

***Uapaca* (Phyllanthaceae) in the Guineo-Congolian forest region: a synoptic revision**

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Background and aims – The treatment of *Uapaca* (Phyllanthaceae) for the *Flore du Gabon* revealed many, hitherto unknown, synonymies and some overlooked names that deserve a separate publication. Advantage is taken of this treatment to establish the geography of the forest species on an African scale.

Methods – Normal practices of herbarium taxonomy have been applied to study all herbarium material available, mainly at BM, BR, COI, FHO, G, K, LBV, LISC, LISU, MO, OXF, P (partly), and WAG.

Key results – A synoptic revision with key to the nine *Uapaca* species of the Guineo-Congolian forest region is presented with their synonymies, typifications, (selection of) the examined material and distribution maps. Some morphological features are illustrated to facilitate the use of the key to the species. Two specific names have been neotyped and fifteen lectotyped. Twenty-one specific names have been placed in synonymy.

Key words – *Uapaca*, Phyllanthaceae, taxonomy, distribution, tropical Africa, Guineo-Congolian forest region.

INTRODUCTION

The forest species of *Uapaca* (Phyllanthaceae) are characterised by stilt roots, whether growing in marshy areas, along rivers, or on dry land, but stilt roots may sometimes be absent in instances where the forest species extend into the adjacent savannah. This absence may be observed with *Uapaca guineensis* Müll.Arg. and *U. togoensis* Pax, but even in the savannah stilt roots are often produced (Keay 1958). The true savannah species from East and South tropical Africa as well as Angola rarely produce stilt roots. This paper provides a short revision of the (stilt-rooted) Guineo-Congolian species. *Uapaca lissopyrena* Radcl.-Sm., a forest species from the *Flora Zambesiaca* area, is also stilt-rooted. This latter species is partly treated in a supplement: a distribution map is provided and the examined specimens are cited.

After the revision by Pax & Hoffmann (1922), who accepted 27 species, De Wildeman (1936b) was the first author to treat the genus for continental Africa. He recognised 47 species, 31 of which were described by him in the period 1908–1936. Of De Wildeman's treatment of the 47 continental African species, 29 species are completely, or nearly so, confined to the Guineo-Congolian forest region. Of these forest species 21 were named by De Wildeman.

Many of these specific De Wildeman names have been placed in synonymy (e.g. in *U. mole* Pax). De Wildeman (1936b) used the Jordanian species concept in his treatment of *Uapaca*. The application of this concept was explained by him in detail in a previous paper (De Wildeman 1936a).

Since De Wildeman (1936b), only treatments for local or regional floras have appeared, such as Duvigneaud's (1950) about the *Uapaca* species of the ‘forêts claires’ of southern Congo Belge, the floras of West Tropical Africa (Keay 1958), Côte d'Ivoire (Aubréville 1959), Tropical East Africa (Smith 1988), Zambesiaca area (Radcliffe-Smith 1996), Benin (Essou 2006), and the Woody Plants of Western African Forests (Hawthorne & Jongkind 2006). For Madagascar the genus was recently reviewed by McPherson (2011), resulting in a reduction from twelve to eight species. Breteler (2011) published a new species from Gabon together with a reduced key to the species that lack stipules or have rudimentary stipules only. Radcliffe-Smith (1993) provides a historical survey of the genus as regards its suprageneric classification. Mennega (1987) published about the wood anatomy and confirmed the more or less isolated position of *Uapaca* within the subfamily Phyllanthoideae of the Euphorbiaceae. In a paper by Hoffmann et al. (2006) dealing with the phylogeny of the Phyllanthaceae based on molecular analysis, *Uapaca* is maintained in its own tribe Uapaceae Hutch.

MATERIAL AND METHODS

Normal practices of herbarium taxonomy have been applied to study all herbarium material available, mainly at BM, BR, COI, FHO, G, K, LBV, LISC, LISU, MO, OXF, P, and WAG. Due to rebuilding activities in connection with scanning operations, the material of the Paris herbarium has only partly been examined.

RESULTS

Chorology and ecology

The nine *Uapaca* species of the Guineo-Congolian forest region (White 1979) are often wide-spread, ranging from Sé-négal (sometimes Mali) to the Democratic Republic of the Congo and Angola (fig. 1).

Five species, *Uapaca guineensis* Müll.Arg., *U. heudelotii* Baill., *U. mole* Pax, *U. pynaertii* De Wild. and *U. togoensis* Pax, show this distribution pattern. Of the remaining four species *Uapaca acuminata* (Hutch.) Pax & K.Hoffm., *U. staudtii* Pax, and *U. vanhouttei* De Wild. are confined to Lower Guinea and Congolia, whereas *U. niangadoumae* Breteler is restricted to a small area in NW Gabon. One species is also found East of the Guineo-Congolian region, in the area of the *Flora of Tropical East Africa* (Smith 1988): *U. mole* (as *U. paludosa* Aubrév. & Leandri) is reported from Uganda and Tanzania. *Uapaca heudelotii* is also known from Angola, south of the Congo river.

The highest diversity of this group is found in Lower Guinea (fig. 2), which is a usual pattern for African forest taxa (e.g. Wieringa 1999, Versteegh & Sosef 2007, Breteler & Nguema Miyono 2008, Breteler & Wieringa 2008, Breteler 2010, 2011). While most of these taxa have a more or less clear area of richest diversity in Southern Cameroon and Gabon, *Uapaca* shows a wider core area, ranging from Nigeria to D.R.Congo and showing a high species richness in Upper Guinea as well. This more extended pattern is the result of the fairly large ranges most species occupy. That all

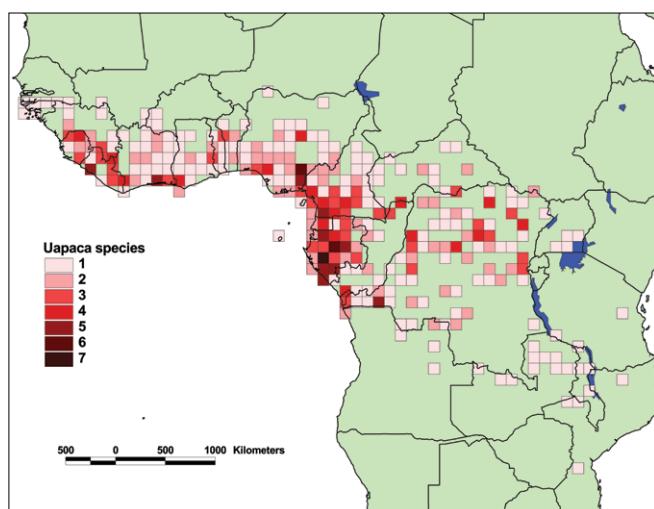


Figure 2 – Species density of the stilt-rooted *Uapaca* species in Africa.

but one species occur over considerable ranges may be the result of seed dispersal by birds. Although dispersal by birds like hornbills seems likely, there are no references for this dispersal so far. Another difference in the diversity pattern of *Uapaca* compared to other forest taxa is that *Uapaca* extends with several species into the savannah zone, especially that to the North of the West African forest block.

The presence of stilt roots may suggest that *Uapaca* species of the Guineo-Congolian forest region are to be found under marshy conditions and/or in periodically inundated areas only. This is true for some species. *Uapaca heudelotii* is only found along rivers and *U. niangadoumae*, *U. staudtii* and *U. vanhouttei* are species of marshy or periodically inundated areas. *Uapaca acuminata* is a dry land species, which has never been found in wet conditions, but has a stilt root system that is the most impressive of all *Uapaca* species of the region, with a height of up to at least six meters. *Uapaca mole* shows a wide ecological range. It thrives well in marshy areas, but also in secondary forests on slopes. The same holds more or less for *Uapaca pynaertii*. *Uapaca guineensis* and *U. togoensis* are mostly found along rivers and in gallery forests, but also in adjacent dry land forests and savannahs. In Gabon, *Uapaca togoensis* has been observed in such a condition, colonising a man-made savannah.

Morphology

The stilt roots of the forest species of *Uapaca* are more or less terete, which character is helpful in identifying the genus in the field. Saplings of not more than 10 cm in diameter and less than 10 m in height are usually already provided with stilt roots, whether growing in wet or marshy sites or in dry land forests.

Uapaca mole, *U. staudtii* and *U. vanhouttei* are always markedly stipulate, whereas *U. acuminata*, *U. niangadoumae* and *U. pynaertii* are devoid of stipules. In *Uapaca heudelotii* (fig. 3F) the stipules are replaced by tufts of hairs and in *U. guineensis* and *U. togoensis* the stipules are usually very small, leaving small scars, or are even absent.

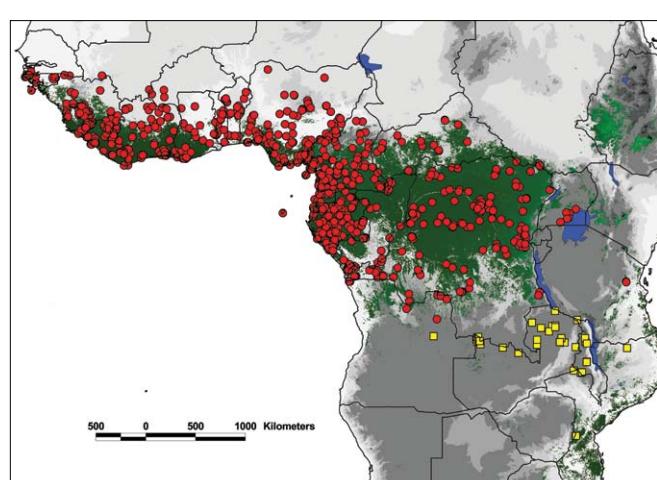


Figure 1 – Distribution of the stilt-rooted *Uapaca* species in Africa, *U. lissopyrena* has been pictured in yellow squares, the other species in red circles. The forest block is indicated with green, altitude with a grey-scale.

