

Revision of Ancylobotrys Pierre

Series of Revisions of Apocynaceae XXXVII

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Abstract

Monograph of *Ancylobotrys*, a genus counting 7 species of the *Apocynaceae-Plumerioideae-Carisseae-Landolphiinae* restricted to Africa. A key to the species is presented. All 7 species are described in detail, illustrated and maps depict the geographical distribution.

Introduction

The present paper is a monographic revision of the genus *Ancylobotrys*. The study is based mainly on herbarium material, but in addition the second author has had the opportunity of observing living plants in the wild of 4 of the 7 species maintained here.

It has been possible to trace almost all type specimens of the names and synonyms discussed in the present revision.

Geographical distribution

The genus *Ancylobotrys* comprises 7 species, which are all restricted to Africa. Six of them occur only on the continent. One of them, *A. petersiana*, known on the eastern part of the continent from Somalia to South Africa, also occurs in the Comoro Islands and Madagascar, but in the latter country it is restricted to the coastal dunes mainly near Majunga.

The most widespread species is *A. amoena*, known from almost all tropical regions of continental Africa. This is followed by *A. scandens* represented from Liberia to Zaire and Angola and *A. petersiana* mentioned above.

The areas of the four other species are much smaller, *A. robusta* is represented from the Cross River State in Nigeria to Zaire, *A. pyriformis* from the Cross River State in Nigeria to Gabon, *A. tayloris* occurs near the coast from Kenya to northern Mozambique and on the Mt Mulanje in Malawi, while *A. capensis* is only known from southern Africa.

Relationships with other genera

Ancylobotrys belongs to the subtribe *Landolphiinae* of the tribe *Carisseae* of the subfamily *Plumerioideae*. It is most closely related to *Landolphia*, from which it can be distinguished most easily by two characters: the inflorescence is tendril-like contrary to fairly densely cymose and the fruits are softly pubescent rather than glabrous.

The genus can be distinguished from the other ones of the subtribe as is shown in the key to the genera of this subtribe published by Persoon et al. (1992).

Reference

Persoon, J.G.M., F.J.H. van Dilst, R.P. Kuijpers, A.J.M. Leeuwenberg and G.J.A. Vonk. 1992. The African species of Landolphia P. Beauv. Series of revisions of Apocynaceae XXXIV. Wageningen Agric. Univ. Pap. 92-2: 1-232.

Orthography of the genus name

Pierre erroneously wrote the genus name as *Ancylobothrys*, this spelling has been followed until Huber (Fl. W. Trop. Afr. 2nd ed. 2. 1963) corrected it. The name has been derived from two Greek words: ἄγκυλη, ancyla, hook, and βότρυς, bottys, grape. For this genus Huber fortunately was not obliged to accept the earlier misspellings as in the case of *Rauvolfia* (named after Rauwolf).

Systematic part

Ancylobotrys Pierre, Bull. Soc. Linn. Paris sér. 2: 91. 1898; Hua, Bull. Mus. Nat. Hist. Nat. 5: 186. 1899; Pichon, Mém. IFAN 35: 272. 1953 (all three as *Ancylobothrys*); Huber in Fl. W. Trop. Afr. 2nd ed. 2: 60. 1963; Persoon et al., Wageningen Agric. Univ. Pap. 92.2: 5. 1992.

Sarmentose shrubs or lianas, at least partly with a rusty-brown indumentum, with large curled terminal tendrils, which could be at the same time inflorescences. Branchlets terete. Stipules absent. Leaves opposite, petiolate, entire. Inflorescence terminal, tendril-like, lax, except for the last ramifications where flowers are usually sessile. Flowers sweet-scented. Sepals green, often seemingly rusty-brown by indumentum, usually without colleters. Corolla white or nearly so; tube narrow, often thickened above the stamens, glabrous or pubescent outside; lobes ciliate at both sides, with longer hairs at side covered in bud. Stamens deeply included, inserted 0.1—0.35 of the length of the corolla tube from the base; anthers narrowly triangular, cordate at the base, keeled along the back, glabrous. Pistil: ovary hairy, unilocular, abruptly narrowed into the style; pistil head of a subglobose or cylindrical stigmatic basal part and a bilobed sigmoid apex. Fruit a berry, yellow to red, globose or pear-shaped or nearly so, rounded at the apex, softly velutinous; wall without sclereid cell-layer. Seed with horny endosperm, surrounding the embryo. Embryo almost touching the edges of the seed; cotyledons large, membranaceous, undulate; rootlet about 1.5 × 1 mm.

The genus counts 7 species in tropical Africa, one of which occurs also in the Comoro Islands and in NE Madagascar mainly near Majunga.

Uses: The fruits of all species are edible, especially those of *A. capensis* are appreciated; they taste like apricots.

Key to the species

1. Secondary veins curved, forming an angle of 45–60° with the costa 2
Secondary veins more or less straight, forming an angle with the costa of 60–90° or less (*A. amoena* which has tomentose branchlets) 3
2. Petiole 12–26 mm long; leaf blade acuminate at the apex, with 5–12 pairs of secondary veins; corolla tube 0.9–2.1 × as long as the lobes, 10.5–20 mm long. From Cameroun and Gabon to Zaire and Zambia 5. *A. robusta*
Petiole 6–10 mm long; leaf blade rounded or obtuse at the apex, with 4–9 pairs of secondary veins; corolla tube 0.3–0.8 × as long as the lobes, 8.5–13 mm long. Kenya to South Africa, Comoro Islands and Madagascar
..... 3. *A. petersiana*
3. Corolla tube glabrous or sparsely short-pubescent outside, 1.4–3.8 × as long as the lobes, 17.5–43.5 mm long; corolla 33–59 mm long in the mature bud; secondary leaf veins forming an angle of 60–90° with the costa; branchlets rather densely more or less appressedly short-pubescent. Liberia to Zaire and Angola 6. *A. scandens*
Corolla tube pubescent, often even densely so outside, 0.5–1.4 × as long as the lobes, 7.7–18 mm long; corolla 18–35 mm long in the mature bud; secondary leaf veins forming various angles with the costa, less than 60° only in *A. amoena* which has almost tomentose branchlets 4
4. Corolla lobes with same often dense pubescence outside as tube; secondary leaf veins in 8–16 pairs and forming an angle of 70–90° with the costa. Nigeria to Gabon 4. *A. pyriformis*
Corolla lobes glabrous to minutely pubescent and tube often densely pubescent outside; secondary leaf veins in 7–14 pairs and forming an angle of 45–70° with the costa, leaves acuminate and branchlets almost tomentose (*A. amoena*), otherwise forming an angle of 70–90° with the costa (only in 8–16 pairs when leaves rounded or obtuse, *A. capensis*) 5
5. Leaf blades 0.8–4.5 cm long, usually rounded or obtuse at the apex; secondary veins in 8–16 pairs. SE and S Africa 2. *A. capensis*
Leaf blades 6.7–12 cm long and acuminate at the apex, if only 4 cm long then secondary leaf veins in 19–40 pairs 6
6. Branchlets glabrous or minutely pubescent; secondary leaf veins in 19–40 pairs, forming an angle of 70–90° with the costa. Kenya and Tanzania
..... 7. *A. tayloris*
Branchlets almost tomentose; secondary leaf veins in 7–14 pairs, forming an angle of 45–70° with the costa. Tropical Africa 1. *A. amoena*

1. *Ancylobotrys amoena* Hua, Bull. Mus. Nat. Hist. Nat. 5: 186. 1899; Pichon, Mém. IFAN 35: 274, pl. 17. 1–2. 1953. **Fig. 1, p. 6; map 1 p. 7**

Type: Guinea, Kankan, Upper Niger R., near Kouroussa, Paroisse 24 (P, holotype; isotype K; phot. of holotype B, K, MO, NY).

Homotypic synonyms: *Landolphia amoena* (Hua) Hua & A.Chev. in Morot, Journ. Bot. 15: 8. 1901. *Pacouria amoena* (Hua) Pichon, Mém. Mus. Nat. Hist.

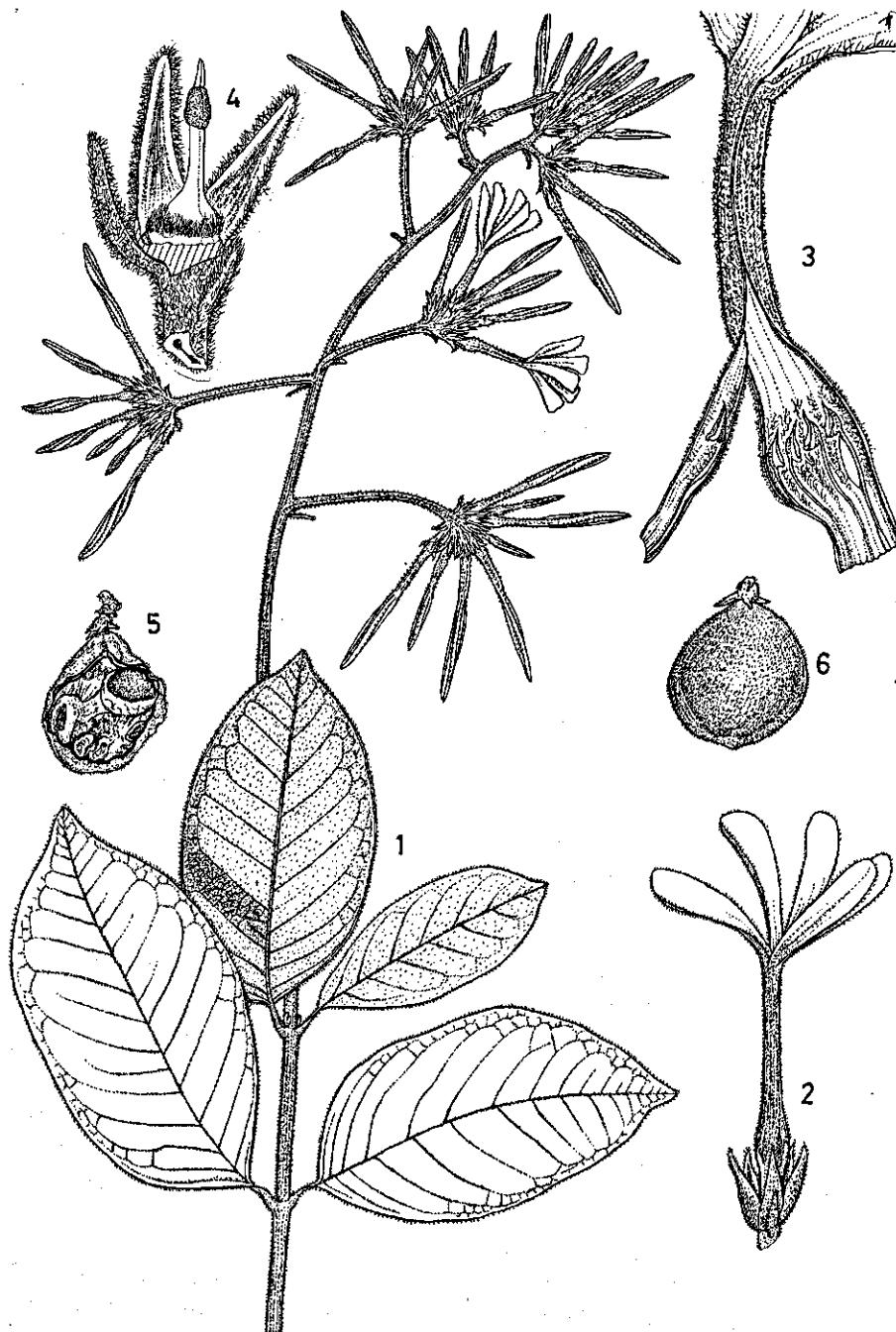
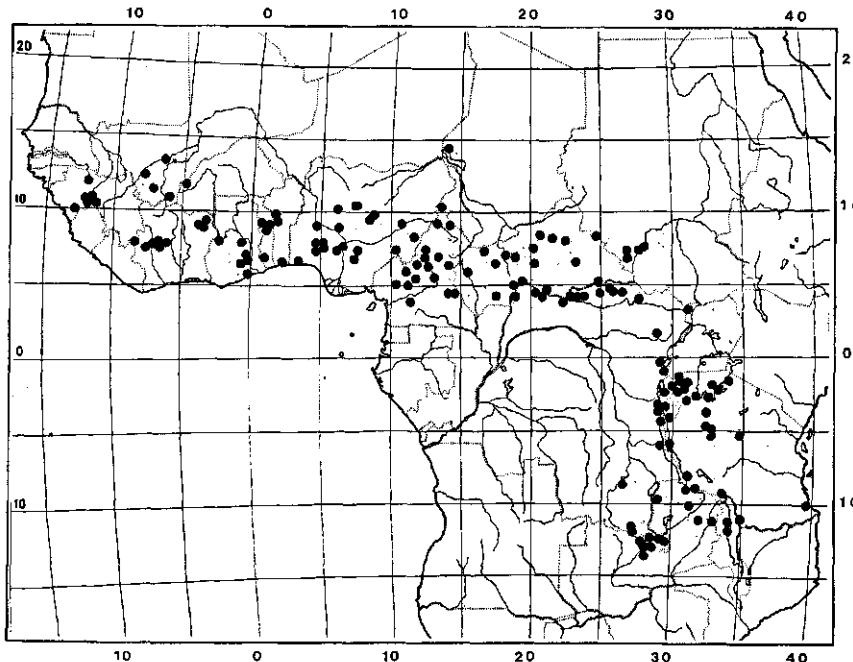


Fig. 1. *Ancylobotrys amoena*. 1, habit ($\times 2/3$); 2, flower ($\times 2$); 3, corolla with tube partly opened ($\times 4$); 4, calyx with pistil ($\times 6$); 5, longitudinal section of dried fruit ($\times 2/3$); 6, fruit ($\times 2/3$). 1–4 from Asongany 598; 5 from Bridson 239; 6 from Troupin 4157.



MAP 1. *Ancylobotrys amoena*.

Nat. sér. 2, 24: 144, 1948.

Heterotypic synonyms: *Landolphia scandens* var. *ferruginea* Hall. f., Jahrb. Hamb. Wiss. Anst. 170, Beih. 3: 80. 1900. Type Tanzania, T8, Lake Malawi, Kanda Peninsula, Goetze 884 (K, lectotype, designated here; isolectotypes BR, E). Homotypic synonym: *L. ferruginea* (Hall. f.) Stapf in Fl. Trop. Afr. 4: 1: 46. 1902.

L. scandens var. *rigida* Hall. f., op. cit. 81. Type: Tanzania, T1, Karagwe, Scott Elliot 8167 (K, lectotype, designated here).

L. scandens var. *schweinfurthiana* Hall. f., l.c. Type: Sudan, Djurland, Sériba d'Agat, Wau R., Schweinfurth 1685 (K, lectotype, designated here; isolectotype P). Homotypic synonyms: *L. petersiana* var. *schweinfurthiana* (Hall. f.) Stapf in op. cit. 48. *P. petersiana* var. *schweinfurthiana* (Hall. f.) S. Moore, Journ. Linn. Soc. Bot. 37: 180. 1905.

L. nitida Lebrun & Taton, Expl. Parc. Nat. Kagera 105. 1948. Type: Rwanda, Rwabiega (= Ryabega), Lebrun 9820 (BR, holotype; isotypes K, P).

Scrambling shrub or liana climbing up to at least 10 m high. Branchlets densely brown-pubescent to almost tomentose. Leaves: petiole densely pubescent, (1.1–)5–13 mm long; blade thinly coriaceous even when fresh, elliptic or ovate, sometimes oblong, 1.6–2.4 × as long as wide, 6.7–11.6 × 2.8–7 cm, acuminate at the apex with an up to 10 mm long acumen, cuneate at the base, sometimes decurrent into the petiole, glabrous to minutely pubescent on both sides, with 7–14 pairs of conspicuous more or less straight to slightly curved secondary veins, forming an

angle of 45–70° with the costa; tertiary venation reticulate. *Inflorescences* 10–38 × 5–17 cm, with 5–11 cymes, each cyme with up to about 25 flowers; peduncle 4–18 cm long, densely pubescent; pedicels about 1 mm long, densely pubescent; bracts sepal-like, densely pubescent outside, 1.7–2 mm long, persistent, with or without colleters at both sides of the base. *Sepals* connate at the base for up to 0.8 mm, narrowly triangular to ovate, 1.5–2.9 × as long as wide, 2.5–5 × 1–2 mm, acute or obtuse at the apex, densely pubescent outside, ciliate, glabrous inside. *Corolla* white or pinkish, especially at the tube, 19.5–35 mm long in the mature bud and forming a narrowly ovoid to oblong head, pubescent, often densely so outside, from 1.5–3.5 mm above the base to the base of the lobes, indumentum less dense towards the apex; tube thin to thick, usually somewhat thickened above the anthers, 3.5–7.1 × as long as the sepals, 0.9–1.4 × as long as the lobes, 11.2–18 mm long, contracted at the base and 1.4–1.9 mm wide, widened above to 1.8–3 mm wide which is 4.2–5 mm above the base (0.3–0.4 of the tube length), contracted again just above the anthers and 0.9–1.9 mm wide, abruptly widened at the throat, inside minutely pilose around the stamens, rarely glabrous, throat glabrous; lobes narrowly elliptic, rarely oblong, 0.7–1.1 × as long as the tube, 2.4–5.7 × as long as wide, 8.5–20.5 × 2.7–5 mm, obtuse at the apex, glabrous on both sides, sometimes minutely pubescent outside. *Stamens* with apex 6.2–12.7 mm below mouth of corolla tube (0.5–0.7 of the tube length), inserted 0.2–0.3 of the tube length, (at 2.7–3.9 mm from the base), (the base of the anthers 3.2–4.3 mm above the base of the tube); filaments glabrous, 0.6–1 mm long; anthers 1.8–3.2 × as long as the filaments, 3–4.3(–5.3) × as long as wide, 1.6–2 × (0.3)–0.4–0.6 mm, apex acuminate and sterile for up to 0.2 mm. *Pistil* 3.5–4.5 mm long, with apex 1.1–2.2 mm below apices of anthers; ovary subglobose, 0.6–1.3 × 0.9–1.6 × 0.9–1.6 mm, appressed-pubescent, often densely so; style glabrous, cylindrical, not or sometimes slightly thickened at the apex, 1.5–2.1 × 0.2–0.4 mm; pistil head: basal part cylindrical, 0.7–1.2 × 0.5–0.6 mm and upper part conical, 0.4–1 × 0.3–0.6 mm. Placentas with 40–50 ovules. *Fruit* yellow to red, globose or slightly pear-shaped, 1.5–2 cm in diameter, 1–4-seeded. *Seeds* 7–10 × 7–10 × 3 mm.

DISTRIBUTION: Tropical Africa.

ECOLOGY: Secondary forest and gallery forest in woodland. Alt. 0–2400 m. Flowering in West Africa west of Nigeria mainly from November to February, in Nigeria and countries eastwards to Uganda from December to May, in Rwanda and Tanzania scattered over the year, and in southern Zaire, Zambia, Malawi and Zimbabwe mainly from July to September. Fruiting from the same months to one year later; in the latter case flowers and ripe fruits on the same branch.

Geographical selection of the approximately 300 specimens examined:

GUINEA. Labé: Fouta Dallon, near Mali, Lisowski 51575 (BR, POZG). Kindia: Kindia, Chevalier 13158 (P); near Dalaba, Lisowski 60265 (BR); ibid., Malaisse 2629 (BR); between Diaguissa and Boulivel, Chevalier 12415 (P); Diaguissa, Chevalier 18006 (P, WAG); Mamou, Boué 11 (G). Kankan: Kouroussa, Chevalier 384 (BR, G, K, P, WAG); ibid., Upper Niger R., Paroisse 24 (K, P, type; phot. of

K sheet B, BR, K, MO, NY); 4 km N of Kankan, Lisowski 55122 (K, POZG). Nzérékoré: Mt Nimba, Adam 25228 (MO).

