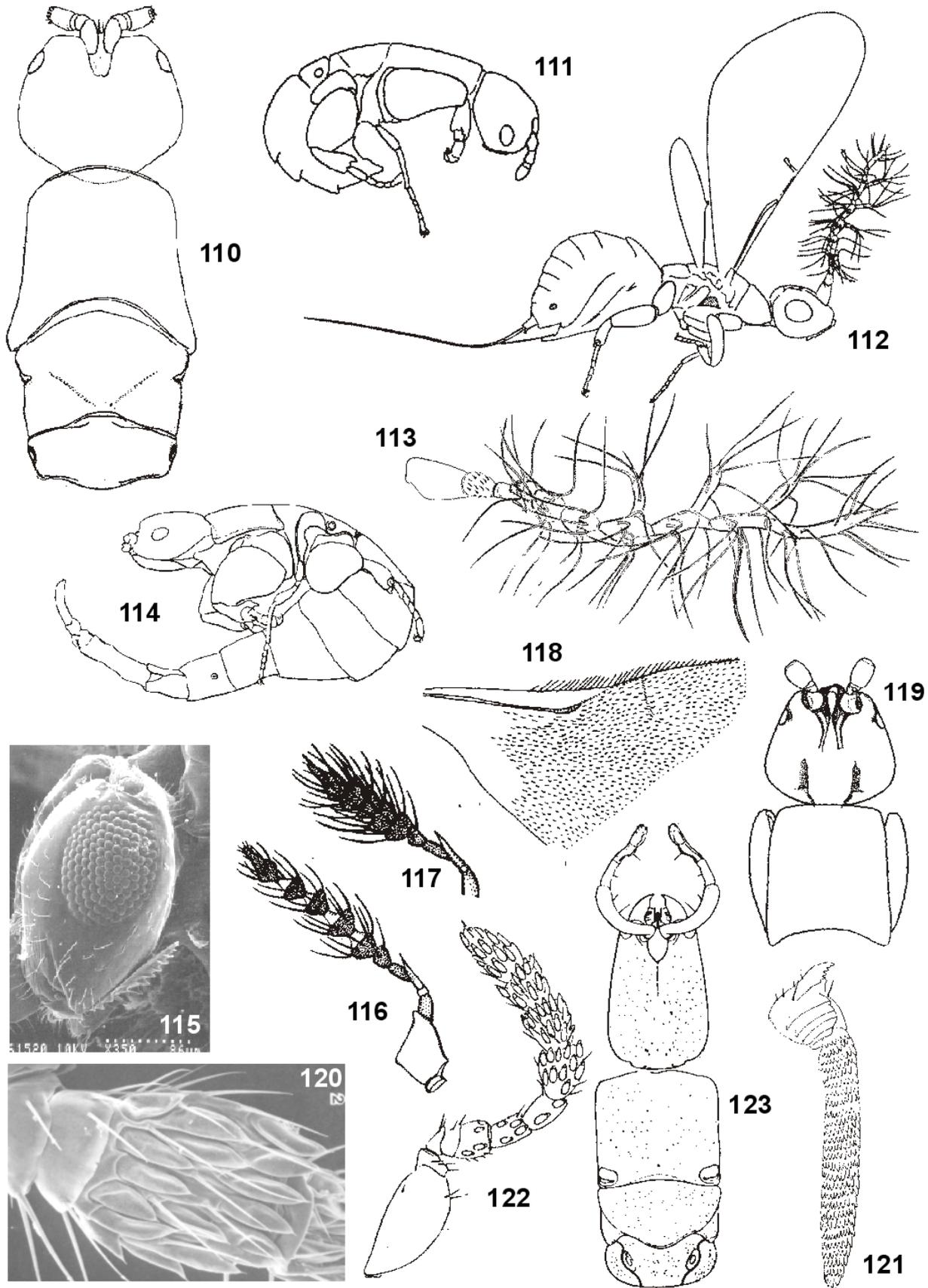


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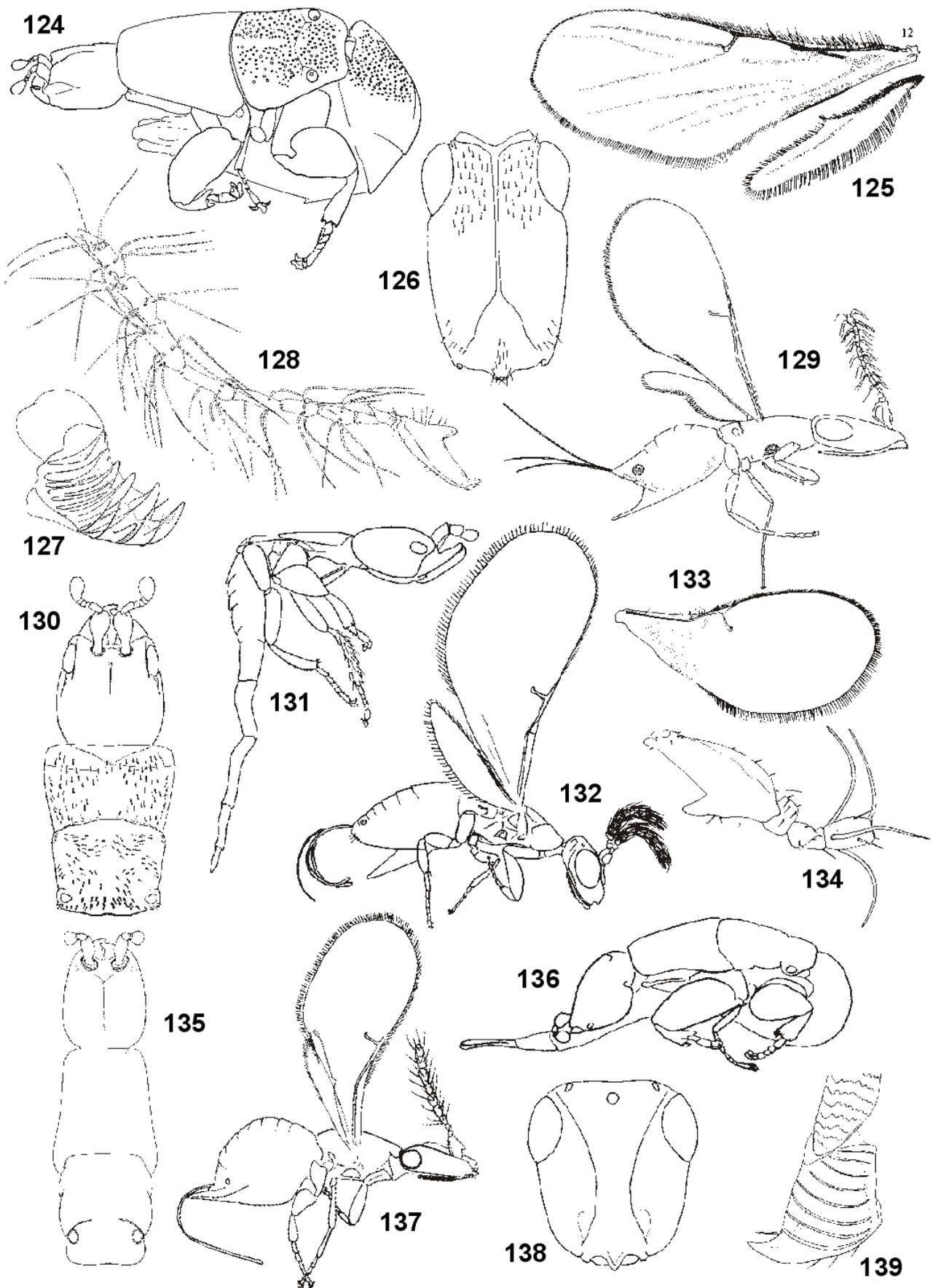
Figures 86-95. **Sycoryctinae**. 86-90. *Philotrypesis parca*: female (86), alata male (87), apterous male (88-89). 90-91. *Philotrypesis* sp.: male. 92. *Watshamiella aurea*: female. - 93-94. *Watshamiella alata*: male (93), female (94). - 95. *Watshamiella* sp. (ex *F. sycomorus*).