Key to the Guineo-Congolian forest species of *Uapaca*

1. Stipules absent, at least inconspicuous; scars of stipules absent or inconspicuous 2
 1. Stipules present, distinct, fugacious or ± persistent, scars of stipules conspicuous 7
 2. Branchlets glabrous at most with some axillary hairs 3
 2. Branchlets pubescent or puberulous, at least around or at the base (stipular area) of the petioles (fig. 3F) 4
 3. Leaves papery to subcoriaceous, (5–)8–10(–14) × (2.5–)3–5.5 cm, generally shortly acuminate at apex (fig. 3A), with (5–)6–9(–10) pairs of main lateral nerves; inflorescence < 1 cm in diam.; from southern Nigeria to western D.R.Congo and northern Angola (Cabinda) 1. *U. acuminata*
 3. Leaves stiff, thickly coriaceous, (14–)16–23(–42) × 6–8(–14) cm, obtuse to retuse (rarely to 1.5 cm acuminate) at apex, with (7–)8–12 pairs of main lateral nerves; (fig. 8E); inflorescence (1.5–)2–4 cm in diam.; from Guinea to D.R.Congo and Central African Republic 6. *U. pynaertii*
 4. Branchlets with tufts of red, ± curly hairs in the leaf axils and often also lateral at the base of the petioles (fig. 3F); tree of river borders, often partly in the river; from Sénégal to Central African Republic, D.R.Congo and Angola 3. *U. heudelotii*
 4. Branchlets without tufts of red, curly hairs, or when hairy, indumentum of different colour and hairs not in tufts 5
 5. Leaves narrowly oblong-elliptic or obovate-elliptic, 2.5–3.5(–4) times as long as wide, 0.5–1.5(–2) cm acuminate at apex, with puberulent midrib beneath (fig. 10); Gabon 5. *U. niangadoumae*
 5. Leaves broader, (1–)1.5–2(–2.5) times as long as wide, obtuse to retuse, rarely up to 1.5 cm acuminate at the apex, with glabrous or sparsely pubescent midrib beneath 6
 6. Calyx of the ♀ flower densely pubescent outside, generally well visible below the fruit (fig. 14A); ovary pubescent; fruit glabrescent to glabrous; ♂ flowers without petals; from Sénégal to D.R.Congo, Angola and São Tomé & Príncipe 8. *U. togoensis*
 6. Calyx of the ♀ flower glabrous or nearly so outside but generally with long hairs inside, mostly well visible below the glabrous fruit (fig. 3C); ♂ flower with small petals; from Sierra Leone to Central African Republic, D.R.Congo and Angola (Cabinda) 2. *U. guineensis*
 7. Stipules hooded or ear-shaped (fig. 8F & G); leaf blade (4.5–)8–20(–24) times as long as the petiole; fruit puberulous; from Nigeria to Gabon 7. *U. staudtii*
 7. Stipules never hooded or ear-shaped; leaf blade at most 4 times as long as the petiole; fruit glabrous or hairy 8
 8. Stipules small, up to 2(–6) mm long; leaves glabrous beneath or with a few hairs (± pilose) 6
 8. Stipules (3–)4–10(–80) mm long (fig. 8C & D); leaves puberulous to pubescent beneath (fig. 8B & 14C) 9
 9. Stipules often foliaceous, ovate, acuminate, often slightly falcate, with ± distinct midrib and unequal-sided (fig. 8C & D); from Guinea eastwards to Cameroon (and Uganda and Tanzania) and southwards to D.R.Congo and Angola 4. *U. mole*
 9. Stipules narrowly triangular to linear, without distinct midrib (fig. 14D); from Southern Nigeria eastwards to Central African Republic and southwards to D.R.Congo 9. *U. vanhouttei*
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The leaves are mostly long-petioled and entire, only in *Uapaca guineensis* and in *U. togoensis* the margin may be undulate. *Uapaca staudtii* has relatively short petioles and this character is used to distinguish this species from the other two species with distinct stipules. The indumentum on the lower leaf surface is sometimes helpful to identify sterile specimens of *Uapaca* (e.g. *U. mole*), but it can be very variable as in *U. togoensis*, where this leaf indumentum varies from pilose to almost completely absent.

The flowers are unisexual and dioecious. They are arranged in subglobose heads that are covered by several, usually firm, involucral bracts. These bracts vary in number within species but more so between species, from five

in *Uapaca heudelotii* to twelve in *U. staudtii* and thirteen in *U. guineensis*. The male inflorescence is multi-flowered, but the female has always been reported as to contain one flower only. A recent collection [Jongkind et al. 7846 (WAG)] of *Uapaca togoensis* from Guinea has inflorescences with up to five female flowers, and Schlieben 3730 (BR) collected in Tanzania, belonging to the savannah species *U. sansibarica* Pax, has an inflorescence with two female flowers.

The male flowers may have small petals as in *Uapaca acuminata*, *U. guineensis*, *U. pynaertii* and *U. vanhouttei* or lack them as in *U. niangadoumae*, *U. togoensis* and *U. staudtii*. In *Uapaca heudelotii* and *U. mole* petals are absent or present, their number varying between one and five. The

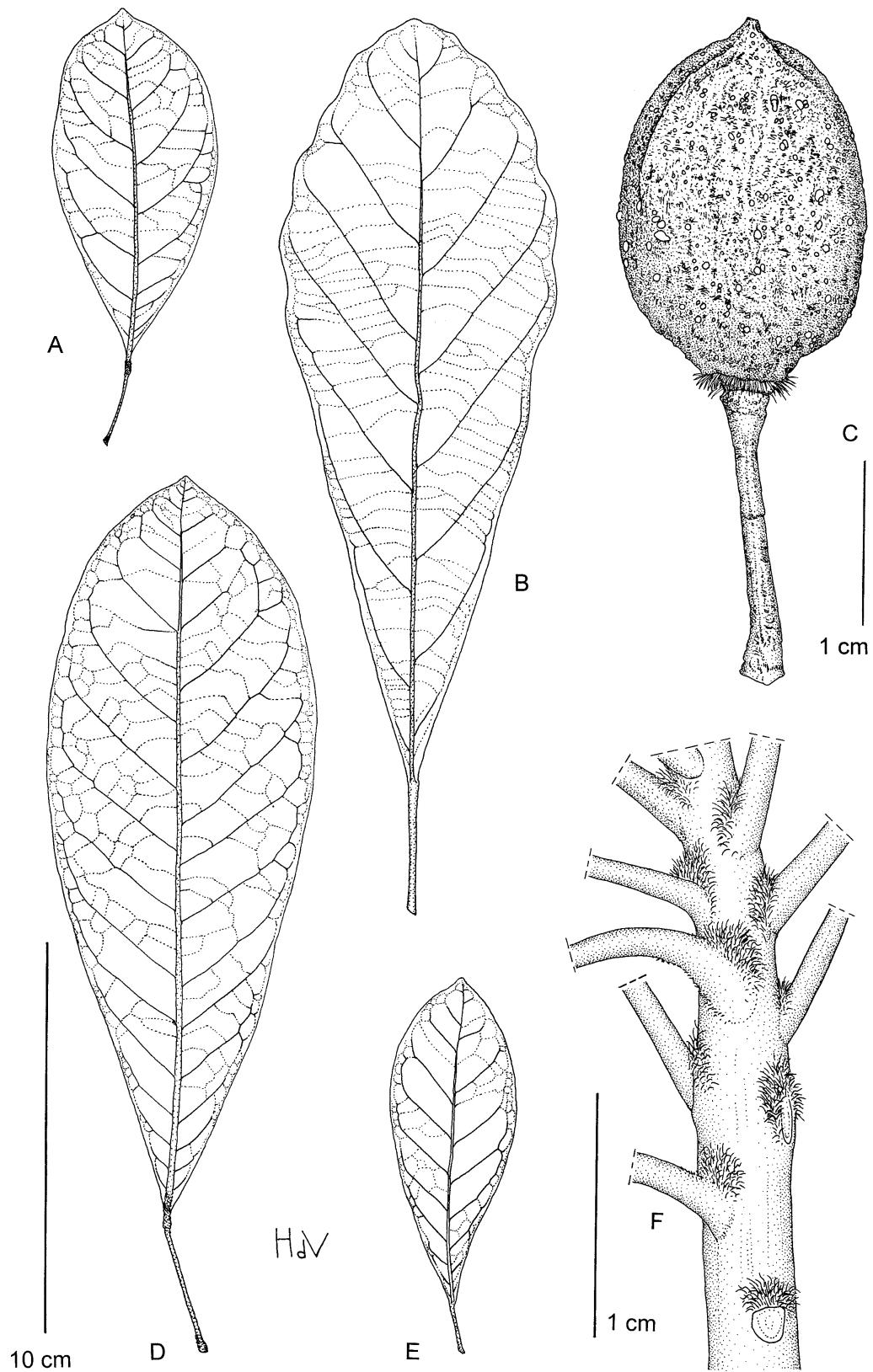


Figure 3 – A, leaf of *Uapaca acuminata*; B–C, *Uapaca guineensis*: B, leaf; C, fruit; D–F, *Uapaca heudelotii*: D & E, leaves; F, young branch showing indumentum (leaf lamina omitted). (A, Le Testu 1499; B, Reitsma c.s. 1268; C, Reitsma c.s. 2288; D, Bissiengou et al. 597; E, Bissiengou et al. 658; F, White 993). Drawn by H. de Vries.

female flowers lack petals. The number of stamens is usually four to six, exceptionally seven or eight. Female flowers with up to three fertile stamens have been encountered in a collection [Oldeman 264 A (WAG)] of *Uapaca togoensis* from Côte d'Ivoire.

The fruits are juicy and often reported to be edible. The synonym *Uapaca esculenta* A.Chev. ex Aubrév. & Leandri of *U. pynaertii* refers to it. The fruits usually contain three, one-seeded pyrenes, mostly more, up to six, in *U. pynaertii*.