MALI. Near Bamako, Roberty 10389 (G); Mono, Doudou, Chevalier 432 (P, WAG); Lobougoula, Anonym. S 326 (P); between Kangala and Kindali, Chevalier 861 (P).

IVORY COAST. 5 km NW of Duékoué, Leeuwenberg 3879 (B, K, P, WAG); Upper Sassandra R., between Koualé and Kouroukoro, Chevalier 21753 (P); Séguéla, Garnier 39 (K); Rocher d'Issia, Roberty 13832 (G, Z); ibid., J. de Wilde 833 (WAG); Mankono, Chevalier 21914 (P); 30 km N of Gawi, Comoé R., Geerling & Bokdam 1924 (BR, C, LG, MO, WAG); 15 km SW of Seye, Geerling & Bokdam 2058 (BR, K, MO, WAG); Téhini, Oldeman 365 (BR, K, WAG).

BURKINA FASO. between Sikasso and Bobo-Dioulasso, Vuillet 559 (P).

GHANA. Brong-Ahafo: Wenchi area, top of Banda ridge, Morton GC 25280 (K); Prang, Vigne 1577 (K, P). Eastern: E.P. Mpraeso, Enti FH 6506 (B, K, P); between Dodowa and Aburi, Morton GC 6350 (K, WAG); NE of Dodowa, Leeuwenberg 11916 (WAG); Akwapim, W.H. Johnson 782 (K). Volta: Toga Mt, Morton A 3555 (K); near Amedzofe, Morton GC 9391 (K).

Togo. Sokodé Bafilo, near Péwa, Hakki et al. 242 (K, P, WAG); Bassar, Em 2644 (B, K); near Sokodé, Brunel 7156 (B); N of Kpalimé, Hakki et al. 793 (B).

BENIN. near Ouidah, Adjanohoun 216 (K); Djougou, Chevalier 23921 (P); Mt Atacora, Chevalier 24051 (P).

NIGERIA. Lagos: near Isahin R., Rowland 20 (K). Ondo: Isua District, Olorunfemi & Fagbemi FHI 70714 (K, WAG); Ikare District, Ipe, Daramola & Ihe BO 413 in FHI 86359 (MO, WAG). Oyo: between Nkata and Ayo, Unwin 2 (K, P, Z). Kwara: Lokoja District, between Lampese and Ibillo, Soladoye et al. BO 374 (MO, WAG); Lokoja, Dalziel 98 (K); Oke-Opin, Ajayi FHI 19294 (K); Jebba, Meikle 1005 (K). Niger: Kpashimi F.R., Eimunjeze & Adebusuyi FHI 66323 (K, WAG); near Kayara, Meikle 1371 (B, BR, K, P). Kaduna: Kan Gimi, Keay FHI 22960 (K). Plateau: Naraguta F.R., Olorunfemi FHI 55684 (K, P); Kirimi, Sharland 1211 (K); Assob Hill, 55 km S of Jos, Wit 1340 (WAG). Benue: Ankpa District, Acharane F.R. Okafur FHI 36870 (K); between Idah and Nsukka, Latilo FHI 47699 (K). Gongola: Moakam R., between Serti and Gashaka, Latilo & Daramola FHI 34454 (K, P, WAG); Sanlingbe, Hepper 1555 (BR, K, P, S); Gangoro F.R., Chapman 4161 (K).

CAMEROUN. Nord: between Mogodé and Rhoumsiki, Geerling 5664 (P, WAG); Sanguere, 22 km S of Garoua, Fotius 2551 (P); Langoy, 60 km SW of Tcholliré, Fotius 2578 (P); Tchabal Mts, 50 km WSW of Tignéré, Satabié 636 (P, WAG); ca 5 km S of Ngaoundéré, Breteler 312 (BR, K, LISC, P, WAG); 10 km S of Ngaoundéré, Wakwa, Leeuwenberg 7660 (BR, K, LISC, MO, P, WAG); Galim, Sixer 365 (K); Mbella Assom, 41 km E of Tibati, Asonganyí 598 (YA); Labaré, Ledermann 2530 (K); near Banyo, Biholong 190 (BR, K, P, WAG); between Foumban and Banyo, Jacques Félix 3275 (P). Ouest: 6 km NE of Banganté, W. de Wilde 2578a (P, WAG). Centre-Sud: near Nyanbingi, 30 km SW of Linte, Nkongmeneck 338 (WAG); Mt Yangba, 42 km NNE of Bafia, Letouzey 7849 (P, WAG); Mts Ngole, N of Banda, Raynal 10728 (P); Lom and Djerem Rivers confluence, Mildbraed 8501 (HBG). Est: between Kongolo and Mbussa, Mildbraed 9116 (K); Mt Pandi, 30 km NW of Batouri, Letouzey 4743 (BR, K, P, WAG); Mt Nion, 15 km ESE of Batouri, Letouzey 4619 (P, WAG).

CENTRAL AFRICAN REPUBLIC. Nana-Mambéré: Bouar, Mildbraed 9444 (K). Lobaye: Bambari, Mbokou R., Tisserant 579 (BM, P). Kemo-Gribingui: Yamberé R., Chevalier 6055 (P, Z); Tomi R., near Fort de Possel, Chevalier 5377 (BM, COI, P). Bamingui-Bangoran: Kaga Pongourou, Chevalier 6558 (P, WAG); near Balidja, Chevalier 6678 (P); Ndellé, Chevalier 7143 (P, W, Z), 7402 (BR, G, K, L, P); between Ouadda and Ndellé, Chevalier 400 (P). Ouham: Boguila Region, Fay et al. 5136 (K); Bossangoa, Fay 5135 (K); Mt Kadé, Lenfant 1119 (P). Gribingui: Gribingui, Chevalier 6488 (P). Ouaka: near Kuduko, 20 km N of Moroubas, Tisserant 1810 (BM, GH, P, WAG). Basse-Kotto: Fay 2144 (K). Haut-Kotto: Ouadda, Dybowski 8b (P); near Mouka, 65 km S of Yalinga, Le Testu 2800 (BM, BR). Haut-Mboumou: 21 km W of Zemio, along road to Rafai, Descoings 12400 (P).

CHAD. Lac: Kouloa, Chevalier 8306 (BM, COI, W, WAG).

ZAIRE. Equateur: Zongo, Evrard 2575 (BR, WAG); Banzerville (= Mobayi), Lebrun 2100 (BR, K); km 30 Mobayi-Yakoma Road, Germain 8541 (BR, K, M); Lower Uele R., Bornu, De Wulf 168 (BR). Haut-Zaire: Monga, Uele-Tumbiri, Lebrun 2330 (BR, K); Mt Kundugu, near Masabe, Lisowski 50166 (BR) = Lejoley 4137 (BR); between Bondo and Lebo, Germain 775 (BR, K); between Liléko and Basoko, J. Louis 11407 (BR, C, F, NY, S); Tiligba, Piedboeuf 202bis (MO, WAG); near Pengbélé, Boulique 172 (BR, WAG); Tukpwo, Gérard 4126 (BR, WAG); Gwane, Lebrun 2875 (BR, K); between

Digba and Bokoyo, Piedboeuf 213 (BR); between Doruma and Niangara, Lebrun 3181 (BR); near Nduye, Lisowski 42748 (POZG). Kivu: near Lubero, Humbert 8744 (B, BR, P); Kabasha, de Witte 1141 (BR, K, P); Kiliba R., Rusizi Plain, Germain 6753 (BR, P); between Uvira and Mbaraka, Germain 7037 (BR, P). Shaba: Albertville (= Kalemie), De Giorgi 1 (BR); Upemba Nat. Park, de Witte 3009 (BR, MO, P, WAG); Mt Kaponda, Quarré 518 (BR, K, MO); Kasapa, Malaisse 9111 (BR, MO, WAG); near Mokambo, Breyne 4445 (BR); near Kabunda, Lisowski 60263 (BR).

RWANDA. near Uwinka, Troupin 11355 (BR, LG); Kagera (= Akagera) Nat. Park, Troupin 7451 (BR, LG, NY); ibid., Bridson 239 (BR, K, WAG); near Nyagatare, Troupin 4157 (BR, K, WAG); Ryabega, Lebrun 9820 (BR, K, P, type of *Landolphia nitida*); Rusumo, Raynal 20685 (BR, K, P, WAG).

BURUNDI. km 8 Kimina-Gakara Road, Reekmans 5572 (BR, K, LG, MO, WAG); Kwitaba, Reekmans 6533 (K, LG).

SUDAN. Bahr al Ghazal: NW of Said Bundas, Hoyle 495 (BM); Sériba d'Agat, Wau R., Schweinfurth 1685 (K, P, lectotype of *Landolphia scandens* var. *schweinfurthiana*); Ngwolina, SW of Wau, Hoyle 367 (BM); W side of Pongo, H. Brown 17 (K); near Badiri's, H. Brown 14 (BM, K); Busseri R., New Mill, Turner 131 (K).

UGANDA. Koboko, Eggeling 1838 (in herb. 1658) (BR, K); sin. loc., Bagshawe 205 (BM).

TANZANIA. T1: Karagwe, Scott Elliot 8167 (BM, K, lectotype of *Landolphia scandens* var. *rigida*); Bukoba District, Ford 655 (K); Rubondo Island, FitzGibbon & Barcock 79 (K, WAG); Buruma, Tanner 4351 (BR, K, UC); Bwiru Parish, Tanner 610 (B, BR, K, LISC, MICH, NY, S, UC, WAG); Karumo, Burtt 6486 (BM, BR, K, P); Nyabekwabi, Tanner 4301 (BR, K, MO, UC). T4: Mkweni, Glover 236 (K); Ulyankulu, Procter 2094 (BR, K); Tabora, Lindeman 357 (BM, EA); between Pasagulu and Musemabantu, Harley 9223 (B, BR, K); Mahali Mts, Newbould & Jefford 2559 (BR, K); Kwhala, Peter 35330 (B, WAG); Kirambo, Richards 18753 (BR, K). T5: near Maw Hills, Burtt 5226 (BR, K). T7: Kyimbila District, Stolz 1712 (A, BM, BR, C, K, MO, PRE, UPS, Z). T8: Kanda Peninsula, Goetze 884 (BM, BR, E, K, lectotype of *Landolphia scandens* var. *ferruginea*); 40 km W of Lindi, Schlieben 5357 p.p. (B partly; other sheets probably all belonging to *A. petersiana*).

ZAMBIA. Northern: Abercorn (= Mbala) District, 8 km from Kawimbe, near Tanzanian border, Richards 12912 (BR, K, SRGH); Sunzu Mt, Richards 13165 (BR, K, SRGH); Kasama District, Robinson 3814 (K, M, SRGH); Mwenge, Greenway & Trapnell 5740 (K); 16 km N of Isoka, Lawson 1245 (K). Lupala: Kawambwa, Fanshawe 3536 (BR, K). Copperbelt: Ndola District, Fanshawe 1389 (B, BR, K, LISC, S); Ndola, Greenway & Miller 5676 (K); Nkana, Holmes 754 (BR, K, MO, SRGH); Luano, Brennan & Greenway 8006 (BR, K); Bwana Mkubwa, Fries 390 (UPS), 391 (UPS).

MALAWI. Northern: Chitipa District, 64 km W of Karonga, Songa stream, Pawek 12147 (K); 16 km S of Nkhata Bay Road, Pawek 10429 (K, SRGH, WAG); Nkwati For., Pawek 13141A (BR, K, MO, UC, WAG), 13141B (K, MO, UC, WAG).

2. *Ancylobotrys capensis* (Oliv.) Pichon, Mém. IFAN. 35: 297, pl. 19. 4–5. 1953.

Fig. 2, p. 11; map 2, p. 12

Basionym: *Landolphia capensis* Oliv. in Hooker Ic. 13: t. 1228. 1877.

Type: South Africa, Transvaal, W. of Pretoria, McLea 3098 (K, lectotype, designated by Pichon).

Homotypic synonym: *Pacouria capensis* (Oliv.) S. Moore, Journ. Bot. 41: 403. 1903.

Lianescent shrub mostly about 0.50 m high. Branches lenticellate; branchlets densely rusty-brown-pubescent. Leaves: petiole pubescent, 2–8 mm long, with colleters in the axils; blade coriaceous even when fresh, elliptic or narrowly so, or somewhat obovate, occasionally suborbicular, 1.3–3.1 × as long as wide, 0.8–4.5 × 0.5–2.4 cm, rounded or obtuse, rarely in some leaves acute or retuse, cuneate at the base or decurrent into the petiole, glabrous or pubescent on both sides, beneath pubescent especially on the veins, with 8–16 pairs of straight con-

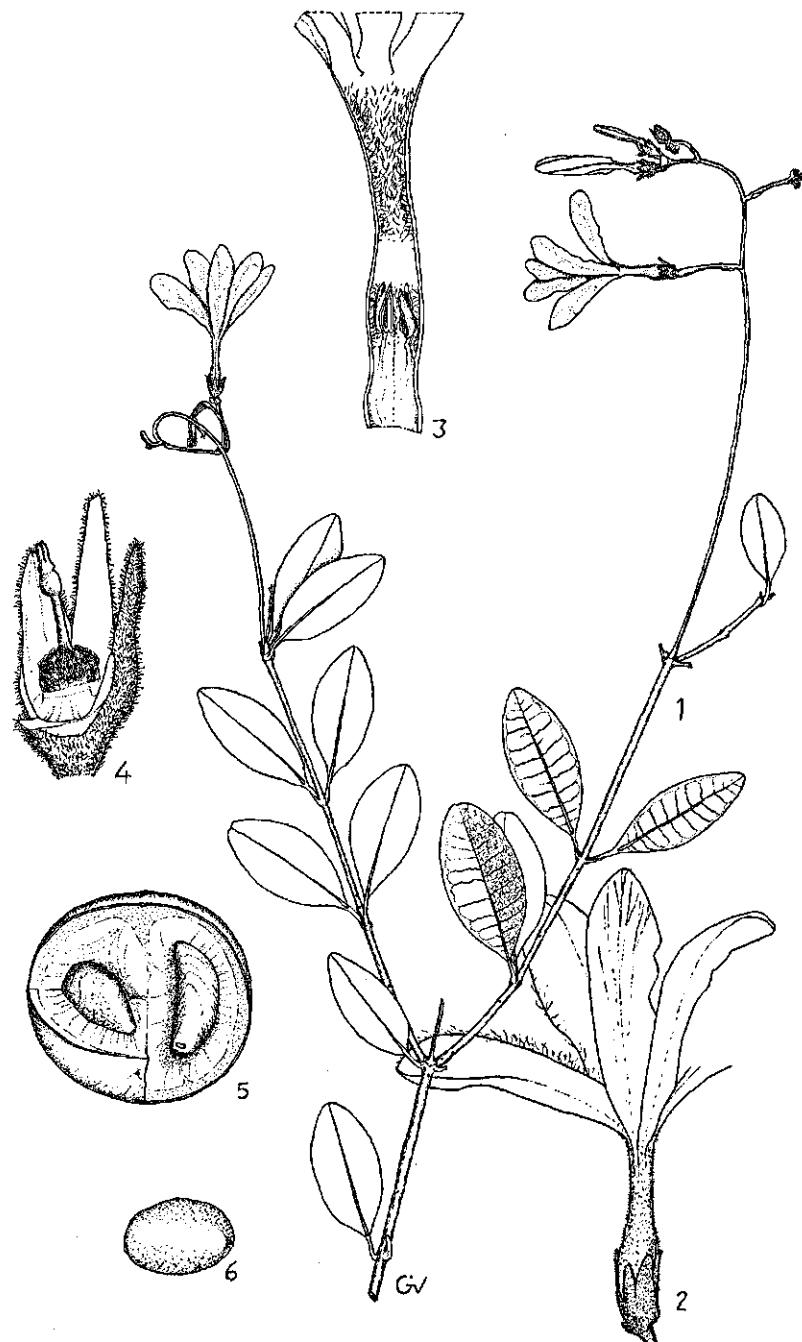
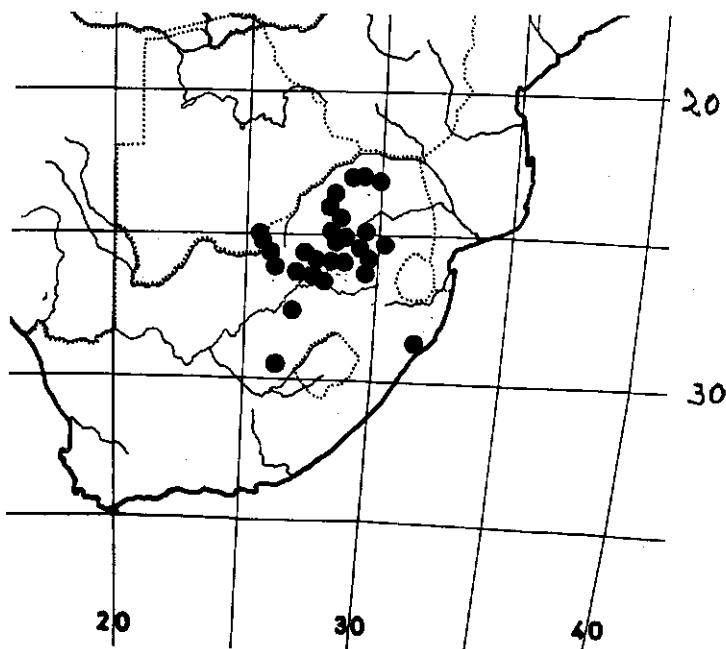


Fig. 2. *Ancylobotrys capensis*. 1, habit ($\times 2/3$); 2, flower ($\times 2$); 3, opened corolla ($\times 4$); 4, opened calyx with pistil ($\times 6$); 5, opened fruit ($\times 2/3$); 6, seed ($\times 2/3$). 1–4 from Hansen 3219; 5–6 from Leeuwenberg 12388.



MAP 2. *Ancylobotrys capensis*.

spicuous secondary veins forming an angle of 70–90° with the costa; tertiary venation inconspicuous above, reticulate and conspicuous beneath. *Inflorescence* 4–15 × 3–8 cm, with 1–5 cymes, each cyme with up to 10 flowers; peduncle 1–14 cm long, pubescent; pedicels 1–4 mm long, densely pubescent; bracts sepal-like, pubescent, 2–5 mm long, persistent, without colleters. *Sepals* connate at the base for up to 1 mm, triangular, 1.2–4.5 × as long as wide, 1.9–7.5 × 0.8–2.7 mm, obtuse or rounded, sometimes truncate or acute at the apex, densely pubescent outside, glabrous inside, sometimes minutely pubescent at the apex. *Corolla* white, sometimes tinged with pink, 18–25 mm long in the mature bud and forming a more or less oblong head 0.6–0.7 of the bud-length, pubescent outside from 1.8–3.5 mm above the base to the base of the lobes; tube thin, not thickened above the anthers, 2–4.1 × as long as the sepals, 0.5–1 × as long as the lobes, 7.7–12 mm long, contracted at the base and 1–1.9 mm wide, widened above to 1.9–2.8 mm, 3.5–4.5 mm above the base (about 0.4 of the tube length), contracted again just above the anthers to 1–2 mm wide, rather abruptly widened at the throat, with two pilose belts inside, one starting 1.7–2.7 mm and ending 4.1–5.5 mm above the base of the tube, and one starting 5–7.6 mm and ending 6.5–7.4 mm above the base or at the base of the lobes, indumentum in the throat somewhat more dense; lobes narrowly elliptic or oblong, 2.6–4.8 × as long as wide, 9–20 × 3–5 mm, rounded or obtuse at the apex, slightly curved inwards at the left side, glabrous outside, sometimes minutely pubescent at the parts not covered in bud, glabrous inside. *Stamens* with apex 2.7–7 mm below mouth of corolla tube (0.4–0.6 of the tube length), inserted

2.2–3 mm from the base of the tube (the base of the anthers 2.8–3.8 mm above the base of the tube); filaments glabrous or minutely pilose inside, glabrous outside, 0.2–1 mm long; anthers 1.8–9.5 × as long as the filaments, 3–10 × as long as wide, 1.8–2 × 0.2–0.6 mm, apex acuminate and sterile for 0.1–0.3 mm. Pistil 3–3.8 mm long, with apex 1–1.7 mm below apices of anthers; ovary subglobose or cylindrical, 0.6–1.1 × 0.8–1.3 × 0.8–1.3 mm, densely pubescent; style glabrous, cylindrical, not thickened at the apex, 0.9–1.4 × 0.2–0.4 mm; pistil head: basal part ovoid or nearly so, 0.5–1 × 0.4–0.7 mm, apical part 0.5–1 × 0.4–0.5 mm. Placentas with 8–20 ovules. Fruit orange, subglobose, 3–6 cm in diameter, subtended by the persistent calyx; pulp orange. Seeds more or less ellipsoid, 12–24 × 16 × 7–9 mm. Embryo: cotyledons elliptic, 20 × 14 mm; rootlet 1.5 × 1 mm.