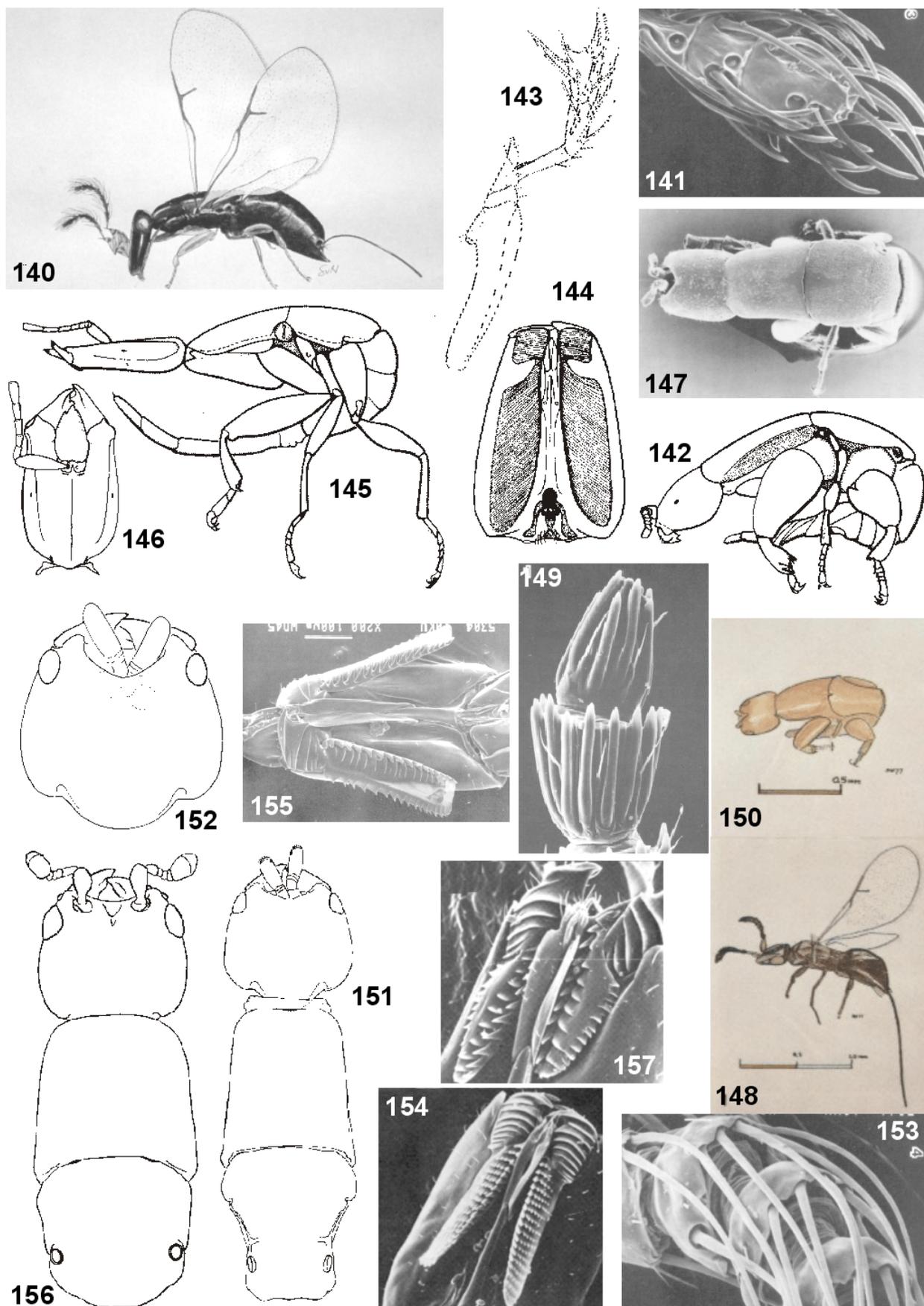
Figures 96-110. **Agaonidae**. 96. *Ceratosolen capensis*: peritremata. - 97-98. *Ceratosolen coecus*: male (97), female mandible (98). - 99-100. *Ceratosolen arabicus*: male. - 101. *Ceratosolen flabellatus*: female. - 102. *Ceratosolen namorokensis*: antenna. - 103. *Kradibia cowani*: male. - 104. *Kradibia* sp.: fore tibia comb. - 105. *Kradibia gestroi*: male mesosoma & head. - 106. *Kradibia etiennei*: male. - 107. *Platyscappa etiennei*: mesosoma & pollen pocket. - 108. *Platyscappa desertorum*: mandible. - 109-110. *Platyscappa binghamii*: antenna (109), female head (110).