The morphology and size of the pyrenes of *Uapaca* has been used as the only key-character by De Wildeman (1936b) in his treatment of the continental African species and Radcliffe-Smith (1993) used them to distinguish his new species *U. lissopyrena*. Characters of the pyrenes may be helpful to distinguish between species. However, pyrenes are not always present and their separation and cleaning from a dried fruit is difficult. Moreover, the variation of their morphological characters and size remains to be established.

Taxonomic treatment

Uapaca Baill. (Baillon 1858: 595); Hutchinson (1912: 634); Pax & Hoffman (1922: 298); De Wildeman (1936b: 3); Radcliffe-Smith (2001: 57). — Lectotype: *Uapaca thouarsii* Baill. (designated by Airy Shaw 1965: 271).

Trees, rarely shrubs, as a rule stilt-rooted. A little, pale to red-brown exudate usually present. Leaves entire, sometimes with undulate margin, alternate, in general clustered at the end of the branches. Stipules present or absent. Flowers unisexual, dioecious. Inflorescence globose, surrounded by an involucre of (5–)6–13, free, imbricate bracts, the male many-flowered, the female as a rule one-flowered. Male flower: ± sessile, 4–5-merous; sepals ± free or united; petals present or absent; stamens 4–6(–8), free; disc absent; pistillode present. Female flower: sessile, 4–5-merous; sepals united; petals absent or, very rarely a few present; disc absent; ovary 3–5-locular, glabrous or pubescent; styles 3–5, ± palmately lobed, spreading or reflexed. Fruit subglobose to ellipsoid, fleshy, with 3–5, usually one-seeded pyrenes; pyrenes usually dorsally carinate, indurate, tardily dehiscent into two valves. Seed compressed, with flat cotyledons and fleshy endosperm.

An Afro-Malagasy genus of 24–26 species, eight in Madagascar, the rest in continental Africa, of which nine species occur in the Guineo-Congolian forest region.

1. *Uapaca acuminata* (Hutch.) Pax & K. Hoffm. (Pax & Hoffmann 1922: 308); De Wildeman (1936b: 93); Keay (1958: 390). — *Uapaca heudelotii* Baill. var. *acuminata* Hutch. (Hutchinson 1912: 636). — Type: Cameroon, Johann Albrechtshöhe (= Kumba), 1896, Staudt 577 (lecto-: K, designated here; isolecto-: COI, G).

Trees at least to 35 m tall and 80 cm diameter. Stilt roots at least to 6 m height. Branchlets glabrous or with a few hairs in the leaf axils. Stipules absent, rarely very small (< 0.5 mm) stipules present. Leaves glabrous; petiole terete, 1–3(–5) cm long; lamina papery to subcoriaceous, obovate-elliptic, (5–)8–10(–14) × (2.5–)3–5.5 cm, cuneate at base, ≤ 0.5 cm acuminate at apex, with (5–)6–9(–10) pairs of main

lateral nerves. Inflorescence 5–15 mm pedunculate, with 6 involucral bracts, glabrous. Male flowers: calyx 1–1.5 mm long, glabrous; petals oblanceolate, 0.5–1 × 0.2 mm, ± glabrous; stamens 1.5–2 mm long, glabrous, anthers c. 0.3 mm long; pistillode cyathiform, c. 1 mm long, glabrous. Female flowers: calyx 1 mm long, glabrous; ovary ellipsoid, 4–5 mm long, glabrous, styles 2–3 times bifurcate. Fruit ± ellipsoid, 2–2.5 × 1.8–2 cm, glabrous, with 3 pyrenes. Fig. 3A.

Habitat and distribution — Primary and secondary forests, from Southern Nigeria to western D.R.Congo and northern Angola (Cabinda). Not yet collected in Equatorial Guinea. Alt. 0–500 m. Fig. 4.

Additional specimens studied — **Nigeria**: Bendiga Ayuk, Ikom, 10 May 1946, Jones & Onochie FHI 14127 (FHO); Pillar 34 Camp, 14 May 1946, Jones & Onochie FHI 18733 (FHO).

Cameroon: 40 km S of Yaoundé, 10 Aug. 1955, H.C.D. de Wit 5544 (WAG); 40 km SSW of Sangmélima, 8 Mar. 1970, Letouzey 10111 (K, WAG); Johann Albrechtshöhe (= Kumba), 1896, Staudt 652 (COI, K, G); Ajaman. N edge of Korup N.P., 22–23 May 1988, D.W. Thomas et al. 7848 (WAG); between Esukutang & Ekogate, 30 May 1988, D.W. Thomas 8041 (K); Korup N.P., Mar. 1979, D.W. Thomas s.n. (K).

Gabon: 36 km Tchibanga–Mayumba Rd., 19 Oct. 2009, Bissiengou et al. 340 (LBV, WAG); 33 km Tchibanga–Mayumba Rd., 22 Oct. 2009, Bissiengou et al. 430 (LBV, WAG); NE Lopé N.P., Kassambika, 8 Mar. 2010, Bissiengou et al. 1070 (WAG); 5–10 km E of Saint Germain, E of Okano R., 20 Apr. 1988, Breteler et al. 8872 (WAG); Makande, 65 km SSW of Boué, 19 Feb. 1999, Breteler et al. 15144 (LBV, WAG); M'Passa Field Station near Makokou, 12 July 1981, Gentry 33304 (MO, WAG); Nyanga, Massanga, 12 Oct. 1907, Le Testu 1190 (BM, BR, P, WAG); Tchibanga, 4 Dec. 1908, Le Testu 1499 (BM, BR, P, WAG); Mar. 1914, Le Testu 1706 (BM, P, WAG); 3 May 1914, Le Testu 1723 (BM, BR, K, P, WAG); 1726 (BM, FHO, P, WAG); Essong, 5 km NW of Mitzic, 9 Nov. 1983, A.M. Louis et al. 569 (BR, LBV, P, WAG); Ngounié, Bongolo, 31 Mar. 1986, A.M. Louis 2027 (LBV, WAG); Minkébé area, 19 Apr. 1990, Mikébé series B 124 (WAG); 15 km NE of Oveng, 11 May 1986, Reitsma c.s. 2240 (LBV, WAG); Lopé N.P., 28 Jun. 1993, L. White 889 (MO); c. 50 km W of Doussala, 18 Apr. 1987, Wilks 1508 (MO, WAG).

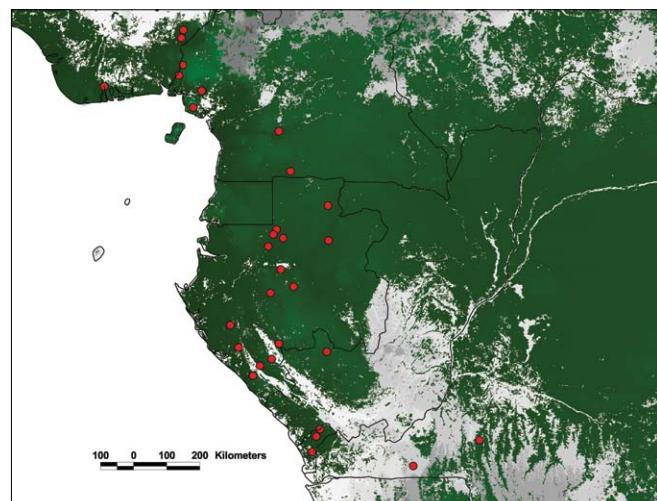


Figure 4 – Distribution of *Uapaca acuminata*.



Figure 5 – Leaf and male flowers of *Uapaca guineensis*. From Jongkind et al. 9318. Photographs taken by Jongkind.

Republic of the Congo: Kouilou, between Mayombe and Bena, 20 Nov. 1990, Dowsett-Lemaire 1338 (BR); Tsinguidi, 22 Mar. 1973, Sita 3577 (WAG).

D.R.Congo: Botsimo, 28 Jan. 1991, Detchuvi 322 (BR); Malwalti-Kenge-Popo-Kwango, 29 Aug. 1955, Devred 2505 (BR); Kinganga, 11 Apr. 1958, J. Dubois 278 (BR).

Angola (Cabinda): Buco Zau, 27 Jan. 1917, Gossweiler 6954 (BR, LISU); Belize, 13 Mar. 1917, Gossweiler 7035 A (BM, K, LISU); 23 Dec. 1918, Gossweiler 7650 (BM, BR, K, LISU); Lufo R., 15 Apr. 1919, Gossweiler 8000 (BM, K).

Note – Gossweiler 7035 in the LISU herbarium proved to be a mixture of this species and of *Uapaca mole*. For separation the letters A and B have been added to the respective parts.

2. *Uapaca guineensis* Müll.Arg. (Müller Argoviensis 1864: 517); Hutchinson (1912: 610); Pax & Hoffmann (1922: 306); De Wildeman (1936b: 119); Keay (1958: 390); Aubréville (1959: 40); Essou (2006: 581); Hawthorne & Jongkind (2006: 240). – Type: Equatorial Guinea, Bioko (Fernando Po), Dec. 1859, Mann 74 (lecto-: K, designated here).

Uapaca bingervillensis Beille (Beille 1908: 66). – Type: Côte d'Ivoire, Abidjan and Dabou region, May–Jun. 1905, Chevalier 15415 (holo-: P).

Uapaca seretii De Wild. (De Wildeman 1908: 274); Hutchinson (1912: 642); Pax & Hoffmann (1922: 307); De Wildeman (1936b: 176). – Type: D.R.Congo, near Nala, Feb. 1907, Seret 778 (holo-: BR).

Uapaca gabonensis Pierre, nomen in herb. Klaine 108 (P, WAG).