DISTRIBUTION: Southern Africa.

ECOLOGY: Dry rocky grasslands or bushlands. Alt. 800–1900 m. Flowering from September to December, occasionally in May and June; fruiting from about November onwards.

Geographical selection of the approximately 90 specimens examined:

BOTSWANA. Ootse Mts, Hansen 3219 (C, K); Manneyanong Hill, 32 km SW of Gaborone, Mott 384 (K, MO, SRGH); Lobatsi, Hillary & Robertson 539 (PRE); ibid., Boschwelatton, McConnell SRGH 68918 (K, SRGH).

SOUTH AFRICA: Transvaal: 13 km N of Louis Trichardt, van Vuuren 1285 (G); 67 km W of Louis Trichardt, Schlieben 7523 (A, B, BR, F, G, HBG, K, M, NY, UC, US); near Mt Blaauwberg, Pole-Evans 894 (S); km 43 Nijlstroom-Vaalwater Road, Leeuwenberg 10915 (WAG); Waterberg, Road to Sandpoort, Smuts & Gillett 3346 (STE); N of Warmbaths, Sidey 3022 (F, S); Vaalwater, Farm Driefontein, Westfall 1522 (K, WAG); Reneke or Ottoshoop, Tuck 4 (K, paratype); Brits District, Jacksonstuin, van Vuuren 207 (K); Rustenburg, Galpin 11520 (BM, K); Magaliesberg, Burke 404 (BM), 405 (K, paratype); Pretoria, near Aapies R., Rehmann 4295 (BM, K, Z); Brummeria, Leeuwenberg 10890 (WAG); ibid., Merxmüller 56 (BR, LISU, M, W); ibid., le Roux 6 (K, MO); N of Pretoria, Scott Elliot 1404 (E); Rietendale, Lanjouw 764 (BR, U); Meyerspark, Leeuwenberg 12388 (WAG); Meintjes Kop, Lansdell 16076 (UPS); W of Pretoria, McLea 3098 (BM, K, lectotype); Hartebees Poortdam, Breyne 5265 (BR); Premier mine, Rogers 25220 (G, S); Ventersdorp District, L.E. Taylor 5082 (STE); near Heidelberg, Schlechter 3523 (B, BR, L, Z); ibid., Thode STE 2671 (STE); S of Heidelberg, M.C. Gillett 4610 (BM, K, LD); Johannesburg, Moss 2703 (BM, Z); ibid., Neethling STE 11451 (STE); between Potchefstroom and Johannesburg, Wall 29 Sept. 1938 (S); Potchefstroom, Hafström & Acock 1108 (S); Losberg, Elandsfontein, Theron 1001 (P); Middelburg District, Waterval, Kleinhoonte 629 (L); Olifantsrivier, Rudatis STE 20184 (STE); ibid., Farm Slaghoek, Mogg et al. 22478 (K); Steenkampsberg, Rudatis STE 13313 (STE). Orange Free State: De Kroon, Putterill 16144 (BR); Ons Rus, near Bloemfontein, M.C. Gillett 172 (K). Natal: Zululand, Santa Lucia, Germain 1516 (BR).

3. Ancylobotrys petersiana (Klotzsch) Pierre, Bull. Soc. Linn. Paris sér. 2: 91. 1898; Pichon, Mém IFAN 35: 290, pl. 21. 1–3. 1953. Fig. 3, p. 14; map 3, p. 15

Basionym: *Willughbeia petersiana* Klotzsch in Peters, Nat. Reise Mossamb. Bot. 1: 281. 1862.

Types: Mozambique, Sofala, Sena, Peters s.n. (B†, holotype); Niassa, Antonio Enes (= Angoche), Gomes e Sousa 4856 (K, neotype, designated here; isoneotypes COI, PRE, WAG).

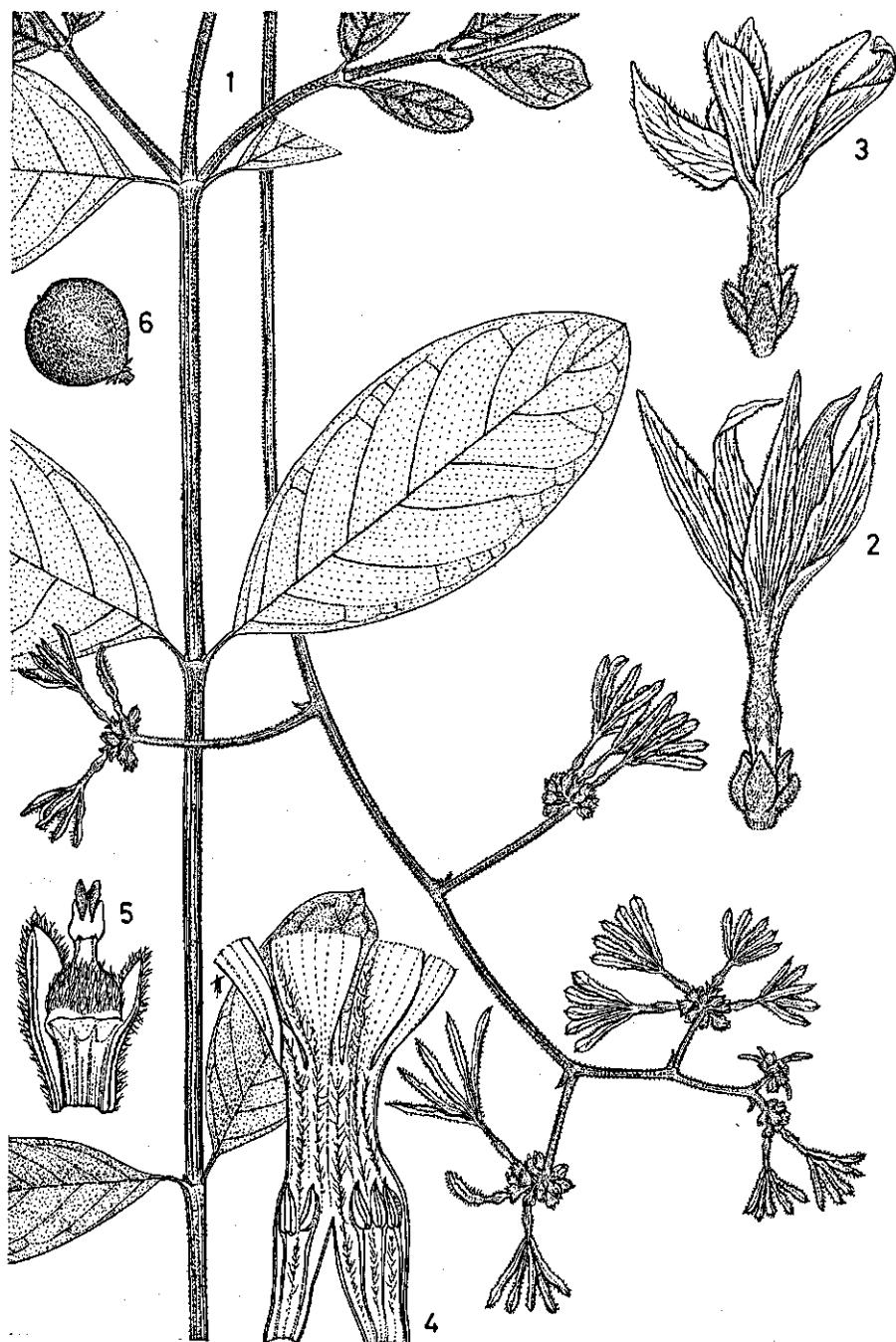
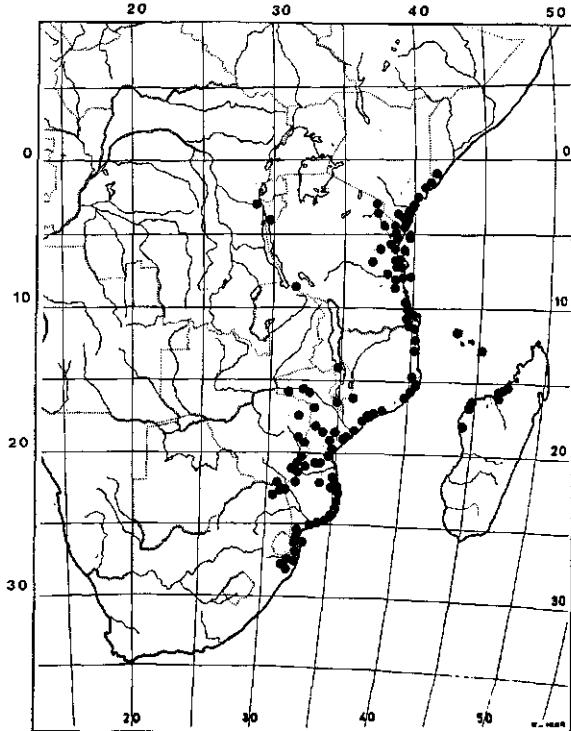


Fig. 3. *Ancylobotrys petersiana*. 1, habit ($\times 2/3$); 2-3, flowers ($\times 2$); 4, opened corolla ($\times 4$); 5, opened calyx with pistil ($\times 6$); 6, fruit ($\times 2/3$). 1-2 and 4-5 from Mendonça 976; 3 from Torre 3839; 6 from Tanner 3439.



MAP 3. *Ancylobotrys petersiana*.

Homotypic synonyms: *Landolphia petersiana* (Klotzsch) Dyer, Report. Roy. Gard. Kew 1880: 42. 1881. *L. scandens* var. *petersiana* (Klotzsch) Hall. f., Jahrb. Hamb. Wiss. Anst. 17, Beih. 3: 82. 1900. *Pacouria petersiana* (Klotzsch) S. Moore, Journ. Linn. Soc. Bot. 37: 180. 1905.

Heterotypic synonyms: *W. sennensis* Klotzsch, l.c. Type: Mozambique, Sofala, Sena, Peters s.n. (B†, holotype). Homotypic synonym: *L. sennensis* (Klotzsch) K. Schum. in Engl, Pflanzenw. Ost-Afr. B: 453. 1895.

L. monteiroi N.E. Br in Monteiro, Delagoa Bay 161, 163, 178. 1891; Dyer ex Stapf, Kew Bull. 1907: 51. 1907. Type: Mozambique, Maputo, Delagoa Bay, Monteiro 37 (K, holotype).

L. angustifolia K. Schum. ex Engl., Abh. Kön. Akad. Wiss. Berlin, Phys.-Math. 1: 34. 1894; K. Schumann, Notizbl. Bot. Gart. Berlin 1: 25. 1895. Type: Tanzania, T3, Mizozue (= Misoswe), Holst 2220 (B†, holotype; K, lectotype, designated here (was isotype); isotypes, COI, HBG, M, phot. of lectotype B, MO, NY). Homotypic synonym: *L. scandens* var. *angustifolia* (K. Schum. ex Engl.) Hall. f., op. cit. 84; *L. petersiana* var. *angustifolia* (K. Schum. ex Engl.) Stapf in Fl. Trop. Afr. 4, 1: 48. 1902. *Pacouria angustifolia* (K. Schum. ex Engl.) O. Kuntze, Deutsche Bot. Monatsschr. 21: 173. 1903.

L. petersiana var. *rotundifolia* Dew., Ann. Soc. Sci. Brux. 19: II, 122. 1895.

Type: Tanzania, Zanzibar, Joblonsky 23 (P, holotype). Homotypic synonym: *A. rotundifolia* (Dew.) Pierre, op. cit. 92. *L. scandens* var. *rotundifolia* (Dew) Hall. f., op. cit. 82.

L. scandens var. *stuhlmannii* Hall. f., op. cit. 83. Type: Tanzania, T3, Amboni, Holst 2563 (B†, holotype; HBG, lectotype, designated here; isolectotypes COI, K, M, W, Z).

L. petersiana var. *rufa* Stapf, l.c. Type: Malawi, sin. loc., Buchanan 437 (K, lectotype).

L. petersiana var. *tubeufii* Busse ex Stapf in op. cit. 49. Type: Tanzania, sin. loc., Busse 1051 (G, lectotype, designated here (was isotype); isotypes B, HBG). Homotypic synonym: *L. scandens* var. *tubeufii* (Busse ex Stapf) Busse in Engler, Bot. Jahrb. 32: 171. 1902.

Scrambling shrub or liana climbing up to at least 5 m high. Trunk 2–5 cm in diameter; bark pale grey-brown, shallowly and longitudinally fissured. Branches dark brown to grey, with many lenticels; branchlets densely rusty-brown-pubescent. Leaves: petiole glabrous to pubescent, 6–10 mm long, with colleters in the axils; blade coriaceous when dried, elliptic, sometimes suborbicular or obovate, 1.5–2.4 × as long as wide, 4.5–9.3 × 2.2–4.4 cm, retuse to slightly acuminate at the apex, never with clear acumen, cuneate at the base, sometimes rounded or decurrent into the petiole, glabrous to minutely pubescent on both sides, then especially so on the costa, with 4–9 pairs of curved conspicuous secondary veins, forming an angle of 45–60° with the costa; tertiary venation reticulate, prominent beneath. Inflorescences 7.5–36.5 × 3.5–13.5 cm, with 2–6 cymes, each cyme with up to 20 flowers; peduncle 4.5–24.5 cm long, pubescent; pedicels 1–2 mm long, densely pubescent; bracts sepal-like, triangular, densely pubescent outside, glabrous or minutely pubescent inside, obtuse at the apex, 1.4–2.2 mm long, persistent, without colleters. Sepals connate at the base for up to 0.7 mm, triangular or narrowly so, sometimes ovate, 1.1–3.3 × as long as wide, 1.7–3.9 × 0.9–2 mm, acute or obtuse at the apex, densely pubescent outside, glabrous or pubescent inside, then especially so near the midrib, persistent, without colleters. Corolla white or cream, often pinkish at tube, 20–37.5 mm long in the mature bud and forming an attenuate head 0.5–0.7 of the bud-length, almost glabrous to pubescent outside, pubescent inside in a belt from 2–5.5 mm above the base to the base of the lobes and pilose near the mouth; tube rather thin, not thickened or slightly so above the anthers, 3.4–5.3 × as long as the sepals, 0.3–0.8 × as long as the lobes, 8.5–13 mm long, contracted at the base and 1–2 mm wide, widened above to 1.4–2.5 mm wide 2.5–5 mm above the base (0.3–0.4 of the tube length), contracted again just above the anthers to 0.8–1.5 mm wide, fairly abruptly widened at the throat; lobes narrowly elliptic to oblong, 3.7–10.7 × as long as wide, 11–35 × 2–4.5 mm, obtuse or acute at the apex, glabrous on both sides. Stamens with apex 4.6–7.2 mm below mouth of corolla tube (0.5–0.6 of the tube length), inserted 1.8–3 mm from the base of the tube (the base of the anthers 2.1–3.8 mm above the base of the tube); filaments glabrous or pilose inside, glabrous outside, 0.4–1 mm long; anthers 2–5 × as long as the filaments, 3.8–8 × as long as wide, 1.4–2.1 × 0.2–0.5 mm, apex acuminate and

sterile for up to 0.2 mm. *Pistil* 2.2–3.8 mm long, with apex 1.2–2.2 mm below apices of anthers; ovary subglobose, 0.6–1.2 × 0.8–1.3 × 0.8–1.3 mm, densely appressed-pubescent; style glabrous, cylindrical, not thickened at the apex, 0.3–1.4 × 0.2–0.4 mm; pistil head: basal part cylindrical or nearly so, 0.6–1.1 × 0.5–0.7 mm, apical part 0.3–0.7 × 0.3–0.5 mm. Placentas with 25–50 ovules. *Fruit* yellow or orange, globose to slightly pear-shaped, 25–50 mm in diameter, about 5–20-seeded. *Seed* ovoid or ellipsoid, laterally compressed, 10–18 × 6–10 × 5–6 mm.

DISTRIBUTION: From Somalia to South Africa, Comoro Islands and NE Madagascar mainly near Majunga.

ECOLOGY: Light forest, bush in dune vegetation or on rocky hills. Alt. 0–1300 m. In Madagascar only on coastal dunes. Flowering almost exclusively from August to December and fruiting probably mainly January to March. Only in Kenya and Tanzania flowering and fruiting scattered over the year.

Geographical selection of the approximately 400 specimens examined:

ZAIRE. Kivu: Kigogo, Yamada 400 (WAG).

BURUNDI. Rumonge, Reekmans 1442 (BR, LG, M), 3535 (BR, LG, MO).

SOMALIA. Jubbada Hoose: Badada, Senni 552 (FI); 17 km W of Badada, on road to Kolbio, J.B. Gillet et al. 25152 (K).

KENYA. K1/7: Marrarani, Boni For., Gillespie 386 (FI, K). K7: Lamu District, Kiangwe, Battiscombe 230 (K); Tana River District, Karawa, 48 km S of Garsen, Polhill & Paulo 631 (B, BR, K); Kilifi District, Sakadi, 6 km N of Malindi, Polhill & Paulo 680 (B, BR, K, UPS); Mombasa, Ruspoli 542 (FI); Dasenyi Hill, near Maungu, Bally 12704 (G, K); 4 km W of Ganze, Reitsma 209 (WAG); near Taru, Drummond & Hemsley 4207 (K); ca 3 km SW of Jilore, Spjut & Ensor 2708 (K, UC); Arabuko-Sokoke F.R., Beentje 2286 (WAG); ibid., Faden 74/1254 (K, MO, WAG); Bome R., Kässner 315 (BM, K); Kwale District, near Kwale, Magogo 1241 (BR, K); Shimba Hills, W.E. Taylor anno 1887 (BM); between Umbo and Mwena, Drummond & Hemsley 3848 (BR, FI, K).