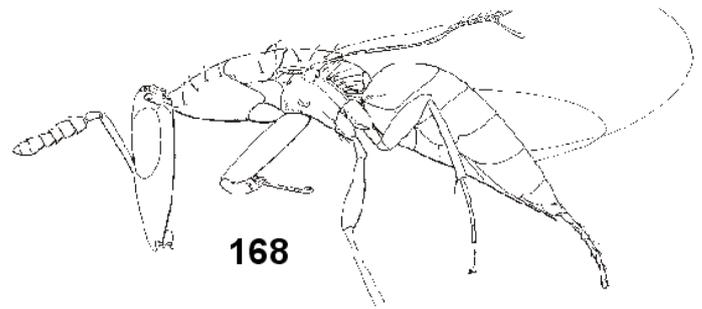
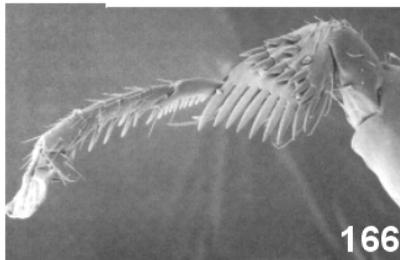
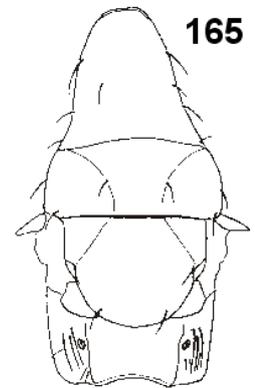
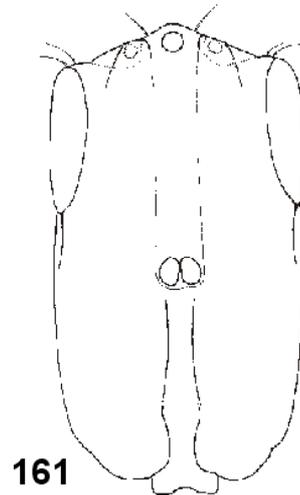
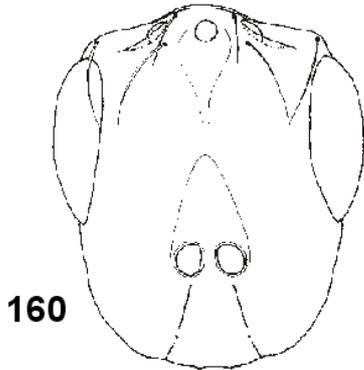
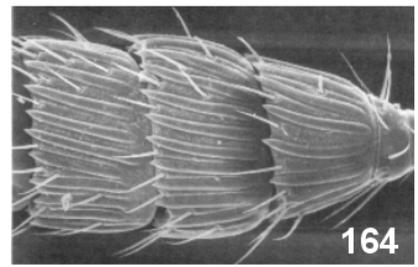
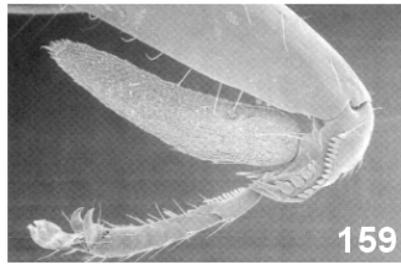
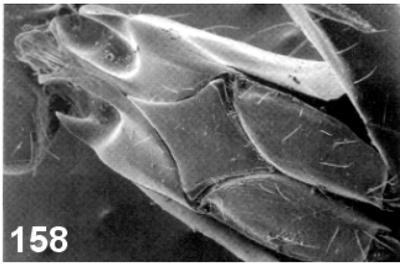
Figures 110-123. **Agonidae**. 110-113. *Dolichoris flabellata*: male (110-111), female (112), female antenna (113).- 114. *Blastophaga psenes*: male.- 115-119. *Eupristina verticillata*: female head (115), female antenna (116-117), female wing (118), male head (119).- 120-121. *Allotriozoon hexandromorphum*: funicular segment and sensillae (120), female mandible (121).- 122. *Allotriozoon nigeriense*: antenna.- 123. *Allotriozoon prodigiosum*: male head and mesosoma.