Trees up to 30(–50) m tall and 50(–100) cm in diameter. Stilt roots up to at least 5 m high. Branchlets puberulous to tomentose around base of petiole, glabrescent. Stipules small or absent, narrowly triangular, 1–2(–9) mm long, tomentose, caducous. Leaves: petiole slightly canaliculate above, (1–)2–6.5 cm long, glabrous; lamina coriaceous to papery, obovate-elliptic, (9–)13–22 × (4–)7–12 cm, rounded to cuneate at the base, obtuse to retuse, rarely shortly acuminate at apex, with (5–)8–9(–11) pairs of main lateral nerves, sparsely tomentose beneath when young, soon glabrescent. Male peduncle up to 25 mm long; involucral bracts 10(–13), concave, up to 10 × 7 mm, glabrous, sometimes ciliate; male flowers subsessile, calyx irregularly lobed sepals almost free, 1–1.5 mm long, sparsely hairy; petals present, free filiform, c. 1 mm long, hairy at apex; stamens 4–5, 2–2.5 mm long, glabrous, anthers 0.5–0.7 mm long; pistillode as long as the petals, enlarged and hairy at apex. Female peduncle 5–9 mm long; in-

vulcular bracts as in the male inflorescence; female flower: calyx 1 mm long, glabrous or somewhat hairy outside, glabrescent, generally with long protruding hairs from within, usually visible in fruit; ovary ellipsoid, 3–8 mm long, glabrous, styles often with a few hairs. Fruit globose, obovoid or ellipsoid, slightly 3-lobed on transverse section, 18–25 × 15–23 mm, glabrous, ± rugose, lenticellate. Figs 3B–C & 5.

Habitat and distribution – Often in wet places near streams, in marshy forest, but also in dry land forest, from Guinea to Central African Republic, Angola, and D.R.Congo. Alt. 0–700. Fig. 6.

Selection of additional specimens studied – Guinea: Kofiu Mt., 27 Jan. 1892, *Scott Elliot* 4621 (BM, K).

Sierra Leone: Loma Mt., 26 Sep. 1945, *Jaeger* 1991 (K); 11 Sep. 1964, *Jaeger* 7426(G); Mofari, 12 Jan. 1892, *Scott Elliot* 4407 (BM, K); Ubusaia, 1 Oct. 1914, *N.W. Thomas* 2660 (K).

Liberia: Tapita, 10 Oct. 1967, *Bos* 2658 (WAG); Dukwia R., 26 Feb. 1929, *Cooper* 298 (BM, FHO, K); Jelatown, 26 Nov. 2002, *Jongkind et al.* 5451 (WAG); Lofa, between Ziggida & Wonegisi, 11 Feb. 2010, *Jongkind et al.* 9440 (WAG); Nimba Mts, 28 Jul. 1962, *Leeuwenberg & Voorhoeve* 4684 (BR, WAG); Gbanga 19 Sep. 1926, *Linder* 696 (K); 30 miles NE of Monrovia, 5 Sep. 1961, *Voorhoeve* 477 (WAG); Kanweake, Dec. 1962, *Voorhoeve* 1293 (BR, WAG); 20 miles from Kakatown, 1904, *Whyte* s.n. (BM, K).

Côte d'Ivoire: Forêt de Kouta, 29 Jun. 1966, *Aké Assi* 8955 (G); Forêt de Taï, 8 Jan. 1976, *Aké Assi* 13188 (G); Tabou, 31 Jan. 1957, *Aubréville* 1957/59 (K); 11 km NE of Ayamé, 17 Jun. 1975, *Beentje* 405 (WAG); Dabou, 5–10 Feb. 1907, *Chevalier* 16199 (G, WAG); Azaguié, 16 Sep. 1909, *Chevalier* 22291 (BR, COI, K); 30 km N of Abidjan, 28 Jan. 1970, *de Koning* 145 (WAG); Hana R. on Taï–Tabou Rd., 12 Mar. 1962, *de Wilde & Leeuwenberg* 3610 (BR, K, WAG); 56 km N of Sassandra, 15 Jan. 1959, *Leeuwenberg* 2431 (BR, K); between Tabou and Nienokoué Mt., Feb. 1983, *Stäuble* 474 (G); Yapo Forest, 1991, *Téré* 1994 (G).

Ghana: Ankassa F.R., Nov. 1972, *Enti* R 895 (K); 20 miles SE of Samreboi, 5 Nov. 1974, *Hall & Abbiw* GC 44764 (FHO, WAG); between Techiman and Kintampo, 19 Sep. 1996, *Jongkind* 3081 (WAG); Simpa, May 1930, *Vigne* 2010 (FHO, K).

Benin: Bassila, 18 Sep. 1998, *Pauwels* 7780 (WAG).

Nigeria: Brass, *Barter* 1834 (K); Nun R., *Barter* 2116 (K); Uwet District, 25 Jun. 1959, *Binuyo* FHI 41380 (BR, K); 2 miles N of Bendiga Ayuk, 10 May 1946, *Jones & Onochie* FHI 14126 (FHO);

Cross R. Division, Sep. 1903, *Mc. Leod* s.n. (K); Lagos, *Moloney* 4/83 (K); Bonu, 5 sep. 1956, *Onochie* FHI 32206 (K).

Cameroon: 4 km N of Kribi, 14 Dec. 1968, *Bos* 3477 (BR, K, WAG); Sanaga R., near Goyoum, 27 Jan. 1961 *Breteler* 933 (K, WAG); E of Limbe, Dikulu Bay, 8 Jul. 1992, *Cheek et al.* 3517 (K); 5 km S of Mbalmayo, 11 Feb. 1964, *W. de Wilde c.s.* 1870 (BR, WAG); 3 km E of Eboné, 24 Jul. 1972, *Leeuwenberg* 10222 (K, WAG); Bissaga, 18 Feb. 1959, *Letouzey* 1445 (K, WAG); Victoria, Apr. 1930, *Maitland* 1141 (K); 60 km NE of Yaoundé, Feb. 1914, *Mildbraed* 8098 (K); banks of Ndian R., 22 Jul. 1983, *D.W. Thomas* 2351 (K); Ma'an, 14 feb. 2001, *van Andel et al.* 3171 (WAG); Yaoundé, 1896, *Zenker* 755 (G, K); Bipindi, 1903, *Zenker* 2664 (BM, BR, COI, G, K, LISC, WAG).

Central African Republic: Boukoko, 17 Sep. 1947, *Equipe Tisserant* 255 (BM, BR); 11 Jan. 1952, *Equipe Tisserant* 2352 (BR, K); near Wadda, 11 Aug. 1922, *Le Testu* 4092 (BM, BR, G, LISC, WAG); 4093 (BM, BR); Sengi (Lessongo), 27 Jan. 1950, *Sillans* 1648 (WAG).

Equatorial Guinea: 60–61 km Bata–Dibolo Rd., 10 Jan. 1993, *Carvalho* 5213 (BR, G, WAG); Baga, 19 Jun. 1999, *Eneme* 339 (WAG); Bioco, Dec. 1859, *Mann* 74 (K); Nov. 1841, *Vögel* 194 (K).

Gabon: Lopé-Okanda N.P., 3 Jul. 1986, *Alers & Blom* 84 (K, LBV, MO, WAG); 12 km Ndendé-Mouila, 27 Oct. 2009, *Bissiengou et al.* 577 (LBV, WAG); near Libreville, 9 Oct. 1986, *Breteler & Lemmens* 8405 (BR, LBV, WAG); Adouma, 29 Jul. 1912, *Fleury in Chevalier* 26232 (P); Mbel, 10 Jan. 1968, *Hallé & Villiers* 4284 (P); Loango N.P., 13 May 2005, *Harris et al.* 8614 (WAG); Libreville, 6 Aug. 1895, *Klaine* 108 (P, WAG); Minvoul, 19 Oct. 1985, *A.M. Louis* 1925 (LBV, WAG); Lopé-Okanda N.P., 6 Nov. 1991, *Mc Pherson* 15465 (K, LBV, MO, WAG); 25 km S. of Doussala, 17 Apr. 1987, *Reitsma c.s. & Wilks* 3323 (LBV, WAG); 7 km N of Batanga, 22 May 2001, *Sosef* 1642 (K, LBV, WAG); S of Guidouma, 3 Nov. 2003, *Wieringa et al.* 5072 (LBV, WAG).

Republic of the Congo: Odzala N.P., Lekoli R., 5 Feb. 1994, *Lisowski* C3 (K).

D.R.Congo: Doruma, Mapedi R., 12 Sep. 1934, *de Graer* 373 (BR,); Uele R., 28 Jun. 1935, *Dewulf* 914 (BR); Bolengambi, 12 Apr. 1959, *Evrard* 6100 (BR); between Alipago & Ango, Aug. 1937, *Gilbert* 288 (BR); Lié, 7 Jan. 1904, *Em. & M. Laurent* s.n. (BR); Yangambi, 13 May 1947, *J. Léonard* 1216 (BR, WAG); Ubundu 11 Mar. 1978, *Lisowski* 47961 (BR); Yangambi, 30 Dec. 1937, *J. Louis* 7278 (BR, WAG); Thibangu, Jan. 1910, *Sapin* s.n. (K); Patambalu, 15 Jun. 1958, *Tailfer* 89 (BR, K).

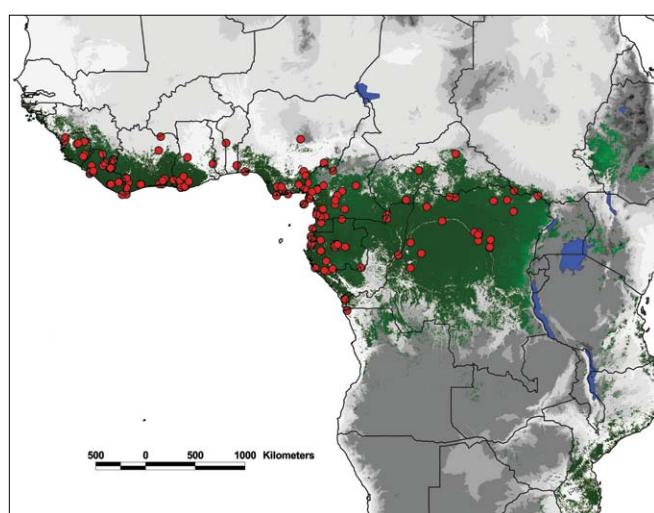
Angola (Cabinda): Port Congo, 1921, *Dawe* 48 (K); Chiluango, 1919, *Gossweiler* 7214 (K); Luali R., 16 Dec. 1918, *Gossweiler* 7619 (BR).