TANZANIA. T1: Ukerewe, Conrads 439 (FI). T2: Kilimanjaro, Johnston s.n. (BM); Rau For., Moshi, Swynnerton 946 (K). T3: near Umbo, Grote Mar. 1915 (B); near Muheza, Archbold 1389 (MO); Kigara Hill, Peter 56998 (B, WAG); E Usambara, Bwiti, Peter 57042 (B); W Usambara, Makuyuni District, Koritschoner 1141 (K); Maramba, Peter 57023 (B, WAG); Handeni District, Kwamkono, Archblod 2739 (K, WAG); Msubugwe F.R., Mgaza 547 (K); Mkaramo, Pangani District, Tanner 2561 (K, MICH, NY, UC); Mizozue (= Misoswe), Holst 2220 (COI, HBG, K, M, type of *L. angustifolia*; phot of K sheet B, BR, MO, NY); Tanga, Volkens 173 (BM, G, K, paratype of *Landolphia scandens* var. *stuhlmannii*); Amboni, Holst 2563 (COI, HBG, K, M, W, Z, lectotype of *L. scandens* var. *stuhlmannii*); ibid., Hepper & Field 5523 (K); 20 km NW of Pangani, along road to Muheza, Leeuwenberg 10828 (WAG); Mvumoni Parish, Tanner 3439 (BR, K, MICH, NY, UC, WAG); Bushiri, Faulkner 561 (BR, FI, K, P, S). T4: 8–9 km W from Sumbawanga-Mbala Road, Gereau 4992 (WAG). T6: Kilosa, Swynnerton 4006 (K), 4007 (K); Turiani, Semsei 1409 (BR, K); Morogoro, E.A. Bruce 860 (BM, BR, K, P); Bana F.R., Shabani 108 (K); Usaromo, between Nsua and Bagalla, Peter 31890 (B, WAG); Kibaha, Flock 1000 (S); Mbagala, Shabani 300 (BR, K); Uluguru Mts, Schlieben 3824 (B, BR, K, LISC, M, MA); near Toga, Peter 57002 (B, WAG); Mtanza, Musk 130 (K); Mafia Island, Wallace 698 (K). T7: Kidatu, Mhoro 398 (UPS). T8: Kingupira, Vollesen 4318 (C); 40 km W of Lindi, Lutamba Lake, Schlieben 5357 p.p. (B p.p., BM, G, K, LISC, MO, S, see also *A. amoena*); Tendaguru, Migeod 1053 (BM); Naleindele, Mtwara District, Fison 159 (K); Mtonge, Lindi, Gillman 1162 (K); Newala-Mtwara Road, Richards 17771 (K). Pemba: Mvumoni, Vaughan 369 (BM); Kengeja, R.O. Williams 142 (BR, K); Makongwe Island, Greenway 2734 (K); Paza Island, SW of Pemba, Greenway 1396 (K). Zanzibar: Joblonsky 23 (P, type of *L. petersiana* var. *rotundifolia*), Sacleux 324 (P), Stuhlmann 340 (HBG), 352

(HBG), 475 (HBG, paratype of *L. scandens* var. *stuhlmannii*), 828 (HBG, paratype of *L. scandens* var. *stuhlmannii*), Vaughan 68 (BM); Chukwani, R.O. Williams 112 (BR, K); Mazizini, Faulkner 2423 (B, BR, K). Sin. loc., Busse 1051 (B, G, HBG, type of *L. petersiana* var. *tubeufii*).

MALAWI. Southern: Mangochi- Monkey Bay Road, Salubeni et al. 2643 (MO); near Chikwawa Boma, Salubeni 126 (MAL, SRGH). Sin. loc., Buchanan 437 (BM, K, lectotype of *L. petersiana* var. *rufa*).

MOZAMBIQUE. Cabo Delgado: Palma, Torre & Paiva 12106 (LISC); Nangade Region, Mendonça 976 (LISC); Mtamba, 3 km from Mocimboa, Stocks 61 (K, P, Z); near Mocojo, Stocks 18 (K, Z); Porto Amélia (= Pemba), Mafumo 7 (LMU, MO, WAG). Nampula: Monapo, 2 km from Itoculo, Torre & Paiva 9364 (LISC); Monapo, Groenendijk et al. 979 (K, WAG); Mossuril, de Koning et al. 9690 (K, WAG); Bajone, Barbosa & Carvalho 4285 (G); Mogincual, Torre & Paiva 11447 (LISC); Antonio Enes (= Angoche), Gomes e Sousa 4856 (COI, K, PRE, WAG, neotype), 4870 (K, PRE), 4872 (K, PRE). Zambézia: Milange, Torre & Correia 15848 (LISC); Namacura, km 7 of road to Maganja da Costa, Torre & Correia 14078 (LISC); Maganja da Costa, Andrade 1926 (COI, LISC); Pebane, Munch 256 (K, SRGH); 32 km N of Quelimane, Wild 5863 (BR, K, LISC, MO, SRGH); Nhandoa, Le Testu 832 (BM, P); Chinde, Amico & Buvazzano 403 (FI), 410 (FI); ibid., Le Testu 301 (BM, BR); Boa Vista, Le Testu 302 (P); Luabo R., Kirk 27 (K). Sofala: Inhaminga, Macedo 2466 (WAG); Congone, Zambezi R. mouth, Kirk 309 (K); 47 km S of Muda, Methuen 226 (K); E of Beira, Leach 11260 (BM, K, MO, PRE, SRGH); Mossurizi, W.H. Johnson 89 (K); Barada, Methuen 254 (K); Madanda For., Dawe 458 (K); between Inharingua and Chiloane, W.H. Johnson 17 (K). Manica: Jête, Kirk Dec. 1858 (K). Tete: near Songo, Macedo 4797 (LISC, LMU); Chicca, Torre & Correia 13896 (LISC); Cabora Bassa, Torre et al. 18912 (LISC); Mazoe R., Whellan SRGH 21889 (K, SRGH). Inhambane: Govuro, Correia & Marques 3269 (LMU, WAG); between Mabote and Mambone, Mendonça 1975 (LISC); Bazaruto Island, Mogg 28451 (K, LISC, LMU, PRE, SRGH); Magarugue Island, Guy SRGH 155425 (LMU, SRGH); between Vilanculos and Massinga, Torre 3839 (LISC); Pomene, P.C.M. Jansen et al. 7518 (K, WAG); Massinga, Gomes e Sousa 1910 (BR, K); 24 km E of Inhambane, along road to Velho, Estevam, Gomes e Sousa 2008 (K, LISC); between Inharrime and Maxine, D'Orey 8 (LISC); Zavala, Moura et al. 299 (LISC, WAG). Gaza: Guija, road to Pafuri, Barbosa & Lemos 8167 (COI, LISC); Xai-Xai, de Koning 7800 (BR, K, WAG); Chidenguel, Pedro & Pedrogão 1726 (LMU); near Sepúlveda, Balsinhas 1368 (LISC, WAG); Chirindzena, Nuvunga et al. 365 (BM, BR, K). Maputo: Lourenço Marques (= Maputo), Schlechter 11628 (BM, BR, G, HBG, K, P, WAG, Z); Marracuén, Barbosa & Lemos 8668 (COI, K, LISC, SRGH); Delagoa Bay, Junod 282 (G, Z); ibid., Kirk s.n. (K); ibid., Monteiro 37 (K, P, type of *Landolphia monteiroi*); Inhaca Island, Mogg 28384 (K, PRE, SRGH); Polana, Balsinhas 627 (K, LISC, PRE); Bela Vista (= Matutuine), Balsinhas 1422 (LISC, WAG).

ZIMBABWE. Mashonaland East: Mutoko, T. Müller & Burrows 943 (K, SRGH). Manicaland: Umtali (= Mutate) District, Chase 4161 (BM, BR, COI, K, LISC, MO, PRE, SRGH), 4678 (BM, BR, COI, LISC, MO, PRE, S, SRGH), 7203 (BM, K, LD, LISC, MO, PRE, SRGH); Birchenough Bridge, Ball 1041 (SRGH); Chippinga District, Goodier 123 (K, PRE, SRGH); Chisumbanje, Pope et al. 1487 (B, C, K, MO, SRGH); Lower Sabi R., Wild 2358 (K, SRGH). Victoria: Chief Chitsa's Village, Chase 2410 (BM, K, LISC, SRGH); Gona re Zhou, Mavi 1278 (B, S, SRGH); Chiturupadzi, Mavi 240 (BR, LISC, SRGH).

SOUTH AFRICA. Transvaal: Punda Maria (= Punda Milia), van der Schijf 939 (K); 12 km S of Punda Milia, Codd & Dyer 4592 (K). Natal: 10 km S of Maputo, Moll 4710 (K); near Kosi Nat. Res., Edwards 2548 (K); Ubombo Region, Goodman 313 (E); Sordwana Bay Nat. Park, Koutnik 1220 (MO); ibid., Stephen et al. 1089 (K); Nongoma, Gerstner 146 (K); Hlabisa, Codd 2015 (K).

COMORO ISLANDS. Grand Comore: Humblot 1458 (P, W); Niamaony, Floret 790 (MO, P, WAG). Mayotte: Boivin 3200 (P); Dzoumogné, Pobéguin 45 (P); Biré, Humblot 1146 (=146) (K, P, W); Compani, Humblot 334 (=1334) (BM, K, LG, P, W).

MADAGASCAR. Majunga, Perrier de la Bâthie 12317 (P); ibid., Ankatsape, Perrier de la Bâthie 8946 (P); Antsanitia For. Stat., Boiteau 1073 (K, MO, P, WAG); near Boina, Perrier de la Bâthie 8199 (P); Cap Saint André, Perrier de la Bâthie 8198 (P); Besalamby, Decary 8003 (C, P); near Maintirano, Decary 8266 (BM, P, US), 15558 (K, P, WAG).

CULT. Mauritius, Commerson s.n. (P). Sri Lanka, Peradenya Bot. Garden, Trimen Apr. 1884 (K).

4. *Ancylobotrys pyriformis* Pierre, Bull. Soc. Linn. Paris sér. 2: 127 1899; Pichon, Mém IFAN 35: 280. 1953, partly, as for type only. Fig. 4, p. 19; map 4, p. 20

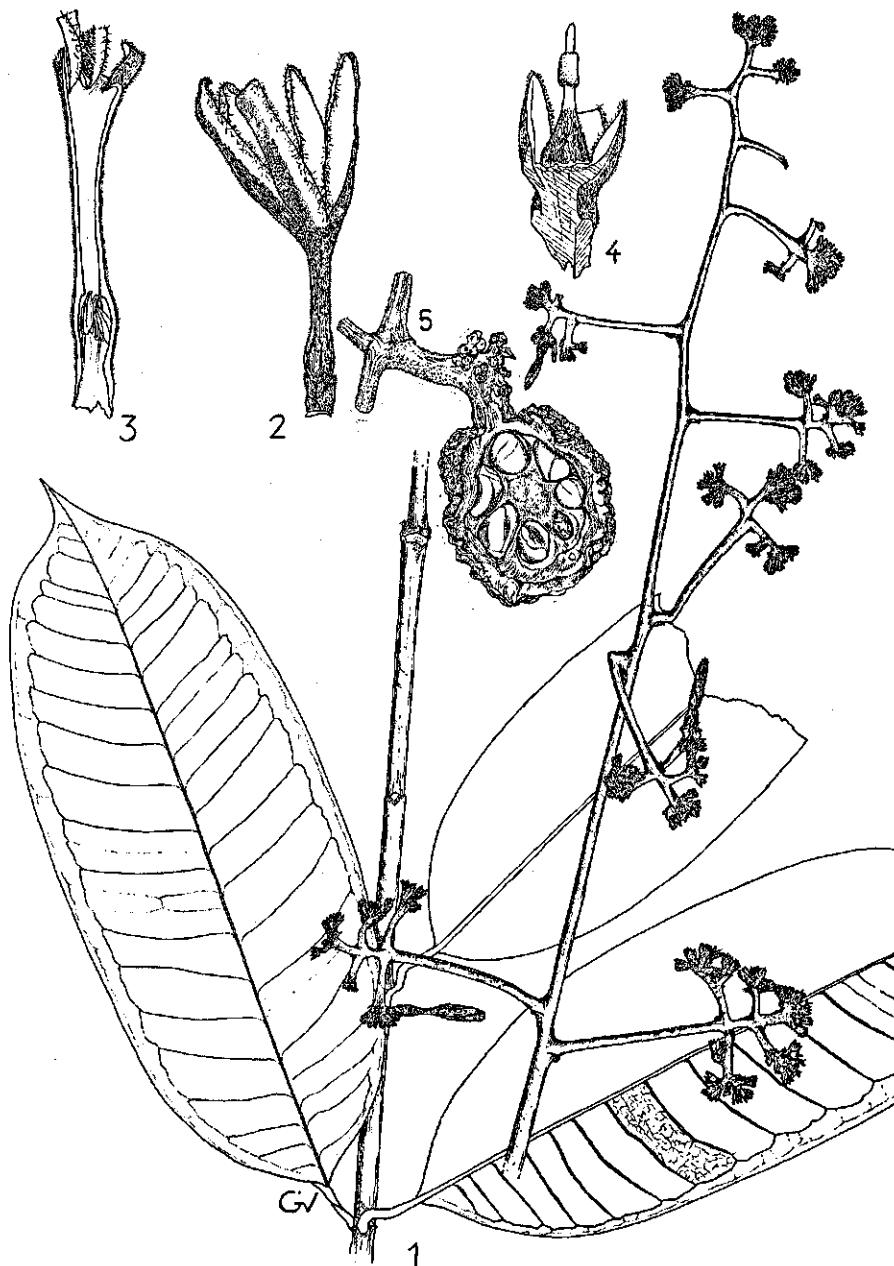
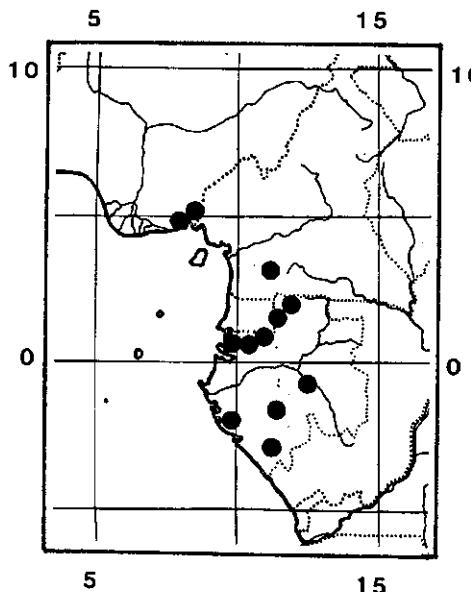


Fig. 4. *Ancylobotrys pyriformis*. 1, habit ($\times 2/3$); 2, flower ($\times 2$); 3, opened corolla tube ($\times 4$); 4, opened calyx with pistil ($\times 6$); 5, opened dried fruit ($\times 2/3$). 1 and 4 from Le Testu 6054; 2 from Le Testu 9511; 3 from Le Testu 9294; 5 from Letouzey 11402.



MAP 4. *Ancylobotrys pyriformis*.

Type: Gabon, Estuaire, near Libreville, Klaine 1401 (P, holotype; isotypes BR, K; phot. of K sheet B, BR, MO, NY).

Homotypic synonym: *Pacouria pyriformis* (Pierre) Pichon, Mém. Mus. Nat. Hist. Nat. sér. 2. 24: 144. 1948.

Heterotypic synonyms: *A. trichantha* Pichon, Mém. IFAN 35: 299, pl 19. 6–8. 1953, syn. nov. Type: Ogooué-Lolo, Gabon, Comi, Lastoursville region, Le Testu 8255 (P, holotype; isotypes BM, MO).

A. gabonensis Pichon, op. cit. 299, pl. 20, syn. nov. Type: Gabon, Woleu-Ntem, Oyem, Le Testu 9294 (P, holotype; isotypes BM, BR, GH, K, LISC, MO, WAG).

Large liana climbing up to 30 m high in trees. Branches dark brown, lenticellate; branchlets densely pubescent. Leaves: petiole 8–20 mm long, glabrous to pubescent; blade coriaceous even when fresh, elliptic to oblong, 1.9–2.5 × as long as wide, 7.5–20 × 3.5–9 cm, usually short-acuminate at the apex, acumen 3–13 mm long, acute, cuneate at the base, somewhat revolute at the margin, glabrous on both sides, with 8–16 pairs of straight to slightly curved secondary veins, forming an angle of 70–90°, anastomosing at the apex, among 2 secondary veins 0–2 more or less straight less conspicuous ones; tertiary venation reticulate. Inflorescences up to 49 × 12 cm, with about 10 cymes, each cyme up to approximately 50-flowered. Peduncle 9.5–14 cm long, puberulous, glabrescent; pedicels 0–2 mm long, densely pubescent; bracts sepal-like, densely pubescent, 1–1.5 mm long, persistent, sometimes with colleters at both sides of the base. Sepals connate at the base for up to 0.3 mm, triangular, 0.9–1.8 × as long as wide, 1.2–2 × 1–1.6 mm, obtuse or acute at the apex, densely pubescent outside, ciliate, glabrous inside, with or without up to

20 colleters alternating with them. *Corolla* white, 20–30 mm long in the mature bud, densely pubescent outside; tube rather thick, thickened above the anthers, 5–7 × as long as the sepals, 0.7–0.9 × as long as the lobes, 9.5–15 mm long, contracted at the base and 1.1–1.5 mm wide, widened above to 1.5–3.6 mm wide 3–4.5 mm above the base (about 0.3 of the tube length), contracted again above the anthers to 1–2.7 mm wide, abruptly widened at the throat, with a pilose belt inside from between the anthers (1.9–2.8 mm above the base) to just above them (3.4–4.5 mm above the base) or the base of the lobes, indumentum less dense towards the lobes; lobes narrowly elliptic to narrowly obovate, 1.1–1.4 × as long as the tube, 3.2–4 × as long as wide, 12–20 × 3.5–5 mm, rounded or obtuse at the apex, densely pubescent outside at the parts not covered in bud, glabrous to pilose outside at the parts covered in bud, glabrous or minutely pilose inside. *Stamens* with apex 5.5–9 mm below mouth of corolla tube (about 0.6 of the tube length), inserted about 0.2 of the length of the tube (at 1.9–2.5 mm from the base), (the base of the anthers 2.4–2.8 mm above the base of the tube); filaments glabrous, 0.6–1.1 mm long; anthers 1.3–2 × as long as the filaments, 3–6.5 × as long as wide, 1.2–2 × 0.2–0.7 mm, apex acute, sometimes minutely retuse, rarely acuminate and then for 0.2 mm sterile. *Pistil* 2.4–5.1 mm long, with apex 0.2–1.5 mm below apices of anthers; ovary conical to almost ovoid, 0.8–1.2 × 0.9–1.4 × 0.9–1.4 mm, densely puberulous; style glabrous, cylindrical, 0.2–1.9 × 0.2–0.4 mm; pistil head: basal part ovoid or cylindrical, 0.5–1.2 × 0.4–0.6 mm, apical part conical, 0.6–1.6 × 0.3–0.5 mm. Placentas with 25–40 ovules. *Fruit* yellow, globose or pear-shaped, 7–15 cm in diameter, 4–20-seeded. *Seeds* irregularly ellipsoid, 19–26 × 16–19 × 10–13 mm. *Embryo*: cotyledons more or less elliptic, 17–25 × 15–16 mm, undulate; rootlet 1 × 1 mm.

DISTRIBUTION: Nigeria, Cameroun and Gabon.

ECOLOGY: Rain forest. Flowering and fruiting from June to March. The fruits probably need a year to develop and mature.

Specimens examined:

NIGERIA. Cross River State, Eket, Talbot 3119 (BM, K, Z); Awi-Odukpani Road, Onochie & Jones FHI 55237 (K).

CAMEROUN. Centre-Sud: Nkolemana, Letouzey 11402 (BR, K, P, WAG).

GABON. Estuaire: near Libreville, Klaine 1401 (BR, K, P, type; phot. of K sheet B, BR, MO, NY); 7 km E of Mvoum, A.M. Louis et al. 266 (WAG). Woleu-Ntem: Cristal Mts, Tchimbélé, Wieringa 977 (WAG, fruit only); 30 km E of Abanga R., Leeuwenberg & Persoon 13550 (BR, WAG); Oyem, Le Testu 9294 (BM, BR, GH, K, LISC, MO, P, WAG, type of *A. gabonensis*), 9511 (B, BM, BR, GH, K, LISC, MO, P, WAG, paratype of *A. gabonensis*). Ogooué-Maritime: Rabi, Wieringa & van der Poll 1380 (WAG). Ngounié: Mogoumou, Le Testu 6054 (BM, BR, GH, LISC, MO, P, WAG, paratype of *A. gabonensis*). Ogooué-Lolo: Comi, Lastoursville Region, Le Testu 8255 (BM, MO, P, type of *A. trichantha*). Nyanga: 45 km SW of Ndendé, near road to Tchibanga, A.M. Louis et al. 1177 (WAG).