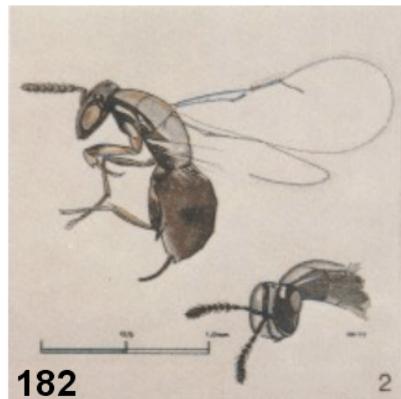
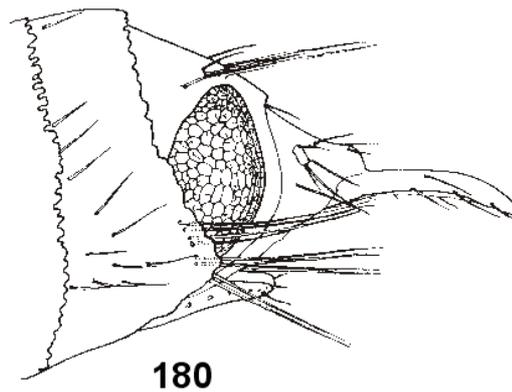
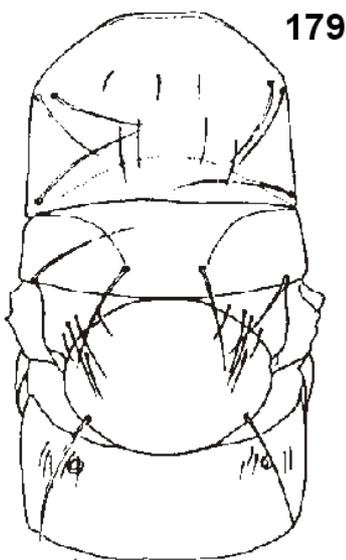
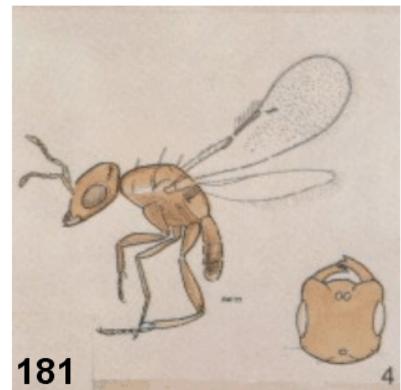
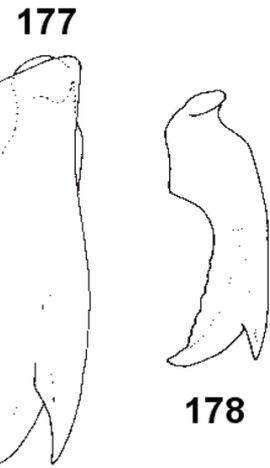
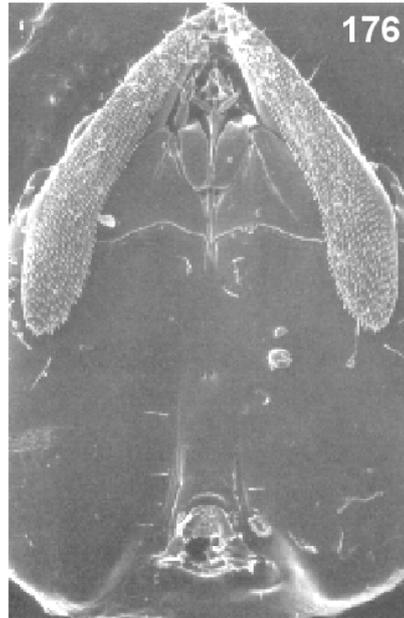
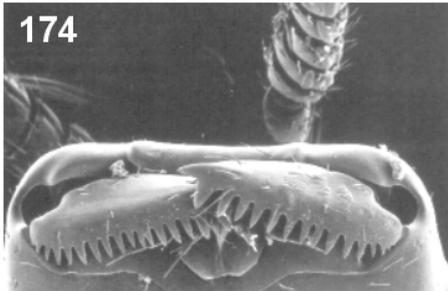
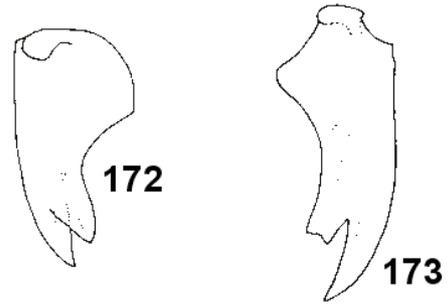
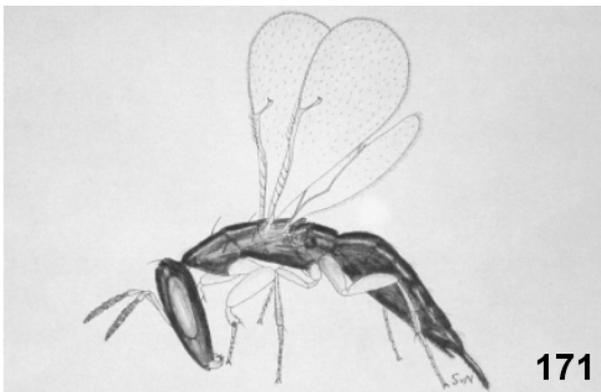
Figures 124-139. **Agaonidae**. 124-125. *Agaon paradoxum*: male (124), female wing (125).- 126-127. *Agaon spatulum*: female head (126), female mandible (127).- 128. *Agaon taiense*: antenna.- 129. *Agaon baliolum*: female. 130-132. *Alfonsiella bronger-smai*: male (130-131), female (132).- 133. *Alfonsiella fimbriata*: wing.- 134. *Paragaon perplexum*: antenna.- 135-138. *Paragaon josephi*: male (135-136), female (137), female head(138), mandible (139).