3. *Uapaca heudelotii* Baill. (Baillon 1860: 81); Hutchinson (1912: 639); Pax & Hoffmann (1922: 308); De Wildeman (1936b: 126); Keay (1958: 390); Aubréville (1959: 38); Essou (2006: 582); Hawthorne & Jongkind (2006: 240). – Type: Guinea, Fouta Djallon, Mar.–Apr. 1838, *Heudelot* 836 (holo-: P; iso-: BR, K, OXF, WAG).

Uapaca marquesii Pax (Pax 1897: 522); Hutchinson (1912: 639), in synonymy of *U. heudelotii*; Pax & Hoffmann (1922: 308), in synonymy of *U. heudelotii* – Type: Angola, Lunda, border of Quihumbo, March 1886, *Marques* 298 (holo-: B†; lecto-: LISU, **designated here**; iso-: COI).

Uapaca bossenge De Wild. (De Wildeman 1908: 271); Hutchinson (1912: 639); Pax & Hoffmann (1922: 308), in synonymy of *U. heudelotii*; De Wildeman (1936b: 96). – Type: D.R.Congo, near Eala, 1903, *Laurent* 128 (holo-: BR).

Figure 6 – Distribution of *Uapaca guineensis*.



Uapaca prominenticarinata De Wild. (De Wildeman 1927a: 37; 1936b: 163) **synon. nov.** – Type: D.R.Congo, near Kinshasa (Léopoldville), 1902, Gillet 2533 (holo-: BR).

Trees to 30(–40) m high and 50(–110) cm in diameter, usually with many stilt roots. Branchlets with tufts of red, curly hairs in the leaf axils and often laterally at the base of the petioles. Stipules absent. Leaves glabrous: petiole 0.5–3.5(–5.5) cm long; lamina elliptic to obovate-elliptic, (6)–10–15(–24) × 2.5–5(–8) cm, mostly cuneate at the base, rounded to obtuse, rarely retuse or shortly acuminate at the apex; lateral nerves thin, (8)–10–13(–17) pairs. Peduncle 5–20 mm long; bracts 5–8, obovate to circular, from 10 × 8 to 14 × 10 mm, glabrous. Male inflorescence distinctly 2–4 mm stipitate within the involucre. Male flower: sepals shortly united at base, 1.5–2 mm long, glabrous; petals present or absent, c. 1 × 0.5 mm; stamens 4–5, 2.5–4 mm long, glabrous; pistillode cyathiform, 1–1.5 mm long, glabrous. Female flower: calyx 0.6–1 mm long, glabrous; ovary 5–6 mm long, glabrous, styles glabrous. Fruits ellipsoid to ovoid, slightly angular, 22–30 × 18–22 mm, smooth or with a few lenticels, glabrous. Fig. 3D–F.

Habitat and distribution – Always in wet places, mostly on river borders, usually partly in the water. From Senegal and Mali to Central African Republic, D.R.Congo and Angola. Alt. 0–1100 m. Fig. 7.

Selection of additional specimens studied – Sénégal: Dakatéli, 3 May 1966, *Nonganierma* 503 (BR, WAG).

Mali: Biendema, 19 Feb. 1899, *Chevalier* 423 (G).

Guinea: Ditinn, Apr. 1905, *Chevalier* 12702 (BM, COI); Condoya, Samou R., 18 May 1939, *Chillou* 1428 (COI, K); Macenta, 19 Feb. 1947, *Roberty* 7177 (G); between Kindia and Telémélé, 14 Feb. 1948, *Roberty* 10730 (G).

Sierra Leone: Jalaba, 2 Oct. 1914, *Aylmer in Lane Poole* 32 (K); Pandobu, 5 Apr. 1936, *Deighton* 3183 (K); Kurubonla N.P., 16 Feb. 1968, *Gledhill* 337 (K, WAG); Ninia, Kabele R., Feb. 1892, *Scott Elliot* 4925 (BM, K); Yeteya, 23 Sep. 1914, *N.W. Thomas* 2327 (K).

Liberia: Sanokwele, 21 Sep. 1947, *Baldwin* 9379 (K); N of Zorzor, Vai R., 22 Dec. 1966, *Bos* 2590 (BR, WAG); Dukwai R., 1929, *Cooper* 179 (BM, FHO, K); 20 km E of Tappeta, 19 Feb. 1966, *van Meer* 427 (BR, WAG).

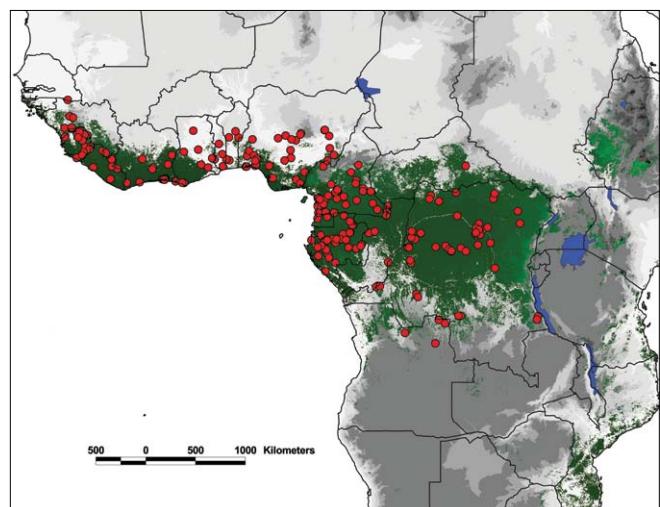


Figure 7 – Distribution of *Uapaca heudelotii*.

Côte d'Ivoire: Troya on Cavally R., 27 Feb. 1975, *Aké Assi* 12767 (G); Koun, 14 Jan. 1932, *Aubréville* 686 (K); Bingerville, 17 Feb. 1907, *Chevalier* 17273 (G, WAG); Sassandra, 8 Apr. 1973, *de Konig* 1264 (WAG); Bouaké, 16 Jan. 1990, *Gautier & Chatelain* 1556 (G); Bouaflé, near Marahoué R., 16 Feb. 1998, *Jongkind & Musah* 4381 (WAG).

Ghana: Atebubu District, 17 Jul. 1962, *Enti* FH 7594 (K); Kwahu Nteso to Ankoma, Asuboni R., 17 Jan. 1968, *Hall & Enti* GC 37523 (FHO, K); Tain R., W of Wenchi, 20 May 1995, *Jongkind* c.s. 2272 (WAG); Onyaboni to Jaketi, Pawnpawn R., 12 Feb. 1958, *Morton* A 3017 (K).

Togo: Tigbada, 9 Dec. 1977, *Ern* 2660 (K); S W Bodjendi Sada, 6 Jan. 1987, *Schäfer* 8959 (K, WAG).

Benin: Badjamé, 15 Feb. 2000, *Akoegninou* 3195 (WAG); Ahogbaye, 15 Feb. 1999, *Essou et al* 1348 (WAG); Ndjali, 6 Aug. 2001, *Sokpom* 2146 (WAG).

Nigeria: Nupe, 1858, *Barter* 1151 (K); between Mayo Kam and Mai Hula, 20 Feb. 1977, *Chapman* 4681 (FHO, K); Yankari Game Res., Gaji R., 25 Feb. 1971, *Geerling* 3448 (WAG); Oni R., 12 Feb. 1946, *Jones & Onochie* FHI 17510 (FHO, K); Guarara R., 1 Feb. 1981, *Latilo* 2 (K); Calabar R., Feb. 1863, *Mann* 2268 (K); Jemae, 6 Feb. 1955, *Mc Clintock* 185 (K); Ogun R., Olokemeji, 8 Jan. 1977, *Pilz* 1924 (K, WAG); Shasha F.R., Oni R., 3 Feb. 1935, *Richards* 3064 (BM).

Cameroon: Dja R., 1922, *Bates* 1732 (K); 8 km S of Kribi, Lobé R., 22 Feb. 1969, *Bos* 3976 (BR, K, WAG); Sanaga R., near Goyoum, 29 Jan. 1961, *Breteler* 975 (K, WAG); 40 km SE of Yaoundé, Nyong R., 22 Jan. 1962, *Breteler et al* 2541 (G, K, WAG); 20 km N of Obala, Sanaga R., 26 Jun. 1965, *Leeuwenberg* 5997 (BR, LISC, WAG); Madjwe, Boumba R., 20 Jul. 1965, *Leeuwenberg* 6192 (BR, K, LISC, WAG); Ntem R., 16 km ESE of Ambam, 7 Feb. 1970, *Letouzey* 10031 (BR, K); Ma'an, 5 Mar. 1963, *J. & A. Raynal* 10244 (G, K, WAG); near Akonolinga, Nyong R., Apr. 1986, *D.W. Thomas* 6186 (BR, K, WAG); Bipindi, 1898, *Zenker* 1631 (BM, BR, COI, G, K, WAG).

Central African Republic: 40 km S of Lidjombo, Sangha R., 30 Oct. 1990, *Harris* 2632 (K); Yalinga, 16 Dec. 1922, *Le Testu* 4434 (BR, G, K, LISC, MO, WAG); 30 km S of Libongo, Sangha R., 27 Jul. 1987, *Thomas & Fay* 7285 (WAG).

Equatorial Guinea: Nkolentangan, 7 Feb. 1908, *Tessmann* 172 (K).