CULT. Gabon, Libreville, Chevalier 4410 (P).

Notes. Pichon confused the type of *A. pyriformis* with that of *A. robusta*. It turned out, that all specimens he cited except the type of *A. pyriformis* do not be-

long there, but to *A. robusta*. The specimens he cited as *A. gabonensis* belong here and therefore the latter name has been reduced to synonymy in this publication. The last synonym *A. trichantha* has been based on a specimen of which the flowers are somewhat larger than those of the other specimens named *A. pyriformis* here. As it fits perfectly in the species as for all characters, *A. trichantha* is also reduced to a synonym.

5. Ancylobotrys robusta Pierre, Bull. Soc. Linn. Paris sér. 2: 128. 1899. Type: Equatorial Guinea, Rio Muni, Mann 1764 (P, holotype; isotype K).

Fig. 5, p. 23; map 5, p. 24

Homotypic synonyms: *Landolphia robusta* (Pierre) Stapf in Fl. Trop. Afr. 4: 1: 43. 1902. *Pacouria robusta* (Pierre) Pichon, Mém. Mus. Nat. Hist. Nat. sér. 2. 24: 144. 1948.

Liana climbing up to at least 30 m high. Trunk 2–8 cm in diameter; bark rather rough, shallowly and longitudinally fissured, about 5 mm thick. Branches brown, lenticellate; branchlets densely rusty-brown-pubescent. Leaves: petiole puberulous, sometimes glabrous beneath, 12–26 mm long, with conspicuous colleters in the axils; blade coriaceous even when fresh, usually ovate, sometimes elliptic or oblong, 1.5–2.9 × as long as wide, 8–21 × 4–8 cm, acuminate at the apex, acumen 4–17 mm long, cuneate to truncate at the base, glabrous to minutely pubescent on both sides, with 5–12 pairs of conspicuous secondary veins, forming an angle of 45–60° with the costa; tertiary venation reticulate. Inflorescences 16–43 × 6–14 cm, with 8–12 cymes, each cyme with up to about 60 flowers; peduncle 7–19 cm long, puberulous or pubescent; pedicels 1–3 mm long, densely pubescent; bracts sepal-like, densely pubescent, about 1 mm long, persistent, usually with colleters at the base. Sepals connate at the base for up to 0.3 mm, triangular to ovate, 1–2.7 × as long as wide, 1.2–3.7 × 0.8–2 mm, acute to truncate at the apex, densely rusty-brown-pubescent outside, ciliate, glabrous inside. Corolla white or yellow, often with a pinkish tube, 16.5–30.5 mm long in the mature bud, forming an attenuate head 0.4–0.6 of the bud length, glabrous to pubescent outside; tube rather thin, sometimes slightly thickened above the anthers, 4.1–8.7 × as long as the sepals, 0.9–2.1 × as long as the lobes, 10.5–20 mm long, contracted at the base and 1–1.6 mm wide, widened above to 1.5–2.5 mm wide 3–4.5 mm above the base (0.2–0.4 of the tube length), contracted again at the throat to 0.5–1.3 mm wide, abruptly widened at the throat, glabrous inside, sometimes with a minute pilose belt from behind the anthers (2.5–4 mm above the base) to 4–9.5 mm above the base of the tube, indumentum less dense towards the apex, throat glabrous; lobes narrowly ovate to oblong, 0.5–1.1 × as long as the tube, 3.5–6 × as long as wide, 8.5–14 × 1.5–4 mm, obtuse or rounded at the apex, glabrous on both sides. Stamens with apex 6.2–14 mm below mouth of corolla tube, (at 0.6–0.8 of the tube length), inserted 0.1–0.2 of the length of the corolla tube, (at 1.9–2.8 mm from the base); anthers 2.5–3.5 mm above the base of the tube); filaments glabrous, 0.6–1.2 mm long; anthers 1.2–2.3 × as long as the filaments, 2.3–7 × as long as wide, 1.1–1.5 × 0.2–0.6 mm, apex acuminate or acute and sterile for up to 0.1 mm. Pistil

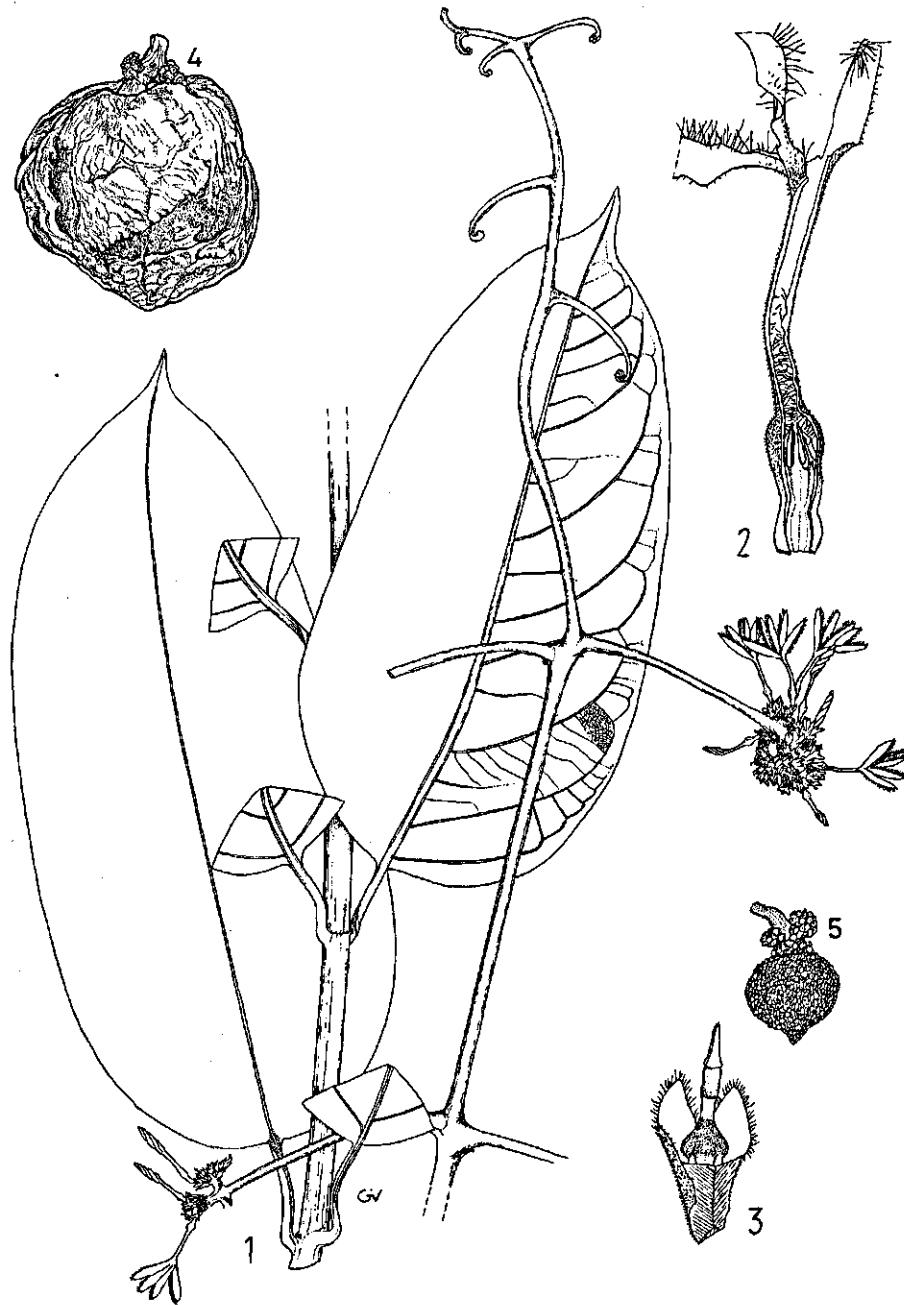
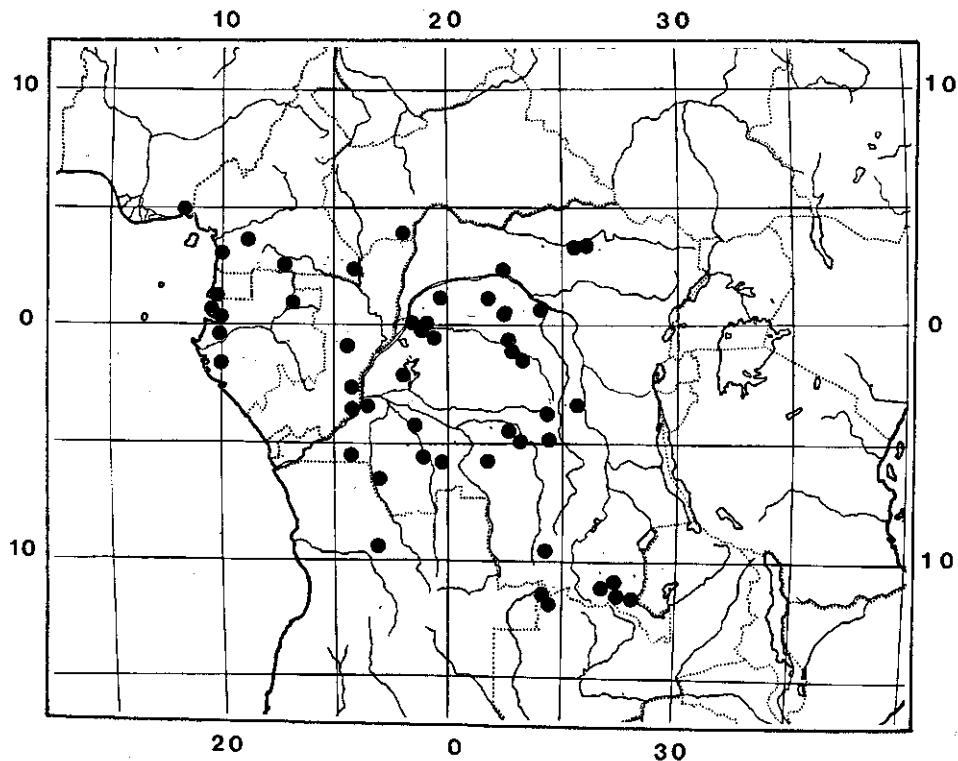


Fig. 5. *Aencylobotrys robusta*. 1, habit ($\times 2/3$); 2, opened corolla ($\times 4$); 3, opened calyx with pistil ($\times 6$); 4, dried fruit ($\times 2/3$); 5, dried immature fruit ($\times 2/3$). 1–3 from J. Louis 9465; 4 from J. Louis 2637; 5 from Koufani 163.



MAP 5. *Ancylobotrys robusta*.

2.8–3.3 mm long, with apex 1.1–1.7 mm below apices of anthers; ovary ovoid or nearly so, 0.9–1.2 × 0.8–1.8 × 0.8–1.8 mm, appressed-puberulous or densely so; style glabrous, cylindrical, not thickened at the apex, 0.4–0.9 × 0.2–0.4 mm; pistil head: basal part cylindrical, 0.6–0.9 × 0.3–0.6 mm, upper part conical, 0.5–0.9 × 0.2–0.5 mm. Placentas with 25–50 ovules. Fruit orange, subglobose, 3–6 cm in diameter, truncate at the base, more or less ridged at the apex, smooth to somewhat warty, lenticellate, subtended by the persistent calyx, ca 10–40-seeded. Seed ellipsoid, 10–13 × 8–11 × 3–5 mm.

DISTRIBUTION: Cameroun to Zaire.

ECOLOGY: Forests. Alt. 0–1200 m. Flowering and fruiting scattered over the year with peaks in flowering June-July and November-December.

Geographical selection of the approximately 110 specimens examined:

CAMEROUN. Centre Sud: 9 km N of Kribi, Bos 4985 (BR, LD, M, WAG); 9 km SW of Yaoundé, Breteler 1596 (WAG); near Akonetye, S of Ebolowa, Koufani 163 (P, WAG). Est: 45 km S of Lindjombo, Sangha R., Harris & Fay 1574 (K).

EQUATORIAL GUINEA. Rio Muni, Mann 1764 (K, P, type).

GABON. Estuaire: near Libreville, Klaine 1400 (P), 1503 (P); Acondjo, Chevalier 27107 (P); 5 km N

of Ndouaniang, Wilks 971 (WAG). Ogooué-Maritime: Mvouma, between Bokoïo et Mouenda, Ar-sandeau 15 June 1920 (P). Ogooué-Ivindo: Babiel-Sud, Bos et al. 10720 (BR, WAG).

CONGO. Cuvette: km 46 Edou-Boundji Road, Descoings 8107 (P). Plateaux: Ngo For., Makany 1820 (P). Pool: Batéké Plateau, Sita 2724 (P).

CENTRAL AFRICAN REPUBLIC. Lobaye: Boukoko, Tisserant 2123 (BM, BR, GH, P), 2293 (BM, P, WAG).

ZAIRE. Bas Zaire: Kimbuba, Callens 4578 (BR). Bandundu: near Ila, Anonym. 12 Mar. 1907 (BR); Ngandju-Sedec, Vermoesen 2422 (BR, K); Madibi, Sapin 28 June 1906 (BR); Kasongo Luna, Vanderyst 17567 (BR); Lutshima, Sapin July 1907 (BR); Bienge, Sapin Oct. 1907 (BR). Equateur: Eala, J. Louis 1933 (B, BR, K, P); ibid., Staner 1423 (BR, K, P); Ingende, Goosens 6029 (BR); Djoa, Evrard 4093 (BR, K); Bala Lundji, Pynaert 267 (BR); Basankusu, L. Dubois 440 (BR); Bodala, Coulon 4 (BR); Bumba, Pynaert 83 (BR); Djolu, Evrard 5766 (BR, K); Mondombe, Evrard 5557 (BR); ibid., Jespersen 42 (BR); Balanga, zone d'Ikela, Bermejo 124 (BR). Haut-Zaire: Yangambi, J. Louis 2637 (BR, K), 9465 (BR, MO), 15600 (BR, NY, US); Bambesa, Gérard 4914 (BR, WAG); Bambili, Anonym. anno 1906 (BR). Kasai Occidental: Kafulumba, Sapin 5 Jan. 1907 (BR). Kasai Oriental: Bena-Dibele, E. & M. Laurent 1 Dec. 1903 (BR); Munungu, Sapin Oct. 1906 (BR); Katako Kombe, Claessens 432 (BR); near Lubefu, Lescrauwaet anno 1907 (BR). Kivu: Ehundu, Kibombo, Gaillez 304 (BR). Shaba: Dilolo, Young 246 (A, BM, BR, NY, S, Z); Mapanda, Desenfans 1967 (BR); Likasi Road, Ritschaert 1710 (BR, K); Luiswishi, Malaisse 9894 (BR); ibid., Lisowski 90141 (BR).

ANGOLA. Sin. loc., Lynes 349b (BR). Malaje: Quela, von Nolde 761 (BM).

ZAMBIA. North-Western: Mwinilunga District, ca 6 km N of Kalene Hill Mission, Edwards 793 (BR, K, P, SRGH); Lisombo R., 15 km SW of same mission, Drummond & Williamson 9479 (K, SRGH); Matochi Farm Road, 24 km from Mwinilunga, Duff 191 (K).

CULT. Gabon, Libreville, Chevalier 26747 (P), 26827 (P).

Note. *A. robusta* is reinstated here as a distinct species (see note with *A. pyriformis*).

6. *Ancylobotrys scandens* (Schum. & Thonn.) Pichon, Mém. IFAN 35: 286, pl. 18. 4. 1953. **Fig. 6, p. 26; map 6, p. 27**

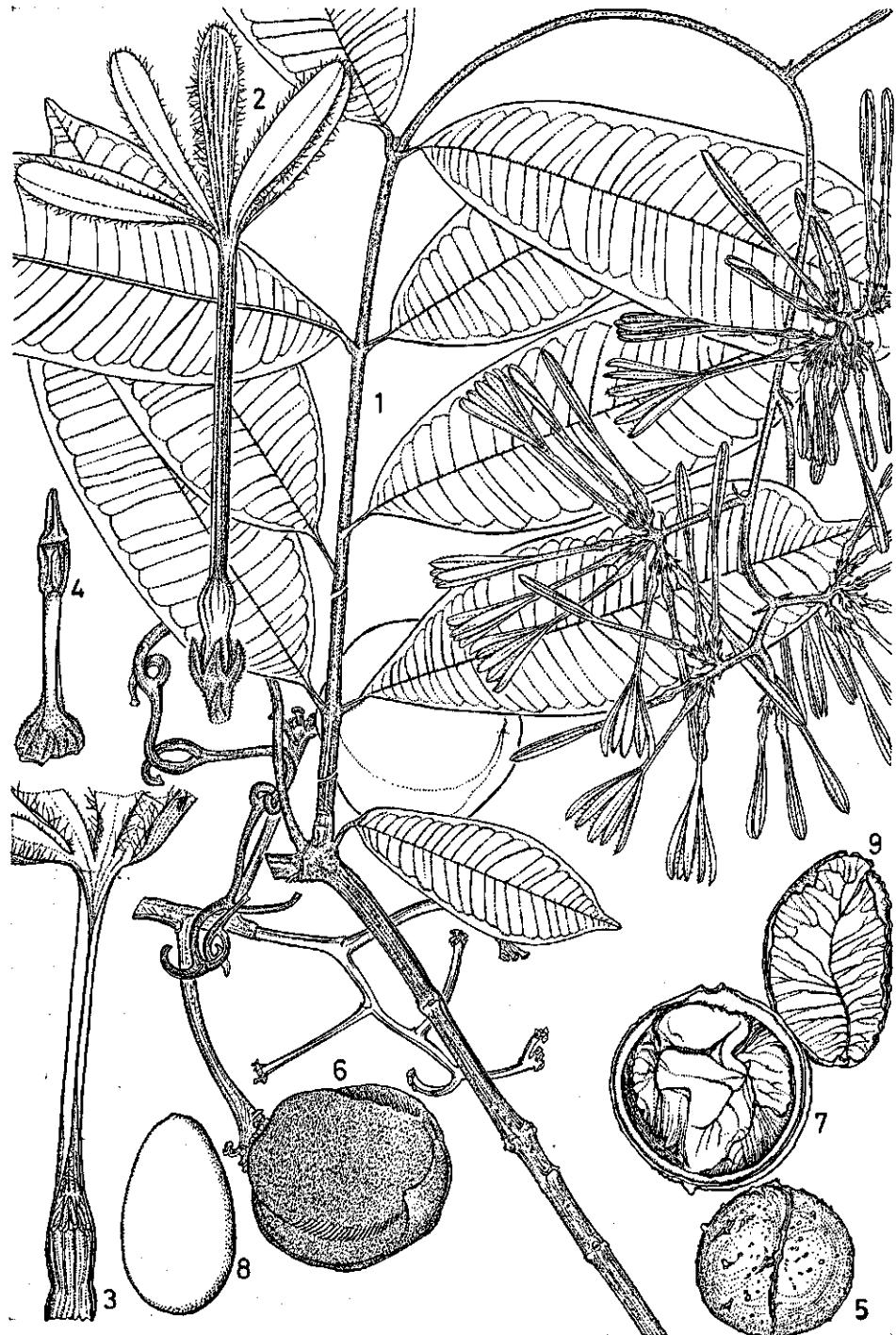
Basionym: *Strychnos scandens* Schum. & Thonn., Beskr. Guin. Pl. 147. 1827. Type: Ghana, Eastern, Akwapim, Thonning 281 (C-THONN, holotype; isotypes G, P-JU).