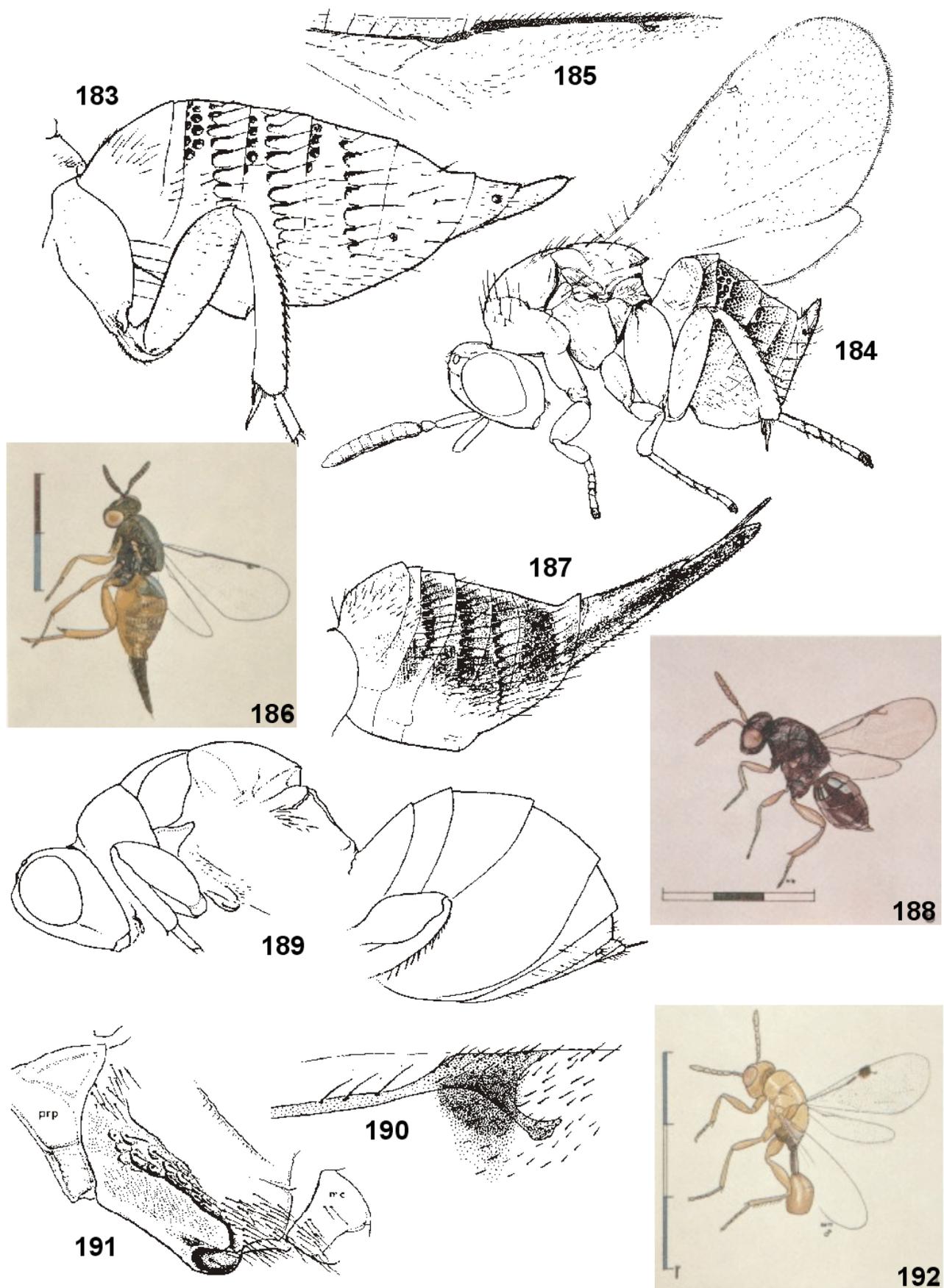
Figures 140-157. **Agaonidae**. 140. *Courtella wardi*: female. 141-142. *Courtella armata*: clava (141), male (142).- 143-146. *Courtella michaloudi*: female antenna (143), female mandible (144), male (145-146). - 147. *Courtella malawi*: male.- 148-151. *Elisabethiella stuckenbergi*: female (148), female clava (149), male (150-151).- 152. *Elisabethiella hilli*: male head.- 153. *Elisabethiella bajjnathi*: female antennal segment.- 154. *Elisabethiella reflexa*: mandible.- 155. *Nigeriella excavata*, mandible. 156-157. *Nigeriella avicola*: male (156), female mandible (157).