Gabon: Abanga R. on Bifoun–Ndjolé R., 5 Nov. 2009, *Bissiengou et al.* 657 (LBV, WAG); 4 km SW Lastoursville, 25 Sep. 1970, *Breteler* 6635 (BR, K, LBV, P, WAG); Ivindo R. near Makokou, 22 Mar. 2001, *Breteler* 15750 (LBV, WAG); Lébamba, Loetsi R., 13 May 1963, *Cours & N. Hallé* 5856 (LBV, P); Lopé N.P., Ogooué R., 26 Nov. 1995, *J.J. de Wilde et al.* 11453 (LBV, WAG); Nkogo, Ogooué R., 19 Aug. 1912, *Fleury in Chevalier* 26377 (K, P); Boué, Ogooué R., 30 Jul. 1966, *N. Hallé & Le Thomas* 239 (P); Ipassa, Ivindo R., 2 Apr. 1977, *Florence* 138 (LBV, MO, P); Sindara, Ngounye R., 9 Jul. 1917, *Le Testu* 2211 (BM, BR, P, WAG); Evela, Ntem R., 14 Oct. 1988, *A.M. Louis* 2910 (MO, WAG); Ndjolé, Ogooué R., Jan. 1895, *Thollon* 108 (P); Junkville, Ogooué R., 23 Jul. 1986, *D.W. Thomas & Wilks* 6621 (K, LBV, MO, P, WAG).

Republic of the Congo: Odzala N.P., Lékoli R., 5 Feb. 1994, *Lisowski* C 21 (K).

D.R.Congo: Yangambi, 21 Mar. 1961, *Bolema* 512 (BR); Eala, 21 Jul 1933, *Corbisier Baland* 1910 (BR, WAG); Kiyaka-Kwango, Kwilu R., 10 Sep. 1955, *Devred* 2614 (BR); Budi R., 16 Jan. 1942, *H. Dubois* 41 (BR); Mondombe, Tshuapa R., 18 Jul. 1958, *Evrard* 4392 (BR); Ikela, Jun. 1949, *Germain* 5055 (BR); Bokuma, 7 Mar. 1941, *Hulstaert* 182 (BR); Gombé, Congo R., 22 Aug. 1946, *Jans* 257 (BR); Eala, 8 Jan. 1946, *J. Léonard* 138 (BR, WAG); Kabulu, Lulua R., 24 Jul. 1957, *Liben* 3387 (BR, WAG); Yangambi, 8

Feb. 1938, *J. Louis* 7836 (BR, WAG); Elila R., 5 km upstream from Kindu, 9 Mar. 1949, *Michelson* 930 (BR, WAG); Loliva, Ruki R., 7 Sep. 1925, *W. Robyns* 446 (BR, FHO, K).

Angola: Lunda, 10 Dec. 1962, *Cavaco* 1248 (G, WAG); Nkanda-Mbaku, Luali R., 15 Apr. 1919, *Gossweiler* 8000 (BR).

4. *Uapaca mole* Pax (Pax 1894: 79); (1904: 371), in synonymy of *U. guineensis*; Hutchinson (1912: 640), in synonymy of *U. guineensis*; De Wildeman (1936b: 120), in synonymy of *U. guineensis*. – Type: D.R.Congo, Mukenge, 12 Sept. 1882, *Pogge* 1635 (holo-: B†); **neotype, designated here**: D.R.Congo, Moanzangomav R., Dibaya Terr., 9 Jan. 1957, *Liben* 2233 (BR).

Uapaca ealaensis De Wild. (De Wildeman 1908: 272), **synon. nov.**; Hutchinson (1912: 640), with question mark in synonymy of *U. guineensis*; Pax & Hoffmann (1922: 305); De Wildeman (1936b: 112). – Type: D.R.Congo, Eala, 17 Dec. 1906, *Pynaert* 813 (holo-: BR).

Uapaca laurentii De Wild. (De Wildeman 1908: 272), **synon. nov.**; Hutchinson (1912: 642); Pax & Hoffmann (1922: 306), in synonymy of *U. guineensis*; De Wildeman (1936b: 136). – Type: D.R.Congo, Lac Tumba, 16 Dec. 1903, *E. & M. Laurent* s.n. (holo-: BR).

Uapaca stipularis Pax & K. Hoffm. (Pax & Hoffmann 1922: 303), **synon. nov.**; De Wildeman (1936b: 179). – Type: Equatorial Guinea, Nkolentangan, Bianemajong, 19 Dec. 1909, *Tessmann* B.76 (holo-: B†; lecto-: K, **designated here**).

Uapaca casteelsii De Wild. (De Wildeman 1927c: 700; 1936b: 104), **synon. nov.** – Type: D.R.Congo, Lulonga District, Mar. 1920, *Casteels* 11 (lecto-: BR, **designated here**).

Uapaca ferrarii De Wild. (De Wildeman 1927b: 118; 1936b: 114), **synon. nov.** – Type: D.R.Congo, Thibangu (= Tshibangu), 1910, *Sapin* s.n. (holo-: BR).

Uapaca macrostipulata De Wild. (De Wildeman 1927a: 36; 1936b: 140), **synon. nov.** – Type: D.R.Congo, Eala, 5 Oct. 1925, *Goossens* s.n. (holo-: BR).

Uapaca multinervata De Wild. (De Wildeman 1927b: 118; 1936b: 149), **synon. nov.** – Type: D.R.Congo, Eala, 5 Oct. 1925, *Goossens* s.n. (lecto-: BR, **designated here**).

Uapaca vanderystii De Wild. (De Wildeman 1927c: 701; 1936b: 182), **synon. nov.** – Type: D.R.Congo, Kamtsha, 1922, *Vanderyst* 11288 (holo-: BR).

Uapaca angustipyrena De Wild. (De Wildeman 1932: 205; 1936b: 93), **synon. nov.** – Type: D.R.Congo, Jardin botanique d'Eala, 1927, *Corbisier-Baland* 6 (holo-: BR).

Uapaca brevipedunculata De Wild. (De Wildeman 1933a: 145; 1936b: 101), **synon. nov.** – Type: D.R.Congo, vallée de la Djuma, Jul. 1902, *Gillet* 2785 (holo-: BR).

Uapaca lebrunii De Wild. (De Wildeman 1933a: 146; 1936b: 138), **synon. nov.** – Type: D.R.Congo, Eala, Jun. 1930, *Lebrun* 475 (holo-: BR).

Uapaca verruculosa De Wild. (De Wildeman 1933a: 148; 1936b 187), **synon. nov.** – Type: D.R.Congo, Kisantu, *Van Houtte* in *Gillet* 2226 (holo-: BR).

Uapaca kibuati De Wild. (De Wildeman 1933b: 309; 1936b: 133), **synon. nov.** – Type: D.R.Congo, Kisantu region, 1909, *Gillet* 2222 (holo-: BR).

Uapaca sampii De Wild. (De Wildeman 1933b: 310; 1936b: 169), **synon. nov.** – Type: D.R.Congo, near Kindu, *de Briey* 217 (holo-: BR).

Uapaca paludosa Aubrév. & Leandri (Aubréville & Leandri 1935: 50); Aubréville (1936: 30; 1959: 40); Keay (1958: 390); Smith (1988: 571); Essou (2006: 582), see note; Hawthorne & Jongkind (2006: 240), **synon. nov.** – Type: Côte d'Ivoire, Bingerville region, 1905, *Chevalier* 15317 (lecto-: P, **designated here**).

Trees rarely shrubs, up to at least 35 m tall and 60(–100) cm in diameter. Stilt roots up to six meters high. Branchlets puberulous, glabrescent. Stipules ovate-spathulate, slightly falcate, (3–)4–20 mm long, up to 8 × 3 cm in young individuals, generally with a distinct, excentric midrib, pubescent, often acuminate at the apex. Leaves: petiole terete, (1.5–)3–6(–9) cm long, puberulous, glabrescent; lamina papery to coriaceous, obovate-elliptic, (5–)13–26(–48) × (3–)7–16(–28) cm, obtuse to rounded, sometimes subcordate or ± cuneate at the base, obtuse to truncate to retuse at the apex, densely puberulous both sides when young, sparsely hairy to almost glabrous in adult state; lateral nerves (8–)9–12(–19) pairs, very prominent beneath, ± indistinct and often impressed above, the tertiary nerves ± parallel, distinct beneath. Peduncle often with a few small bracts, the male one 10–25 mm long, the female one 8–12 mm long. Involucral bracts 9–10, concave to cucullate, 7–9 × 3–7 mm. Male flower c. 2 mm long; sepals united or nearly free, c. 1.5 mm long, pubescent outside; petals sometimes present, filiform, 1–1.5 mm long, stamens 4–6, c. 1.5 mm long, glabrous, anthers c. 0.7 mm long, sometimes with a hairy connective; pistillode ± cyathiform, pubescent. Female flower: calyx gamosepalous, c. 1 mm long, lobed or not, pubescent, glabrescent in fruit; pistil ± globose, 3–3.5 mm long, sparsely to sometimes densely hairy; styles ± palmately to pinnately lobed, glabrous or with a few sparse hairs. Fruits subglobose, 22–31 × 17–28 mm, glabrous or sparsely hairy, lenticellate, with yellow flesh. Fig. 8A–D.

Habitat and distribution – Along rivers or marshy areas but also in dry land forests. From Guinea to Uganda and Tanzania and southwards to Angola and D.R.Congo, not collected in Sierra Leone, Ghana, Togo, and Benin. Alt. up to c. 1250 m. Fig. 9.

Selection of additional specimens examined – Guinea: Pita, Foufa Djalon, 10 Dec. 1946, *Roberty* 6523 (G).

Liberia: 10 km N of Kanweake, 27 Mar. 1962, *J.J. de Wilde* & *Voorhoeve* 3666 (K, WAG); Grand Gedeh, Grebo forest, 10 Dec. 2005, *Jongkind et al* 7287 (WAG); Devil-bush, Duport, 13 Jan. 1962, *Voorhoeve* 783 (WAG).

Côte d'Ivoire: Banco, Jan. 1932, *Aubréville* SF 875 (K); Tabou, Dec. 1932, *Aubréville* SF 1671 (K); Languedoudou forest, 2 km N of Adiopodoumé, 26 May 1970, *de Koning* 608 (WAG); between Séguéla and Mankone, 27 Nov. 1956, *J.J. de Wilde* 952 (WAG); sin. loc., 16–23 Dec. 1916 *Fleury* in *Chevalier* 33061 (G, K, WAG); between Abidjan and Dabou, 14 Aug. 1963, *Oldeman* 254 (WAG).