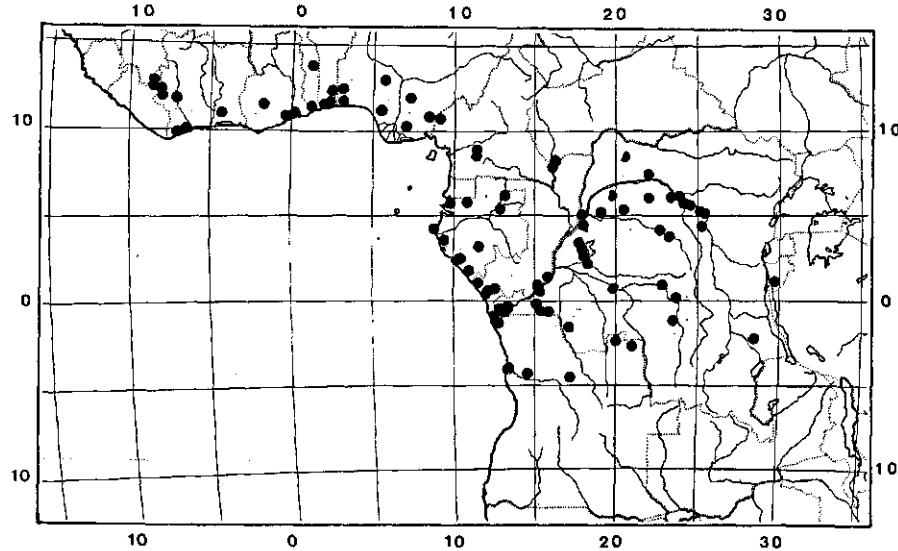
Homotypic synonyms: *Landolphia scandens* (Schum. & Thonn.) Didrichs., Vindensk. Meddel. Naturh. Foren Kjöbenhavn 1853: 190. 1854. *Pacouria scandens* (Schum. & Thonn.) Pichon, Mém. Mus. Nat. Hist. Nat. sér. 2. 24: 144. 1948.

Heterotypic synonyms: *Landolphia petersiana* var. *crassifolia* K. Schum. in Engler, Bot. Jahrb. 15: 408. 1893. Type: Angola, Cuanza Norte, Golungo Alto, Welwitsch 5927 (BM, lectotype, designated here; isolectotypes C, COI, G, K, MO, P). Homotypic synonyms: *L. welwitschii* Dyer fide Stapf ex De Wild. & Th. Dur. Ann. Mus. Congo sér. 3. 1: 146. 1901. *Pacouria crassifolia* (K. Schum.) Hiern, Cat. Afr. Pl. Welw. 1: 663. 1898. *A. mammosa* var. *crassifolia* (K. Schum.) Pierre, Bull. Soc. Linn. Paris sér. 2: 92. 1898.

L. petersiana var. *mucronata* Dew., Ann. Soc. Sci. Brux. 19: 122. 1895. Type: Gabon, Bonando Plain, Duparquet 1, anno 1864 (P, holotype). Homotypic synonym: *A. mammosa* var. *mucronata* (Dew.) Pierre. l.c.

L. scandens var. *coriacea* Hall. f., Jahrb. Hamb. Wiss. Anst. 17, Beih. 3: 81. 1900. Type: Gabon, Estuaire, near Libreville, Klaine 591 (P, lectotype, designated here (was isotype); isotypes BR, K).





MAP 6, *Ancylobotrys scandens*.

L. echinata A. Chev., Mém. Soc. Bot. Fr. 8: 45. 1908. Type: Congo, Pool, Brazzaville, Chevallier 4286 (P, lectotype, designated here). Homotypic synonym: *P. echinata* (A. Chev.) Pichon l.c.

L. scandens var. *floribunda* Pellegr., Mém. Soc. Linn. Norm. sér. 2. Bot. 1. 3: 24. 1928. Type: Gabon, Nyanga, Tchibanga, Le Testu 1438 (P, holotype; isotypes BM, K, LISC, MO). Homotypic synonym: *P. scandens* var. *floribunda* (Pellegr.) Pichon, l.c.

A. brevituba Pichon, Mém. IFAN 35: 283, pl. 17. 5–6. 1953, **syn. nov.** Type: Benin, Kétou Forest, Le Testu 110 (P, holotype, isotype BM).

Sarmentose shrub or liana climbing up to at least 12 m high. Trunk 2–5 cm in diameter; bark rather smooth, lenticellate. Branches brown, lenticellate; branchlets densely pubescent with rather short hairs. *Leaves*: petiole 4–15 mm long, pubescent, with colleters in the axils; blade coriaceous even when fresh, usually elliptic or narrowly so, sometimes ovate or oblong, 1.9–3.2 × as long as wide, 6.5–17.5 × 2.6–7 cm, acuminate at the apex, cuneate, sometimes rounded at the base, glabrous on both sides, with 10–17 pairs of more or less straight conspicuous secondary veins, forming an angle of 60–90° with the costa; often alternated by less conspicuous ones; tertiary venation reticulate. *Inflorescences* 9–25 × 4–15 cm, with 4–8 cymes, each cyme with up to about 30 flowers; peduncle 4–14.5 cm long,

Fig. 6. *Ancylobotrys scandens*. 1, habit ($\times 2/3$); 2, flower ($\times 2$); 3, opened corolla ($\times 2$); 4, pistil ($\times 6$); 5, bottom of ovary ($\times 6$); 6, fruit ($\times 2/3$); 7, longitudinal section of fruit ($\times 2/3$); 8, seed ($\times 2$); 9, embryo on half of endosperm ($\times 2$). 1–4 from J. Louis 11491; 5 and 7–9 from Breteler 2882; 6 from J.W.A. Jansen 1816.

pubescent; pedicels up to about 2.5 mm long, densely pubescent; bracts sepal-like, densely pubescent, up to 1.5 mm long, persistent, usually with colleters at the base. *Sepals* up to 0.5 mm connate at the base, narrowly triangular to ovate, 0.7–3.2 × as long as wide, 0.6–3.5 × 0.8–1.5 mm, obtuse, sometimes acute at the apex, densely pubescent outside, glabrous inside, sometimes with colleters at the base, alternating with them. *Corolla* white, sometimes tinged with pink, 33–59 mm long in the mature bud and forming a more or less oblong head 0.2–0.4 of the bud length, glabrous or sparsely short-pubescent; tube thin, not thickened above the anthers, 8.1–32.4 × as long as the sepals, 1.4–3.8 × as long as the lobes, 17.5–43.5 mm long, contracted at the base and 1–2 mm wide, widened above at insertion of anthers and widest 4.3–7.5 mm above the base (0.1–0.3 of the tube length) to 1.7–3 mm wide, contracted again just above the anthers to 0.6–1.7 mm wide, fairly abruptly widened at the throat, with a pilose belt inside from between the anthers which is 3.2–8.5 mm above the base, to 6.5–16 mm above the base of the tube, throat glabrous; lobes narrowly elliptic to oblong, 2.4–5.8 × as long as wide, 7–19 × 1.9–5 mm, obtuse at the apex, slightly curved inwards at the left side, glabrous on both sides. *Stamens* with apex 14–33 mm below mouth of corolla tube (0.7–0.9 of the tube length), inserted 3.2–6.5 mm from the base of the tube (the base of the anthers 3.7–7 mm above the base of the tube); filaments glabrous or minutely pilose inside, glabrous outside, 0.5–1 mm long; anthers 1.9–4.6 × as long as the filaments, 3.4–4.8 × as long as wide, 1.6–2.3 × 0.4–0.5 mm, apex acuminate and sterile for up to 0.2 mm. *Pistil* 4.2–6.5 mm long, with apex 0.8–1.8 mm below apices of anthers; ovary almost ovoid to subglobose, 0.7–1.2 × 1–1.8 × 1–1.8 mm, densely pubescent; style glabrous, cylindrical, not thickened at the apex, 1.5–2.4 × 0.2–0.4 mm; pistil head: basal part cylindrical to subglobose, 0.9–1.3 × 0.5–0.7 mm, apical part 0.7–1.2 × 0.2–0.5 mm. Placentas with 35–50 ovules. *Fruit* yellow, orange, or red, subglobose, 2–5 cm in diameter, cuneate to truncate at the base, sometimes minutely warty, subtended by the persistent calyx, about 2–40-seeded. *Seeds* more or less ellipsoid, smooth, 8–14 × 5–8 × 4–5 mm. *Embryo*: cotyledons 12 × 8 mm, slightly undulate; rootlet about 1 × 1 mm.

DISTRIBUTION: West and Central Africa.

ECOLOGY: Forest or gallery forest. Alt. 0–1400 m. Flowering and fruiting probably scattered over the year, in West Africa probably mainly from January to March.

Geographical selection of the approximately 230 specimens examined:

GUINEA. Nzérékoré: Nimba Mts base, Schnell 1860 (P).

LIBERIA. Yéképa, Adam 25182 (MO); Nimba Mts, J.W.A. Jansen 1816 (WAG).

IVORY COAST. 2 km E of Danané, Leeuwenberg 2993 (BR, K, L, UC, WAG); middle Sassandra R. basin, Guidéko, Chevalier 16478 (P); Sassandra, near Longa, de Koning 2688 (WAG); 5 km W of bifurcation to Grand Béréby in Tabou-San Pedro Road, Leeuwenberg 12318 (WAG); 13 km from km 26 Sassandra-San Pedro Road to Monogaga, Leeuwenberg 12330 (WAG); Bouroukrou, Chevalier 16682 (P).

GHANA. Eastern: Akwapim, Thonning 281 (C-THONN, G, P-JU, type); Kwaobenya, Akwapim, Irvine 1545 (K); Aburi Scarp, Enti FH 7574 (B, K, P, WAG); Legon Hill, Adams 3656 (K); Krobo plains, W.H. Johnson 494 (K). Ashanti: Bosumtwi Range F.R., Hall & Abbew GC 44142 (WAG).

TOGO. near Lomé, Warnecke 252 (BM, BR, E, G, K, L, M, P); Cabolé (= Kambolé), Annet 66 (P).
BENIN. near Ouidah, Chevalier 23456 (P); Allada de Torricada, Estève in Le Testu 169 (BM); Adjara, Chevalier 22742 (P); Cohoué, between Porto-Novo Lagoon and the coast, Chevalier 22790 (P); Adja Ouéré, Le Testu 112 (A, BM, BR, K, MO, P, S, UC); Kétou For., Le Testu 110 (BM, P, type of *A. brevituba*).
NIGERIA. Lagos: Lagos, Dalziel 1104 (E, K, M). Oyo: Asaka Division, Ibuya, Unwin 14 (K, P). Ogun: Abeokuta, van Meer & Redhead 745 (WAG). Bendel State: Benin City, Unwin 28 in Chevalier 15140 (P). Anambra: Nsukka District, Ubukpa For., Emwigbon & Anyandiegwu FHI 72924 (K, WAG). Imo: Umudike, Ariwaodo 1280 (K, LISC).

CAMEROUN. Sud-Ouest: 40 km W of Mamfè, road to Calabar, Letouzey 13555 (BR, K, P, WAG). Centre-Sud: Nkolfeb Hill, Mbaminkom Mts, Dang 666 (P, WAG); Nkolbisson, 7 km W of Yaoundé, Breteler 2882 (A, BR, K, LISC, M, P, WAG); Yaoundé, Jacques Félix 5072 (P).

CENTRAL AFRICAN REPUBLIC. Sangha: 25 km ESE of Bayanga, Dzanga-Sangha Res., Carroll 80 (WAG); ibid. Harris & Fay 948 (K, WAG).

GABON. Estuaire: near Libreville, Klaine 29 (K, P), 411 (P), 591 (BR, K, P, type of *Landolphia scandens* var. *coriacea*), 1089 (BR, P); ibid., Reitsma 796 (WAG); ibid., Thollon 156 (P); Cap Esterias, N. Hallé 809 (P). Woleu-Ntem: 8 km E of Médouneu, Leeuwenberg 12531 (WAG). Ogooué-Ivindo: Belinga, Gentry 33570 (MO); Makokou, Caballé 305 (WAG); ibid., Florence 2000 (P). Ogooué-Maritime: Cap Lopez, Chalo 58 (P); Fernan Vaz, Leroy Sept. 1894 (P); Gamba, Wieringa & van der Poll 1371 (WAG). Ngounié: between Mouila and Yono, Breteler et al. 8148 (WAG). Nyanga: Panga, Le Testu 1775 (BM, BR, G, K, LISC, MO, P); ibid., J. de Wilde et al. 9260 (WAG); Mayumba, A.M. Louis 2220 (WAG); Tchibanga, Le Testu 1438 (BM, K, LISC, MO, P, type of *L. scandens* var. *floribunda*). Bonando Plain (not localized), Duparquet I (P, type of *L. petersiana* var. *mucronata*).

CONGO. Badondo Kouilou: Numbi R., Trochain 10236 (P); Kouilou Region, Moutsamboté & Dowsett-Lemaire 4501 (BR, WAG); Tchissanga, Dowsett-Lemaire 1400 (BR, WAG); Loango, Lecomte B 70 (P); between Djéno and the Cabinda border, Farron 4777 (P, WAG). Pool: Batéké Plateau, km 46 Maloukou-Maës Road, Sita 2726 (P); Brazzaville, Chevalier 4286 (P, lectotype of *L. echinata*), 11266 (P, paratype of *L. echinata*).

ZAIRE. Bas-Zaire: Moanda, Gillet 4032 (BR); ibid., Vanderyst 27837 (BR); Poiti-Tshoa Road, Dewèvre 393 (BR); Tshikay and Matemba Plateaux, Boma-Banana Road, Wagemans 1345 (BR, WAG); Kanzi, Nsimundele 785 (BR); Luko, Breyne 3808 (BR, WAG); ibid., Toussaint 121 (BR, K, P); Gimbi, Toussaint 602 (BR); Benga, Kisantu, Callens 4334 (BR, NY); Kimvula-Ngindinga Road, Callens 3834 (BR, NY); between Kimvula and Kimbuka, Callens 3864 (BR). Kinshasa: Ndjili, Evrard 6527 (BR, MO). Bandundu: near Pelende, Callens 4769 (BR); between Selenge and Lukolela, Goosens 5096 (BR); Ibalu, E. & M. Laurent 4 Nov. 1903 (BR); Ganda For., Body anno 1906 (BR); Bokoro, Jans 719 (BR); Lubue, Gentil 46 (BR). Equateur: Irebu, M. Laurent 636 (BR); near Eala, Nannan 42 (BM, BR); Eala, Staner 1467 (BR, MO, P); ibid., Ruki R., J. Léonard 804 (BR, K); Djoa, Evrard 4108 (BR); Basankusu, Evrard 4749 (BR); Gbo-Sasa, Evrard 362 (BR); Yamibata, Vermoesen 13 (BR); Baringa R., Yala, Bruneel 31 (BR); Wamba, Nsola 1257 (BR); near Mondombe, Jespersen 10 (BR); Yasala-Yetsi Road, Evrard 5228 (BR). Haut-Zaire: Basoko, E. & M. Laurent 18 Jan. 1904 (BR); Limbutu, M. Laurent 976 (BR); Yangambi, J. Louis 11491 (BM, BR, C, FI, K, NY, P); 10 km W of Kisangani, Bokdam 3261 (WAG); Kisangani, Mangobo, Lisowski 47406 (BR); 10 km NW of Wanie-Rukula, Lisowski 17307 (BR). Kasai Oriental: Bena Dibele, Flamigni 30 (BR); Kasongo Batetela, Sapin 20 Oct. 1906 (BR); Miabi, Liben 1969 (BR, WAG). Kivu: Makutu, km 13 Buniakiri-Tshigoma Road, Pierlot 2875 (BR, WAG); Viega, Maniema, Lebrun 5818 (BR, K).

BURUNDI. Kigwena, Reekmans 22 Oct. 1976 (FI).

ANGOLA. Zaire: Sumba Poco, Gossweiler 8697 (BM, K). Bengo: Luanda, Cazengo, Gossweiler 575, anno 1903 (BM, K), anno 1903 (LISJC, P). Cuanza Norte: Golungo Alto, Gossweiler 4402 (BM, K), 4414 (BM, COI, K), 4738 (BM, COI, K); ibid., Welwitsch 5927 (BM, C, COI, G, K, MO, P, type of *Landolphia welwitschii* and lectotype of *L. petersiana* var. *crassifolia*); near Salazar (= Dalatando), M. da Silva 2207 (LISC), 2435 (LISC). Malanje: Quela Mts, von Nolde 783 (BM, COI). Lunda Norte: Lovua R., Marques 230 (COI, LISU); Dundo, Luachima R., Gossweiler 13583 (B, BM, K, P, US).

CULT. Netherlands, Wageningen, de Brujin 2094 (WAG). Zaire, Equateur, Eala, Corbisier-Baland 1282 (BR).

Note. The type of *A. brevituba* falls with all of its characters perfectly within the variation of *A. scandens*. Therefore it is not maintained here as a distinct species.

7. *Ancylobotrys tayloris* (Stapf) Pichon, Mém. IFAN 35: 284, pl. 18. 1–3. 1953.

Fig. 7, p. 31; map 7 p. 32

Basionym: *Landolphia tayloris* Stapf in Fl. Trop. Afr. 4. 1: 45. 1902.

Type: Kenya: K7, Rabai Hills, Fimboni, W.E. Taylor Nov. 1885 (BM, holotype).

Heterotypic synonym: *Landolphia pachyphylla* Stapf, l.c. Type: Malawi, sin. loc., Buchanan 140 (BM, holotype; isotype E).

Climbing shrub or liana climbing up to 20 m high in trees. Branches dark brown, lenticellate; branchlets dark brown-pubescent. *Leaves*: petiole 5–8 mm long, glabrous to puberulous, with colleters in the axils; blade coriaceous when dried, elliptic or narrowly so, 2–3.4 × as long as wide, 4–11.8 × 1.7–5 cm, acuminate at the apex with an up to 17 mm long acumens, cuneate at the base, glabrous on both sides, with 19–40 pairs of more or less straight conspicuous secondary veins, forming an angle of 60–90° with the costa, often alternated by less conspicuous ones; tertiary venation reticulate beneath, inconspicuous above. *Inflorescences* 9–32 × 4.5–10 cm, with 5–9 cymes, each cyme with up to about 30 flowers; peduncle 4–12.5 cm long, pubescent or minutely so; pedicels about 1 mm long, densely pubescent; bracts up to about 2.5 mm long, sepal-like, persistent. *Sepals* connate at the base for up to 0.7 mm, triangular or sometimes ovate, 1.6–3.4 × as long as wide, 1.6–3.1 × 0.7–1.8 mm, obtuse or acute at the apex, densely pubescent outside, glabrous inside, usually without colleters. *Corolla* white, 18–26.5 mm long in the mature bud and forming an attenuate head 0.6 of the bud length, pubescent outside; tube thin, not thickened above the anthers, 2.7–6.1 × as long as the sepals, 0.5–0.8 × as long as the lobes, 8–12.2 mm long, contracted at the base and 1–1.3 mm wide, widened above and widest 3–3.7 mm above the base (0.3–0.4 of the tube length) to 1.5–2 mm wide, contracted again just above the anthers to 0.8–1.3 mm wide, fairly abruptly widened at the throat, with a pilose belt inside from between the anthers which is 2–3.8 mm above the base, to 5.8–8 mm above the base of the tube or sometimes to the base of the lobes, throat usually glabrous, sometimes minutely pilose; lobes narrowly triangular to narrowly elliptic, 2.1–8.5 × as long as wide, 10–20 × 2–5 mm, obtuse at the apex, glabrous on both sides. *Stamens* with apex 4–7.8 mm below mouth of corolla tube (0.5–0.6 of the tube length), inserted 2–2.9 mm from the base of the tube (the base of the anthers 2.5–3.2 mm above the base of the tube); filaments glabrous or sometimes minutely pilose inside, glabrous outside, 0.4–0.6 mm long; anthers 2.4–3.3 × as long as the filaments, 4–7.5 × as long as wide, 1.2–1.5 × 0.2–0.3 mm, apex acuminate and sterile for 0.1 mm. *Pistil* 2.5–2.9 mm long; with apex 1.2–1.5 mm below apices of anthers; ovary more or less superior, subglobose to slightly cylindrical, 0.5–0.8 × 0.7–0.8 × 0.7–0.8 mm, densely appressed-pubescent; style glabrous, cylindrical, not thickened at the apex, 0.6–0.8 × 0.2 mm; pistil head: basal part more or less cylindrical, 0.8–1 × 0.3–0.4 mm, apical part 0.2–0.6 × 0.2–0.3 mm.