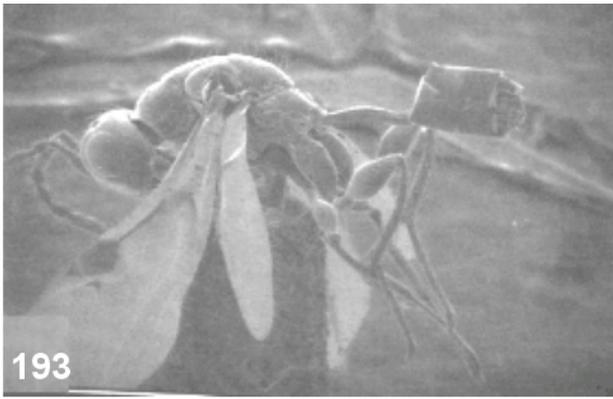
Figures 158-170. *Sycoecinae*. 158-159. *Sycocetus wiebesi*: female mesosternum (158), fore tibia female (159).- 160-161. *Sycocetus crinitus*: male head (160), female head (161), female antenna (162).- 163. *Sycocetus bergi*: male mandible.- 164-170. *Seres armipes*: female antenna (164), female mesosoma (165), female fore tibia (166), male (167), female (168-170).



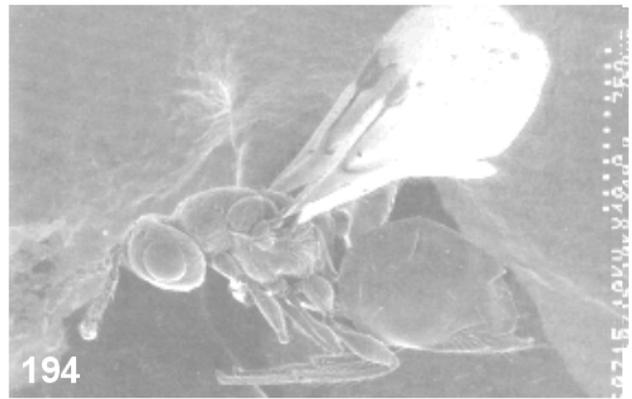
Figures 171-182. *Sycoecinae*. 171. *Philocaenus clairi*: female. - 172. *Philocaenus comptoni*: male mandible. - 173. *Philocaenus comorensis*: male mandible. - 174. *Philocaenus barbarus*: female mandible. - 175. *Philocaenus ugandensis*: female mandible. - 176. *Philocaenus hippopotomus*: female mandible. 177. *Crossogaster nichaloudi*: male mandible. - 178. *Crossogaster lurida*: male mandible. - 179. *Crossogaster rastellus*: female mesosoma. - 180. *Crossogaster stigma*: tip of metasoma and stigmata. - 181-182. *Crossogaster odorans*: male (181), female (182).



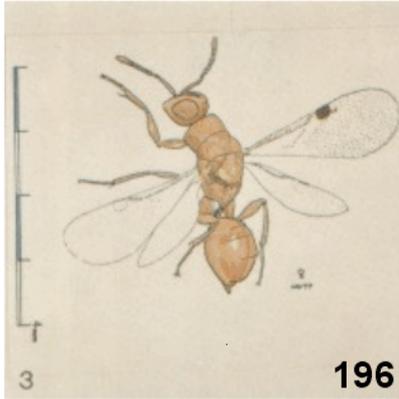
Figures 183-192. Ormyridae. 183. *Ormyrus subconicus*: female gaster.- 184. *Ormyrus watshami*: female.- 185-187. *Ormyrus flavipes*: venation (185), female (186), female gaster (187).- Eurytomidae. 188. *Eurytoma ficusgallae*: female.- 189-190. *Ficomila gambiensis*: female (189), venation (190).- 191. *Ficomila curtivena*: female mesosternum.- 192. *Sycophila flaviclava*: male.