Ghana: Kuntan, Wassaw, 7 Jan. 1929, *Irvine* 1062 (FHO).

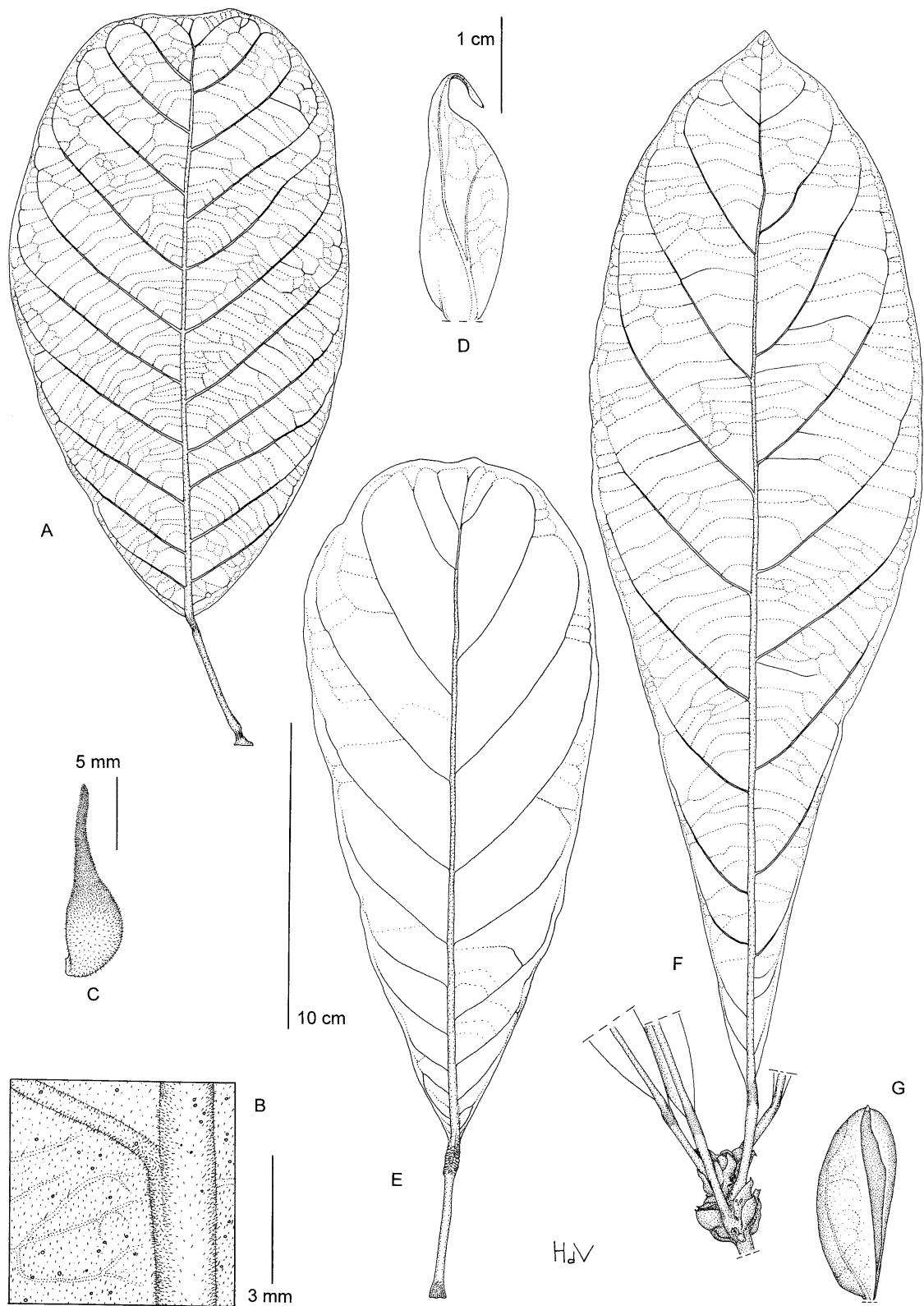


Figure 8 – A–D, *Uapaca mole*: A, leaf; B, detail of indumentum on lower leaf surface; C & D, stipules; E, leaf of *Uapaca pynaertii*; F & G, *Uapaca staudtii*; F, branchlet with stipules; G, stipule. (A–B, Bissiengou et al. 529; C–D, Bissiengou et al. 922; E, Le Testu 7903; F, Bissiengou et al. 422; G, Breteler c.s. 11514). Drawn by H. de Vries.

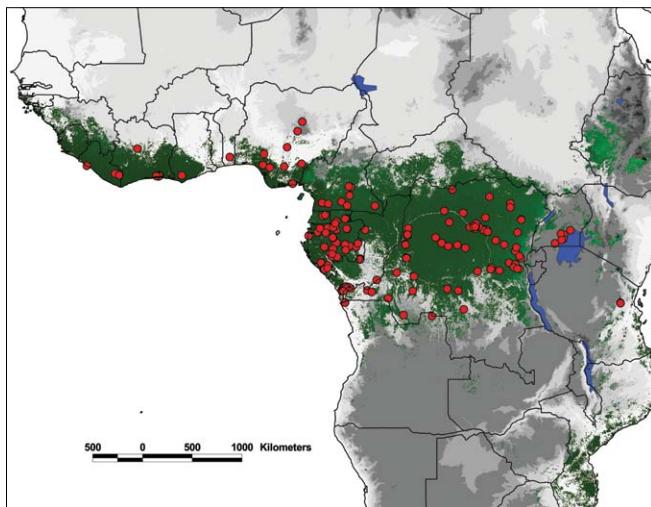


Figure 9 – Distribution of *Uapaca mole*.

Nigeria: Benin, Okumu F.R., 13 Feb. 1948, *Brenan & Onochie* 9010 (BM, FHO, K); Ogoja-Ikom Rd., 4 Oct. 1977, *Emwiogbon & Osanyinlus* FHI 87105 (WAG); Omodofen, Ifon Distr., 18 Aug. 1911, *Farquehar* 57 (K); Eket Distr., 1912/1913, *Mr. & Mrs. Talbot* 3050 (BM, K).

Cameroon: Bitye, 1922, *Bates* 1717 (K); 15 km S of Ebolowa, 28 Feb. 1964, *W. de Wilde c.s.* 1990 (WAG); Ngondouma, 30 Feb. 1960, *Letouzey* 3088 (P); Akonetchi, 22 Jan. 1973, *Letouzey* 11877 (K); Welele on Moloundou-Yokadouma Rd., 23 Mar. 1987, *Manning* 1641 (K, WAG); Mvie, South Province, 25 Sep. 1997, *van der Burgt & Laan* 177 (WAG).

Equatorial Guinea: Centro Sur: Añisok, 12 Jul. 1999, *Pérez Viso* 1368 (G, WAG).

Gabon: 40 km E of Mouila, 29 Nov. 1984, *Arends et al.* 522 (BR, LBV, WAG); 33 km Tchibanga–Mayumba Rd., 22 Oct. 2009, *Bissiengou et al.* 432 (LBV, WAG); Nyanga, Dikoutou–Denguigela Rd., 24 Oct. 2009, *Bissiengou et al.* 496 (LBV, WAG); Tchibanga–Ndende Rd., 25 Oct. 2009, *Bissiengou et al.* 529 (LBV, WAG); 40 km NE of Mitzic, 8 Nov. 2009, *Bissiengou et al.* 800 (LBV, WAG); Le Lama, near Lekori R., 17 Nov. 2009, *Bissiengou & Breteler* 910 (LBV, WAG); N of Okondja, 18 Nov. 2009, *Bissiengou & Breteler* 922 (LBV, WAG); Haut-Ogooué, 2 km N of Gorilla Research Station, 29 Nov. 2001, *Bradley et al.* 1115 (LBV, MO, WAG); Makande, c. 65 km SSW of Booué, 13 Feb. 1999, *Breteler et al.* 15038 (LBV, WAG); Lopé-Okanda N.P., 26 Dec. 1996, *J.J. de Wilde c.s.* 11825 (LBV, WAG); M’Passa near Makokou, 22 Jul. 1981, *Gentry* 33515 (MO, WAG); Como R. border near Mbé, 11 Jan. 1968, *N. Hallé & Villiers* 4316 (MO, P); Tchibanga, 9 Jan. 1915, *Le Testu* 1974 (BR, K, P WAG); Lastoursville, 11 May 1929, *Le Testu* 7317 (BM, P); E of Belingué in Massif du Chaillu, 26 Apr. 1989, *McPherson* 13946 (BR, LBV, MO, WAG); 35 km SW of Doussala, 18 May 1985, *Reitsma c.s. et al.* 1026 (LBV, WAG); Komi near Sindara, 17 Jun. 1986, *D.W. Thomas & Wilks* 6414 (MO, P); 18 km on Mbigou–Malinga Rd., 6 Dec. 2001, *Wieringa et al.* 4613 (WAG); Woleu-Ntem, Minkébé area, 6 May 1990, *Wilks in Minkébé-series* 225 (WAG).

Republic of the Congo: Odzala N.P., 1993, *Bermejo* 93 (BR); ibid., 10 Dec. 1994, *Champluvier* 5084 (BR).