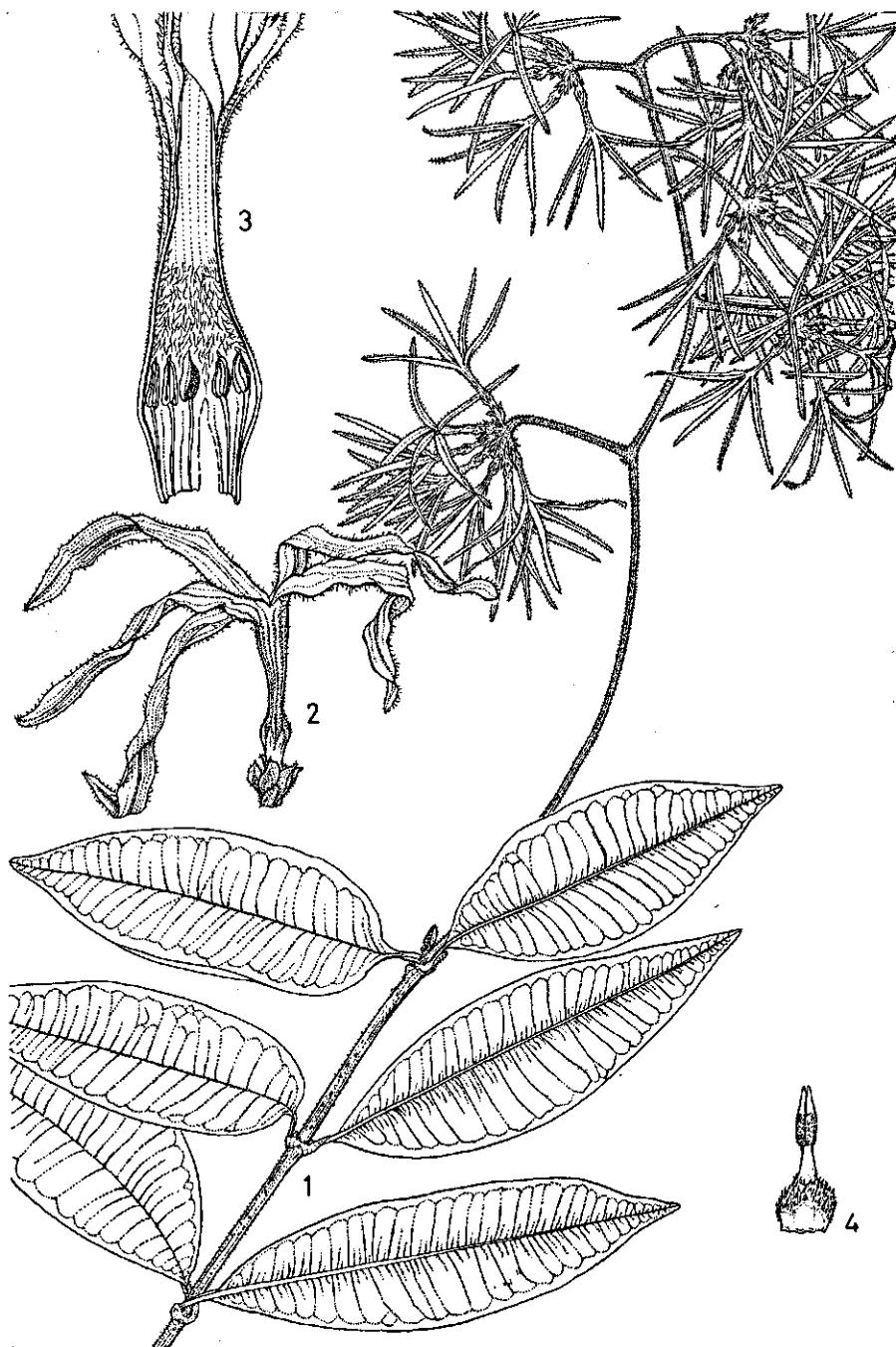
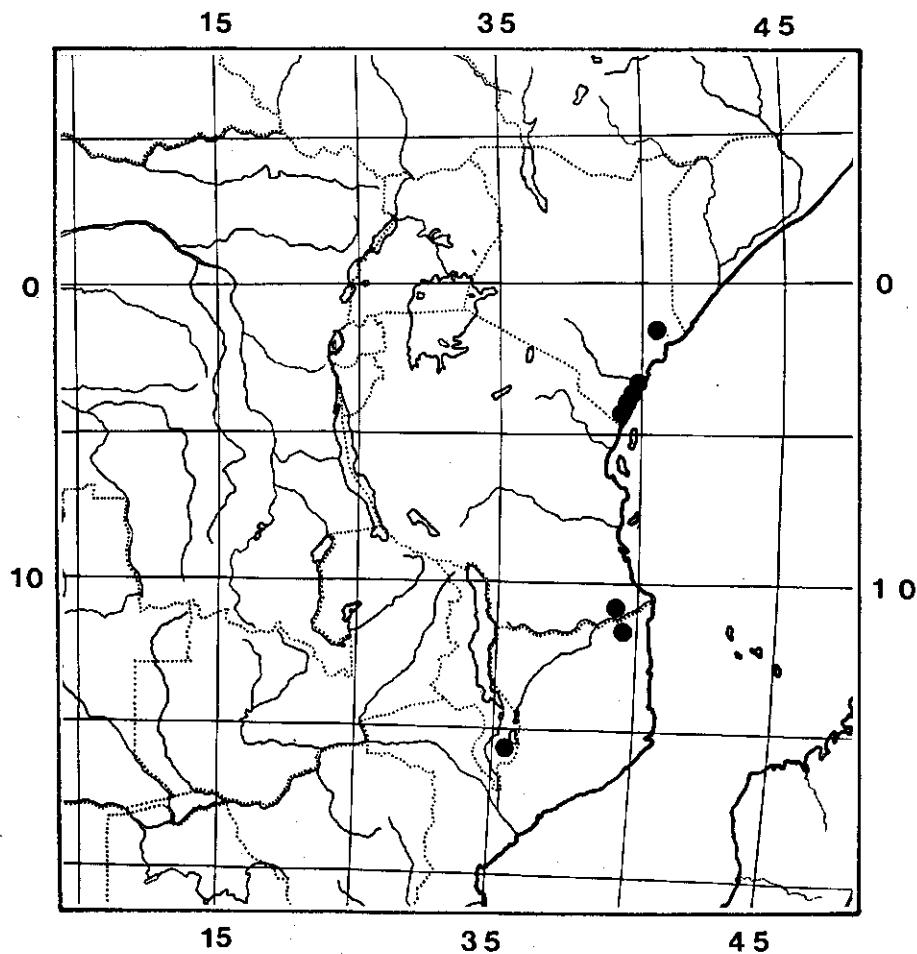


Fig. 7. *Ancylobotrys tayloris*. 1, habit ($\times 2/3$); 2, flower ($\times 2$); 3, opened corolla ($\times 4$); 4, pistil ($\times 6$). 1 from Chapman 8914; 2-4 from Reitsma 505.



MAP 7. *Ancylobotrys tayloris*.

Placentas with 15–35 ovules. Fruit yellow, subglobose, 4 cm in diameter (teste Gardner 1462A).

DISTRIBUTION: Kenya, Tanzania and Malawi.

ECOLOGY: Light forest with *Cynometra* or bush. Alt. 0–1000 m. Flowering from August to December.

Specimens examined:

KENYA. K4: N of Mombasa, Whyte anno 1902 (BM, K, MO, P). K7: Kilifi District, S of Jilore, Spjut & Ensor 2614 (K, UC); W of Kakuyuni, ca 16 km W of Malindi, Spjut 3939 (BR, K, UC); ca 7 km E of Vitengeni, Reitsma 505 (WAG); Arabuko For., Brenan et al. 14686 (K, WAG); ibid., Scott Elliot 93 (K); Rabai Hills, Fimboni, W.E. Taylor Nov. 1885 (BM, type); Kwale, Graham 1647 (K, NY), 1648

(NY); Shimba Hills, Gardner 1462A (K); Buda Mafisini For., 13 km WSW of Ganzi, Drummond & Hemsley 3935 (BR, K).

TANZANIA. Sin. loc., Busse 664 (EA). T8: Newala, Hay 73 (K).

MALAWI. Sin. loc., Buchanan 140 (BM, E, type of *Landolphia pachyphylla*); Southern: Mulanje Region, Machemba Hill, Patel & Morris 1552 (K, MO); Mt Mulanje massif, Michesi Mt, Chapman 8914 (K, MO).

MOZAMBIQUE. Niassa: Macondes, Mueda, Mendonça 959 (LISC).

Nomen nudum

A. mammosa Pierre, Bull. Soc. Linn. Paris sér. 2: 92. 1898. = *A. scandens* (Schum. & Thonn.)Pichon.

Excluded species

Ancyllobotrys (?) reticulata (Hall.f.) Pichon, Mém. IFAN 35: 300. 1953. = *Landolphia reticulata* Hall.f., see Persoon et al., Wageningen Agric. Univ. Pap. 92. 2: 169, fig. 36, map 40. 1992.

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A, B, BM, BR, C, COI, E, EA, FI, G, GH, HBG, K, L, LD, LG, LISC, LISJC, LISU, LMU, M, MA, MAL, MICH, MO, NY, P, POZG, PRE, S, SRGH, STE, U, UC, UPS, US, W, WAG, YA, Z.

Grateful thanks go to Miss Yuen Fang Tan for preparing the excellent drawings and to Prof. dr. L.J.G. van der Maesen for correcting the English text.

Index of exsiccatae

Ancylobotrys amoena (am), *A. capensis* (ca), *A. petersiana* (pe), *A. pyriformis* (py), *A. robusta* (ro), *A. scandens* (sc) and *A. tayloris* (ta).

- Adam, J.G., 25182 (sc), 25228 (am), 25732 (sc).
Adams, C.D., 3656 (sc).
Adamson, J., 7 (pe).
Adjanohoun, E.J. 216 (am).
Ajayi, M.O., FHI 19294 (am).
Ake Assi, L., 216 (sc).
Allen, C.E.F., 108 (pe).
Amico, A. 403, 410 (pe).
Andrade, E. C. 882, 1917, 1926 (pe).
Annet, E., 66, 68 (sc).
Archbold, M.E., 1389, 2739 (pe).
Ariwaodo, J.O., ARS 1280 (sc).
Asongany, J.N. 598 (am).

Bagshawe, A.G. 205 (am).
Ball, J.S., 1041 (pe).
Bally, P.R.O., 12704, 14169 (pe).
Balsinhas, A., 627, 1368, 1422, 3252 (pe).
Bamps, P., 6354 (pe).
Barahina, H.C.S. 45 (pe).
Barbosa, G. 4285, 5031, 5560, 7926, 8167, 8668 (pe).
Batten-Poole, W.H. 217 (am).
Battiscombe, E. 230, 780 (pe).
Batty, M. 370, 1113 (pe).
Becquet, A. 480 (am).
Beentje, H.J., 2286 (pe).
Bermejo, M. 124 (ro).
Biholong, M., 190 (am).
Bittremieux 243 (sc).
Boiteau, P., 1073 (pe).
Boivin, B. 3200 (pe).
Bokdam, J. 3261 (sc).
Bolema, D. 96 (sc), 1119 (ro).
Bolus, H., 9702 (ca).
Bond, W. 452 (pe).
Bos, J.J., 4717, 4985, 5792, 10720 (ro).
Bossche, L. van den, 397 (am).
Boué, 11 (am).
Boutique, R., 172 (am).
Bouxin, G., 273, 931 (am).
Brenan, J.P.M., 8006 (am), 14686 (ta).
Breteler, F.J. 312 (am), 1596 (ro), 2882, 3005, 3015, 8148 (sc).
Breyne, H., 3808 (sc), 4445 (am), 5265 (ca), 5531 (pe).
Bridson, D. 239 (am).
Bruijn, J. de, 2094 (sc).
Brown, H., 14, 17 (am).
Bruce, E.A., 860 (pe).
Bruneel, 31 (sc).
Brunel, J.F., 7156 (am).

- Buchanan, J., 140 (ta), 437 (pe).
 Burke, J., 404, 405 (ca).
 Burtt, B.D., 119 (pe), 5226, 6486 (am).
 Burt-Davy, J., 2182, 2672, 5029, 15250 (ca).
 Busse, W., 100, 202, 1051, 1248 (pe).
- Caballé, G., 305 (sc).
 Callens, H., 3834, 3864, 4334 (sc), 4578 (ro), 4769 (sc).
 Carmichael, W., 745 (am).
 Carroll, R.W., 80 (sc).
 Carvalho, M.F. de, 1295 (pe).
 Chalot, C., 58 (sc).
 Chapman, J.D., 4161, 4761 (am), 8914 (ta).
 Chase, N.C., 566, 959, 1568, 2410, 4161, 4678, 5148, 7203 (pe).
 Chevalier, A., 326 (am), 352 (sc), 384, 400, 432, 486, 611, 861 (am), 4286 (sc), 4410 (py), 5377, 6055, 6488, 6558, 6678, 7116, 7130, 7143, 7402, 7901, 7954, 8306 (am), 11266 (sc), 12414bis, 12415, 12418, 12937, 13158, 13458, 13467 (am), 13844, 13860, 15121, 15128, 15129, 15140 (sc), 15692 (am), 16478, 16682, 16806 (sc), 18006 (am), 21232, 21286 (sc), 21753, 21899, 21914 (am), 22742, 22790, 23456(sc), 23921, 24050, 24051, 24222 (am), 26723 (sc), 26747, 26827, 27068, 27107 (ro).
 Chirstiaensen, R., 861A (am).
 Claessens, J., 432 (ro).
 Codd, L.E., 2015, 4592 (pe).
 Conrads, P. 439 (am).
 Conrath, P. 1064 (ca).
 Corbisier-Baland 1169 (ro), 1282 (sc).
 Correia, M.F., 2214, 3269 (pe).
 Coulon, 4 (ro).
 Couteaux, G., 176 (ro).
 Curle, C., 415 (pe).
- Dahlstrand, K.A., 704 (ca).
 Dalziel, J.M., 98, 370 (am), 1104 (sc).
 Dam, G. van, in TM 25678 (pe).
 Dang, D., 666 (sc).
 Daramola, B.O., 413 in FHI 86359 (am).
 Dawe, M.T., 458 (pe).
 Debray, M., 1475 (pe).
 Decary, R., 905, 8003, 8243, 8266, 8275, 15558 (pe).
 Descoings, B., 8107 (ro), 12400 (am).
 Desenfans, R. 1967 (ro).
 Dewèvre, A., 393 (sc), 885 (ro).
 Dewulf, A. 168, 681 (am).
 Donis, C. 2034 (sc), 3032 (ro).
 Dowsett-Lemaire, 1400 (sc).
 Drummond, R.B., 3848 (pe), 3935 (ta), 4207 (pe), 9479 (ro).
 Dubois, L., 440 (ro).
 Duff, C.E. 191 (ro).
 Dybowski 8b (am).
- Edwards, D., 2548 (pe).
 Edwards, I.B., 793 (ro).
 Eggeling, W.J., 1658 (am).
 Eijnatten, C.L.M. van, 2276 (sc).
 Eimunjeze FHI 66323 (am).
 Elliott, W.R. 103 (am).

- Emwiogbon, J.A., FHI 46785, 72924 (sc).
 Enti, A.A. FE 1409, 1612, FH 6506 (am), FH 7574 (sc).
 Ern, H., 2644, 2772 (am).
 Evans, A.E., 7 (am).
 Evrard, C. 362 (sc), 2575 (am), 4093 (ro), 4108, 4749, 5228 (sc), 5557, 5766 (ro), 6527 (sc).
 Faden, R.B., 74/1254 (pe).
 Fanshawe, D.B., 1389, 1623, 3536 (am).
 Farmar, L., 264 (am), 398 (sc).
 Farron, C., 4777 (sc).
 Faulkner, H.G., 356, 561, 2423, 2477, 2789 (pe).
 Fay, J.M., 2144, 5135, 5136 (am).
 Fernandes, A., 10 (pe).
 Fison, T.W., 159 (pe).
 FitzGibbon, H., 79 (am).
 Flamigny, A., 30 (sc), 49, 130, 134, 136, 139, 141, 1255, 1256 (ro), 10497, 10534 (sc).
 Flock, O., 1000, 1000a, 1000b, 1000c (pe).
 Florence, J., 2000 (sc).
 Floret, J.J., 790 (pe).
 Forbes, J., 54b, 541 (pe).
 Ford, J., 655 (am).
 Forster, E.W., 68 (sc).
 Fotius, G., 2551, 2578 (am).
 Fries, R.E., 390, 391 (am).
 Gaillez, L., 304 (ro).
 Galpin, E.E., 11520 (ca).
 Gardner, H.M., 1462A (ta), 1462B (pe).
 Garnier, P., 39 (am).
 Geerling, C., 1924, 2058, 5664 (am).
 Geilinger, 8, 22, 138 (pe).
 Gentil, L., 46 (sc).
 Gentry, A.H., 33608 (sc).
 Gereau, R., 4992 (pe).
 Gérard, Ph., 4126 (am), 4914 (ro).
 Germain, R., 775 (am), 1516 (ca), 1862 (ro), 1867 (sc), 6753, 7037, 8541 (am).
 Gerstner, H., 146 (pe).
 Gilbert, G., 8633 (sc), 8922 (ro).
 Gilfillan, D.F., 1472 (ca).
 Gillespie, J.B., 386 (pe).
 Gillet, J., 4032, 23232 (sc).
 Gillett, J.B., 25152 (pe).
 Gillett, M.C., 172, 4610 (ca).
 Gillman, H. 878, 1162 (pe).
 Giorgi, S. De, 1 (am).
 Glover, P.E., 236 (am).
 Goetze, W., 884 (am).
 Goldsmith, B., 110/62 (pe).
 Gomes e Sousa, A.F., 1910, 2008, 4856, 4870, 4872 (pe).
 Goodier, R., 123 (pe).
 Goodman, P.S., 313 (pe).
 Goosens, A.P., 88 (ca).
 Goosens, V., 5096 (sc), 6029 (ro).
 Gossweiler, J., 575, 4402, 4414, 4738, 8697, 13583 (sc).
 Graham, R.M., 286, 1538, 1539 (pe), 1647, 1648 (ta).