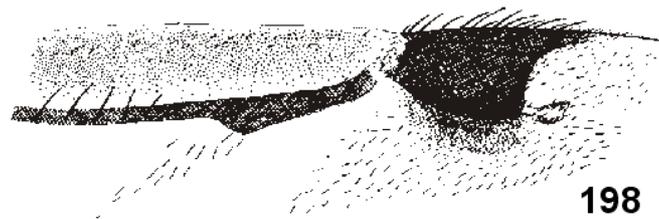
193



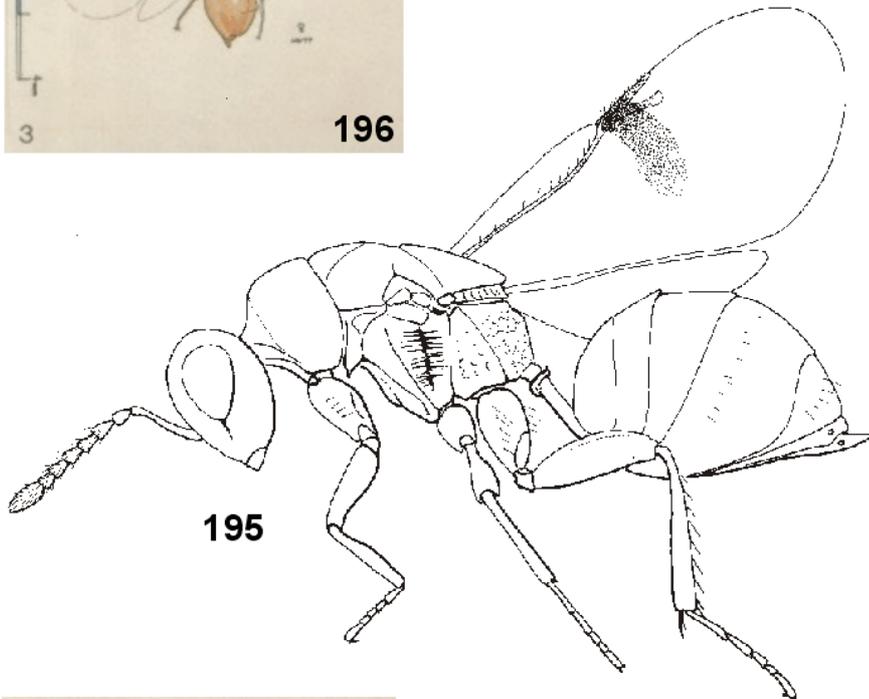
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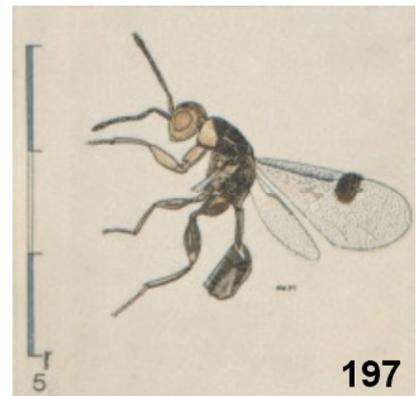
196



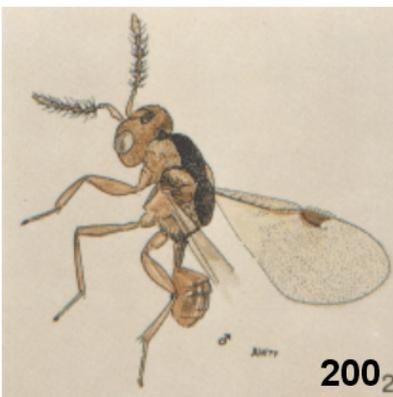
198



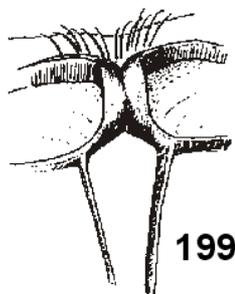
195



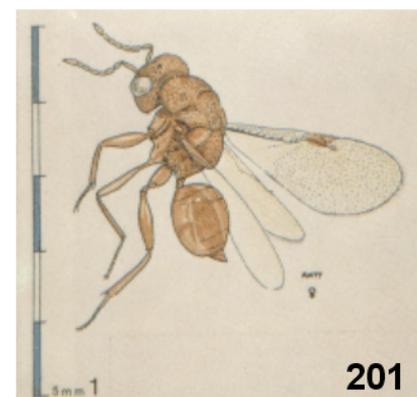
197



200₂



199



201

Figures 193-201. Eurytomidae. 193-195. *Sycophila* sp.: male (193), female (194-195).- 196. *Sycophila flaviclava*: female.- 197. *Sycophila kestraneura*: male.- 198-201. *Syceurytoma ficus*: venation (198), female mesosternum (199), male (200), female (201).

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