- Greenway, P.J., 1210, 1396, 2734, 4936 (pe), 5676, 5740 (am).
 Griffon de Bellay 244 (sc).
 Groenendijk, E.M.C., 290, 979, 1276, 2064, 2077 (pe).
- Hafström, 1108 (ca).
 Hakki, M., 242, 261, 381, 793 (am).
 Hall, J.B., GC 44142 (sc).
 Hall-Martin, A.G., 1262 (pe).
 Hallé, N., 809, 2812 (sc).
 Hansen, O.J., 3219 (ca).
 Harley, R.M., 9223 (am).
 Harris, B.J., 290, 1216, 2761 (pe).
 Harris, D.J., 948 (sc), 1574 (ro).
 Hay, W., 73 (ta).
 Hepper, F.N., 1555 (am), 5523 (pe).
 Hillary, 539 (ca).
 Holmes, W.D., 754 (am).
 Holst, C.H.E.W., 2220, 2563 (pe).
 Howard, C.W., 17 (pe).
 Hoyle, A.C., 367, 495, 565 (am).
 Humbert, H., 2054, 4336(pe), 8744 (am).
 Hublot, L., 146, 334, 1146, 1334, 1458 (pe).
 Hutchinson, J., 2312 (ca).
- Irvine, F.R., 1424, 1545, 2594, 2741, 2772 (sc).
- Jacques Félix, H., 3275 (am), 5072 (sc).
 Jans, E., 719 (sc).
 Jansen, J.W.A., 1816 (sc), 2578a (am).
 Jansen, P.C.M., 7518 (pe).
 Jeffery, G.W., K 167, 395 (pe).
 Jensen, F., 49 (sc).
 Jespersen, 10 (sc), 42 (ro), 65 (sc).
 Joblonsky, 23 (pe).
 Johnson, W.H., 17, 89 (pe), 494 (sc), 782 (am).
 Junod, H.A., 152, 282, 331 (pe).
- Kässner, T., 315 (pe), 379 (ca).
 Keay, R.W.J., FHI 22960 (am).
 Kirk, J., 27, 309 (pe).
 Klaine, 29, 411, 591, 1089 (sc), 1400 (ro), 1401 (py), 1503 (ro).
 Kleinhoonte, A., 629 (ca).
 Koning, J. de, 2688 (sc), 7597, 7800, 8443, 9629, 9690 (pe).
 Koritschoner, H., 1138, 1141, 1539 (pe).
 Koufani, A., 163(ro).
 Koutnik, D.L., 1220 (pe).
 Kräusel, R., 91 (ca).
- La Croix, I.F., 4005 (am).
 Lam, H.J., 4816 (ca).
 Lanjouw, J., 764 (ca).
 Lansdell, 16076 (ca).
 Latilo, M.G., FHI 34454, 47699 (am).
 Laurent, M., 636 (sc), 896 (ro), 976 (sc), 1288 (ro).
 Lavranos, J., 4642, 4712 (pe).

- Lawrence, E., 123 (pe).
 Lawson, R.M., 1245 (am).
 Leach, L.C., 11260 (pe), 12455 (ca).
 Lebrun, J., 946 (sc), 2100, 2330, 2875, 3181 (am), 5818 (sc), 9820 (am), 11216 (sc).
 Lecomte, B 70 (sc).
 Ledermann, C., 2530 (am).
 Leemans, J., 151, 466 (ro).
 Leendertz, R., 219 (ca).
 Leeuwenberg, A.J.M., 2993 (sc), 3879, 7660 (am), 10890, 10915 (ca), 10828 (pe), 11916 (am), 12318, 12330 (sc), 12388 (ca), 12531 (sc), 13550 (py).
 Lejoly, J., 4137 (am), 5049 (ro), 5081 (sc).
 Lely, H.V., P 49, 50 (am).
 Lenfant, 1119 (am).
 Léonard, A., 1143 (sc).
 Léonard, J., 804 (sc), 1105 (ro).
 Lescrauwaet, E., 96 (ro).
 Le Testu, G., 110, 112 (sc), 114 (am), 169 (sc), 301, 302, 477, 832, 872 (pe), 1438, 1775 (sc), 2800, 4071 (am), 6054, 8255, 9294, 9511 (py).
 Letouzey, R., 4619, 4743, 7849 (am), 11402 (py), 13555 (sc).
 Lewalle, J., 6726 (am).
 Liben, L., 1969 (sc).
 Lindeman, H.A., 36, 357 (am), 1024 (pe).
 Linton, A., 53 (pe).
 Lisowski, S., 16641, 17307 (sc), 42748 (am), 45976 (pe), 47406 (sc), 50166, 51575 (am), 52314 (sc), 52382 (ro), 55122, 60263, 60264, 60265, 60751 (am), 90141 (ro).
 Lock, J.M., GC 43968 (am).
 Lotsy, 630 (ca).
 Louis, A.M., 266, 1177 (py).
 Louis, J., 139 (ro), 1121 (sc), 1933, 2637, 2913, 3689, 3740, 3790, 5626, 5689, 5797, 7232 (ro), 7348, 7364bis (sc), 8714, 9465 (ro), 9470, 10550 (sc), 10726 (ro), 11407 (am), 11491 (sc), 12862, 12879 (ro), 12946 (sc), 13626 (ro), 13699 (sc), 13951 (am), 14229 (sc), 15074 (ro), 15144 (sc), 15160, 15600 (ro), 15832, 16534 (sc), 16599bis (ro), 16699, 16753, 16840 (sc), 16914 (ro), 16914a, 16951 (sc).
 Ludanga, R.I., MRC 2009 (am).
 Luke, 2013 (pe).
 Lyne, R.N., 35 (pe).
 Lynes, H., 349b (ro).
 Macedo, J.M.A., 2466, 4797 (pe).
 Macnae, M., 1122 (ca).
 Mafumo, A., 7 (pe).
 Magogo, F., 728, 1241 (pe).
 Makany, L., 78, 157, 215, 477 (sc), 1820 (ro).
 Malaisse, F., 2629, 9111, 9718, 9815 (am), 9894 (ro), 9970 (am).
 Mandango, 1947 (sc).
 Mann, G., 1764 (ro).
 Marques, A., 59 (pe)..
 Marques, S. 230 (sc).
 Marseille, 148 (pe).
 Maudoux, E., 245 (sc).
 Mavi, S., 240, 1278 (pe).
 Mbano, B.N.N., DSM 754 (am).
 McClean, A.P.D., 61 (ca).
 McClintock, A., 218 (am).
 McConnell, R.H., SRGH 68918 (ca).
 McLea, J.H., 3098 (ca).

- Mearns, E.A., 2271 (pe).
 Meebold, A., 12581 (ca).
 Meel, L. van, 1894 (am).
 Meer, P.P.C. van, 745 (sc).
 Meikle, R.D., 844, 1005, 1371 (am).
 Menavanza, F., 23 (sc).
 Mendonça, F.A., 959 (ta), 976, 1975, 2497, 2506 (pe).
 Methuen, 226, 254, 256 (pe).
 Merxmüller, H., 56 (ca).
 Mfinanga, R.M., 24 (pe).
 Mgaza, C.D., 547 (pe).
 Mhoro, B., 398 (pe).
 Migeod, F.W.H., 1053 (pe).
 Mildbraed, J., 8501, 9116, 9444, 10115 (am).
 Millen, H., 105 (sc).
 Miller, O.B., B 829 (ca).
 Mogg, A.O.D., 15311, 20450, 21035, 22478 (ca), 26796, 27422, 27609, 28384, 28451, 28564 (pe),
 30655 (ca), 31832, 31896, 32299, 32451 (pe).
 Moll, E.J., 4710, 4858 (pe).
 Monteiro, 37 (pe).
 Morton, J.K., A 3555, GC 6350, GC 9391, GC 25280 (am).
 Moss, C.E., 2703 (ca).
 Mott, P.J., 384 (ca).
 Moura, A., 299, 347, 409 (pe).
 Moomaw, J.C., 834 (pe).
 Moutsamboté, 4501 (sc).
 Müller, T., 943 (pe).
 Munch, R.C., 256 (pe).
 Musk, H., 130 (pe).

 Nannan, 42 (sc).
 Napier, E.R., 6208, 6209 (pe).
 Nation, O., 290 (ca).
 Neethling, M., STE 11451 (ca).
 Newbould, J., 2559 (am).
 Nkongmenek, B.A., 338 (am).
 Noel, A.R.A., 2491 (pe).
 Nolde, von, 761 (ro), 783 (sc).
 Nsimundele, 785, 854 (sc).
 Nsola, 1257 (sc).
 Nuvunga, A., 364 (pe).

 Okafor, J.C., FHI 36870, 54634 (am).
 Oldeman, R.A.A., 365 (am).
 Olorunfemi, J., FHI 24414, 55684, 70714 (am).
 Onochie, C.F.A., FHI 55237 (py).
 D'Orey, E., 8 (pe).
 Orgenes, J., 9113 (pe).

 Paoli, G., 1008bis (pe).
 Paroisse, 24 (am).
 Patel, I.H., 1552 (ta).
 Pauwels, L., 6236 (sc).
 Pawek, J., 10429, 12147, 13141A, 13141B (am).
 Pedro & Pedrogão 1726 (pe).

- Pegler, A., 965 (ca).
- Perrier de la Bâthie, H., 1206, 8198, 8199, 8880, 8946, 12317 (pe).
- Peter, A., 31062, 31154, 31334, 31890 (pe), 35330 (am), 39417, 39473, 39686, 40785 (pe), 45954(am), 56989, 56998, 57002, 57003, 57004, 57016, 57017, 57018, 57019, 57021, 57023, 57028, 57032, 57033, 57034, 57036, 57037, 57038, 57042 (pe).
- Phillips, E.P., 3004 (ca).
- Piedboeuf, 202bis, 213 (am).
- Pierlot, R., 2875 (sc).
- Pobéguin, H., 45 (pe), 170 (am).
- Pole-Evans, I.B., 894 (ca).
- Polhill, R., 631, 680, 680A (pe).
- Pomba Guerra, M.S., 338 (pe).
- Pope, G., 1487 (pe).
- Prevot, 121 (sc).
- Procter, J., 2094 (am).
- Putterill, V.A., 16144 (ca).
- Pynaert, L., 83, 267, 290 (ro), 380 (sc), 909 (ro), 985 (sc), 1256, 1482 (ro), 1658 (sc), 1691 (ro), 1716 (sc).
- Quarré, P., 518, 1985 (am).
- Rand, R.F., 707 (ca).
- Rawlins, S., 673 (pe).
- Raya, M.O.F., 1837 (pe).
- Raynal, J. & A., 10728, 20685 (am).
- Reekmans, M., 1442, 3535 (pe), 5572 (am).
- Rehmann, A., 4158, 4295 (ca).
- Reitsma, J., 209 (pe), 505 (ta), 796 (sc).
- Richards, H.M., 1602B, 6125, 10978B, 12912, 13165 (am), 17771 (pe), 18220, 18753 (am).
- Ringoe, A., 109 (am).
- Ritschaert, F., 1710 (ro).
- Riva, D., 542 (pe).
- Roberty, G., 10389, 13832, 13856, 15963 (am).
- Robinson, E.A., 3814 (am).
- Rogers, F.A., 11808 (pe), 14782, 18962, 25220 (ca).
- Roux, A., le, 6 (ca).
- Rowland, J.W., 20 (am).
- Rudatis, H., STE 13313, 20184 (ca).
- Rudier, 27, 98 (sc).
- Ruffo, C.K., 343, 1704 (pe).
- Runyinnya, 499 (am).
- Ruspoli, 542 (pe).
- Sacleux, Ch., 324, 755, 1093 (pe).
- Salésiens, 300, 875 (am).
- Salubeni, A.G., 126, 2643 (pe).
- Satabié, B., 636 (am).
- Saxer, A., 365 (am).
- Schäfer, P.A., 7254 (pe).
- Schijff, H.P. van der, 939 (pe).
- Schlechter, R., 3523 (ca), 11628 (pe).
- Schlieben, H.J., 3824 (pe), 5357 (am + pe), 7523 (ca).
- Schmitz, A., 737, 1752, 2539 (am).
- Schnell, R., 91 (am), 1860 (sc), 2253, 5921 (am).
- Schweickerdt, H.G., 993 (ca).

- Schweinfurth, G., 1685 (am).
 Scott Elliot, C., 93 (ta).
 Scott Elliot, G.F., 1404 (ca), 8167 (am).
 Semsei, S.R., 1409 (pe).
 Senni, L., 552 (pe).
 Shabani, 108, 300, 476 (pe).
 Sharland, R.E., 392, 599, 1119, 1207, 1211 (am).
 Sidey, J.L., 3022 (ca).
 Silva, M. da, 2207, 2485 (sc).
 Sim, T.R., 20941, 20942 (pe).
 Simão, J., 750/48 (pe).
 Sita, P., 2724 (ro), 2726 (sc).
 Smuts, J.C., 3346 (ca).
 Soladoye, 374 (am).
 Spire, 28 (sc).
 Spjut, R.W., 2614 (ta), 2708, 3937 (pe), 3939 (ta).
 Staner, F., 1423 (ro), 1467 (sc).
 Stephen, J., 363, 1052, 1089 (pe).
 Stocks, J. 18, 61 (pe).
 Stoltz, A., 1712 (am).
 Streys, R.G., 3888, 10430 (pe).
 Stuhlmann, 340, 352, 475, 828 (pe).
 Sulamini, 889 (pe).
 Swart, L.S., SKF 441 (ca).
 Swynnerton, C.F.M., 567, 568, 946, 985, 986, 1406, 4006, 4007 (pe).

 Talbot, P.A., 3119 (py).
 Tanner, R.E.S., 610 (am), 2561, 3439, 3441 (pe), 4301, 4351 (am).
 Taylor, L.E., 5082 (ca).
 Taylor, Mrs., 345 (pe).
 Theron, J.J., 1001 (ca).
 Thode, J., A 1326, STE 2671 (ca).
 Thollon, 156 (sc).
 Thomas, D.W., 7257 (sc).
 Thonning, 281 (sc).
 Tisserant, Ch., 554 (ro), 579, 1810 (am), 2123, 2293 (ro).
 Toms, K.E., 89 (pe).
 Torre, A.R., 996, 1806, 3815, 3839, 9364, 11447, 12106, 14078, 14677, 15173, 15848, 17032, 17111,
 17193, 18912 (pe).
 Toussaint, L., 121, 261, 283, 602, 2060 (sc).
 Trochain, J., 7034, 10236 (sc).
 Troupin, G., 2845, 4157, 4891, 7451, 8295, 8825, 11355 (am).
 Tuck, W., 4 (ca).
 Turner, F.A.S., 33 (ca).
 Turner, L., 131 (am).

 Vahrmeijer, J., 1193 (pe).
 Vanderyst, H., 17567 (ro), 27761, 27837 (sc).
 Vaughan, J.H., 68, 369, 1002, 1646, 1804 (pe).
 Verdoorn, J.B., 85 (ca).
 Vermoesen, F., 13 (sc), 2422 (ro).
 Vigne, C., 1577 (am).
 Viguer, R., 68 (pe).
 Volkens, G., 173 (pe).
 Vollesen, K., 2651, 4318 (pe).

- Vosser, C.M.P., 1298 (ca).
Vuillet, 559 (am).
Vuuren, D.R.J. van, 207, 1285 (ca).
- Wagemans, J., 627, 1345, 1566, 2066 (sc).
Wallace, G.B., 264, 264a, 698, 816 (pe).
Warnecke, 252 (sc).
Welch, J.R., 443 (pe).
Welwitsch, 5927 (sc).
Westfall, R.H., 1522 (ca).
Whellan, J.A., SRGH 21889 (pe).
Wieringa, J.J., 977 (py), 1371 (sc), 1380 (py).
Wigg, L.T., 1025 (pe).
Wild, H., 2358, 5863 (pe).
Wilde, J.J.F.E. de, 434, 833 (am), 9260 (sc).
Wilde, W.J.J.O., 2578a, 2578b (am), 2604 (sc), 4248, 4617 (am).
Wilks, 971 (ro).
Williams, R.O., 112, 142, 187 (pe).
Wimbush, S.H., 32 (am).
Winter, D. de, 5933 (ca).
Wit, P., 1186, 1340 (am).
Witte, G.F. de, 1141, 3009 (am).
- Yafunga, F., 41 (sc).
Yamada, T., 400 (pe).
Young, J.D., 170 (am).
Young, R.G.N., 246 (ro).
- Zeyher, 1186 (ca).

Index to scientific names

Synonyms are in *italics*. Page number of principal entries are in **bold face**, those of figures and maps in *italics*.

- Ancylobotrys Pierre 3, 4
 amoena Hua 3, **5**, 6, 7, 17
 brevituba Pichon 27, 29
 capensis (Oliv.) Pichon 3, 4, 5, **10**, **11**, 12
 gabonensis Pichon 20, 21, 22
 mammosa Pierre 33
 var. *crassifolia* (K. Schum.) Pierre 25
 var. *mucronata* (Dew.) Pierre 25
 petersiana (Klotzsch) Pierre 3, 5, 10, **13**, **14**, 15
 pyriformis Pierre 3, 5, **18**, **19**, 20, 22, 25
 reticulata (Hall. f.) Pichon 33
 robusta Pierre 3, 5, 21, **22**, 23, 24, 25
 rotundifolia (Dew.) Pierre 16
 scandens (Schum. & Thonn.) Pichon 3, 5, **25**, 26, 27
 taylororis (Stapf) Pichon 3, 5, 30, **31**, 32
 trichantha Pichon 20, 21, 22
- Carisseeae Endl. 3
- Cynometa 32
- Landolphia P. Beauv.
 amoena (Hua) Hua & A. Chev. 5
 angustifolia K. Schum. ex Engl. 15, 17
 capensis Oliv. 10
 echinata A. Chev. 27, 29
 ferruginea (Hall. f.) Stapf 7
 monteiroi N.E. Br. 15, 18
 nitida Lebrun & Taton 7, 10
 pachyphylla Stapf 30, 33
 petersiana (Klotzsch) Dyer 15
 var. *angustifolia* (K. Schum. ex Engl.) Stapf 15
 var. *crassifolia* K. Schum. 25, 29
 var. *mucronata* Dew. 25, 29
 var. *rotundifolia* Dew. 15, 17
 var. *rufa* Stapf 16, 18
 var. *schweinfurthiana* (Hall. f.) Stapf 7
 var. *tubeufii* Busse ex Stapf 16
 reticulata Hall. f. 33
 robusta (Pierre) Stapf 22
 scandens (Schum. & Thonn.) Didrichs. 25
 var. *angustifolia* (K. Schum. ex Engl.) Hall. f. 15
 var. *coriacea* Hall. f. 25, 29
 var. *ferruginea* Hall. f. 7, 10
 var. *floribunda* Pellegr. 27, 29
 var. *petersiana* (Klotzsch) Hall. f. 15
 var. *rigida* Hall. f. 7, 10
 var. *rotundifolia* (Dew.) Hall. f. 16
 var. *schweinfurthiana* Hall. f. 7, 10
 var. *stuhlmannii* Hall. f. 16, 17, 18
 var. *tubeufii* (Busse ex Stapf) Busse 16, 18
 sennensis (Klotzsch) K. Schum. 15

- tayloris* Stapf 30
welwitschii Dyer fide Stapf ex De Wild & Th. Dur. 25, 29
Landolphiinae K. Schum. 3
Pacouria Aubl.
 amoena (Hua) Pichon 5
 angustifolia (K. Schum. ex Engl.) O. Kuntze 15
 capensis (Oliv.) S. Moore 10
 crassifolia (K. Schum.) Hiern 25
 echinata (A. Chev.) Pichon 27
 petersiana (Klotzsch) S. Moore 15
 var. *schweinfurthiana* (Hall. f.) S. Moore 7
 pyriformis (Pierre) Pichon 20
 robusta (Pierre) Pichon 22
 scandens (Schum. & Thonn.) Pichon 25
 var. *floribunda* (Pellegr.) Pichon 27
Plumerioideae K. Schum. 3
Rauvovia L. 4
Strychnos L.
 scandens Schum. & Thonn. 25
Willughbeia Roxb.
 petersiana Klotzsch 13
 sennensis Klotzsch 15