D.R.Congo: km 40 Kisangani–Ituri Rd., 18 Apr. 1973, *Bokdam* 4098 (WAG); Nganda-Mbaku, 6 Aug. 1975, *Breyne* 2769 (BR); Kisatu, 7 Apr. 1952, *Callens* 2993 (BM, BR); Eala, 1927, *Corbisier* 9 (BR); 15 Jan. 1932, *Corbisier* 1483 (BR, WAG); Mokaria, Dec. 1946, *Croegaert* 60 (BR); Kasai Brigade Sud, 10 May 1958, *Dechamps* 24 (BR); Kwango, 26 Feb. 1956, *Devred* 2825 (BR, WAG);

Yangambi, 15 Jan. 1952, *Donis* 3417 (BR, WAG); Epulu, 9 Feb. 1998, *Ewango* 461 (BR, K); Yabahondo, Oct. 1952, *Germain* 8103 (BR, WAG); Urega, Jun. 1932, *Lebrun* 5609 (BR, WAG); Walikale, 6 Feb. 1958, *A. Léonard* 1562 (BR); near Eala, 23 Oct. 1946, *J. Léonard* 909 (BR, WAG); Yandja lake, 23 Sep. 1947, *J. Léonard* 1439 (BR, WAG); Ngazi, on Lotembo R. 20 Jan. 1938, *J. Louis* 7601 (BR, WAG); Bangombamo, 19 Jan. 1965, *Pauwels* 4842 (BR, WAG); Kampala, 24 Aug. 1955, *Pierlot* 956 (BR); Irangi, 6 Jul. 1957, *Troupin* 3774 (BR, K, WAG).

Angola: Belize, Oct.–Nov. 1921, *Dawe* 276 (K); Panga Mungo, 23 Jan. 1916, *Gossweiler* 6198 (BM, COI); Chiluango, 13 Mar. 1917, *Gossweiler* 7035 B (K); Caio-Hombe, 23 Jan. 1919, *Gossweiler* 7719 (BM, K, LISU); Sumba Poco, Aug. 1926, *Gossweiler* 9195 (K).

Uganda: Entebbe, 6 Oct. 1905, *Bagshawe* 714 (BM); Sese, 1933, *Eggeling* 277 (BR).

Tanzania: Liwale R., near Mahonda sawmill, 4 Nov. 1947, *Brenan & Greenway* 8279 (BM); Manyangu Forest, Liwale Valley, 27 Mar. 1953, *Drummond & Hemsley* 1855 (LISC).

Notes – Pax (1904) reduced his *Uapaca mole* from 1894 to a synonym of *U. guineensis*, saying, “*U. mole*, von mir auf unzureichendes Material begründet, hat sich nach Prüfung zahlreicher Exemplare als nicht verschieden von *U. guineensis* ergeben”. The original material collected by Pogge is lost at Berlin and no duplicate has been located. Pax, in his original diagnosis, describes the leaves as ‘obtusissimis’ and ‘nervis tertiaris parallelis’ which point to *U. ealaensis* De Wild. Also the fruit description ‘mit weisslichen, wenig vorspringenden Punkten’ points to this species. Moreover all material of *U. guineensis* from the type area of *U. mole* in the BR herbarium proves to be *U. ealaensis*. *U. guineensis* has not been collected in the area where Pogge collected his number 1635, and most likely, it does not occur there at all. As a consequence, *U. ealaensis* is replaced by the older *U. mole*. The latter is here neotyped by *Liben* 2233 from the Dibaya Territory, which is located less than 20 km from Pogge’s collecting site. *Uapaca mole* is a variable species as regards its habitat as well its habit concerning leaf size and size of the stipules, which accounts for the many synonyms.

5. *Uapaca niangadoumae* Breteler (Breteler 2012:129) –
Type: Gabon, Forêt classée de la Mondah, N. of Libreville, 10 Nov. 2009, *Bissiengou, Breteler, Niangadouma & Nyan-gala* 826 (holo-: WAG; iso-: BR, LBV, MO).

Trees with stilt roots, up to 15 m tall and 30 cm in diameter. Branchlets puberulous, glabrescent, indumentum longer persistent around base of petioles, exuding a little clear to pale-brown latex. **Stipules** absent. **Leaves:** petiole terete, 3–8(–11) cm long, glabrous; lamina coriaceous, narrowly oblong-elliptic to obovate-elliptic, 2.5–3.5(–4) times long as wide, (12)–18–28(–36) × (4)–6–9(–10), cm, rounded to sometimes slightly cuneate at base, 0.5–1.5(–2) cm acuminate or acute at apex margin entire; midrib prominent on both sides, the 7–11 pairs of main lateral nerves ± indistinct above, prominent beneath; lamina glabrous above, puberulous on the midrib and often, more sparsely so, on the main laterals beneath. **Inflorescences** axillary or also, at the same time, just below the leaves. **Male peduncle** 12–20 mm long, glabrous; involucral bracts 8, thick, ± concave, oblong-elliptic to obovate-elliptic, the outer and the inner smaller than

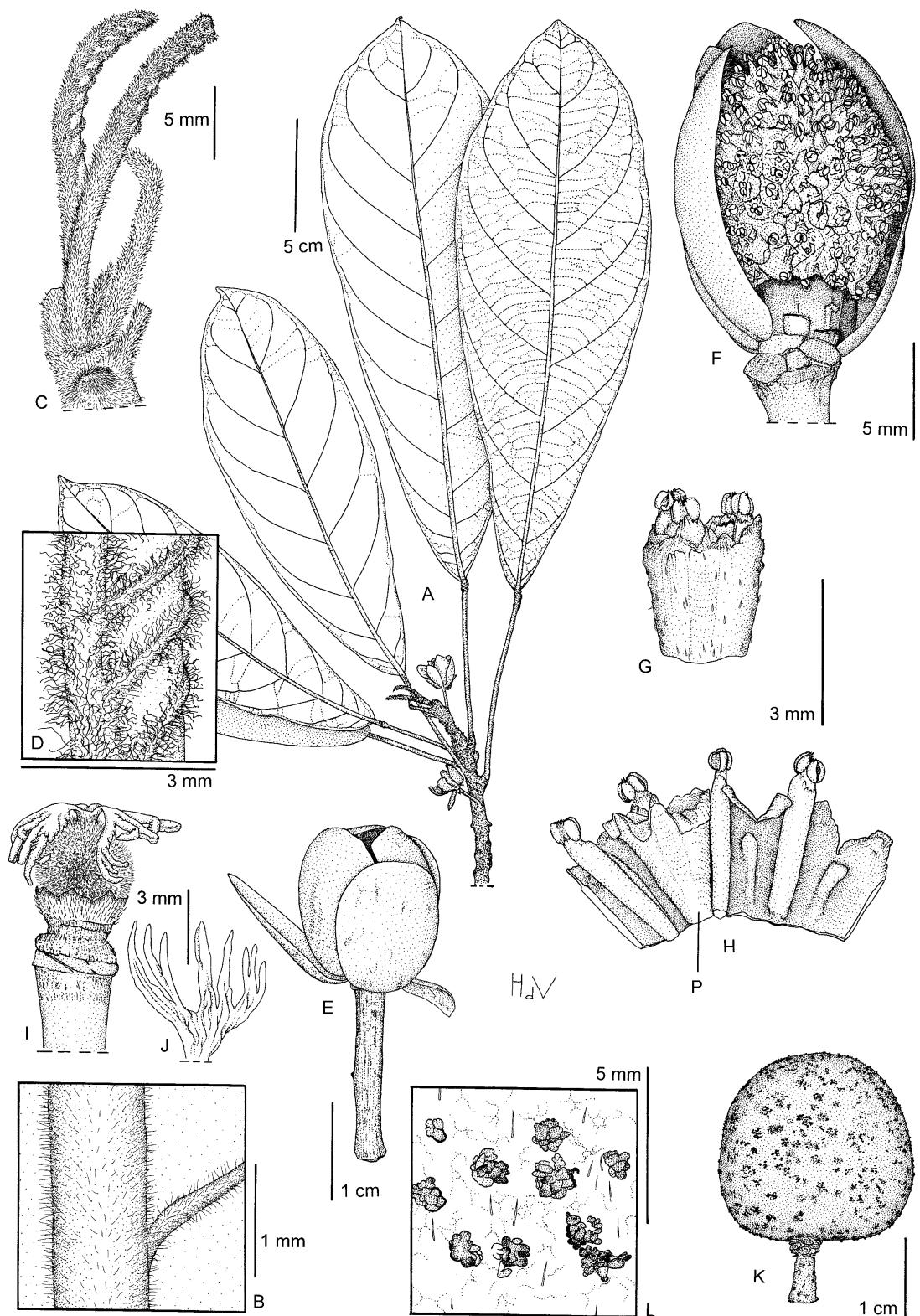


Figure 10 – *Uapaca niangadoumae*: A, male flowering branch; B, detail of indumentum on lower leaf surface; C, apex of young branchlet; D, detail of indumentum on lower surface of young leaf; E, ♂ inflorescence; F, ♂ inflorescence, involucre partly removed; G, ♂ flower; H, opened up ♂ flower showing stamens and pistillode (P); I, ♀ flower; J, stigma; K, fruit; L, detail of fruit surface. (A–H, Bissiengou *et al.* 823; I–L, Bissiengou *et al.* 826). Drawn by H. de Vries.

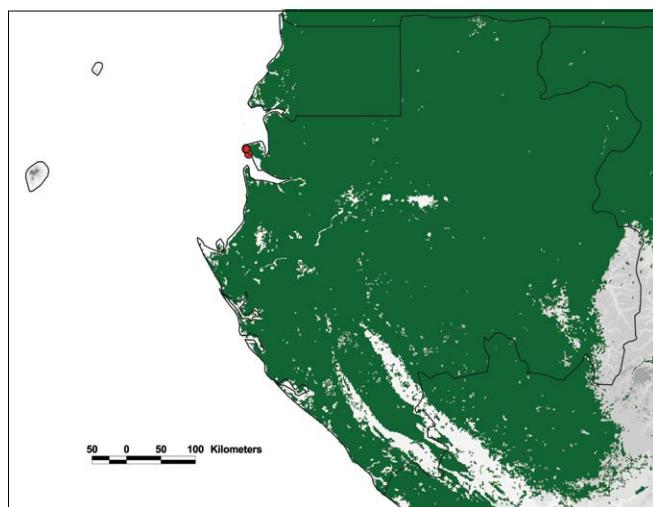


Figure 11 – Distribution of *Uapaca niangadoumae*.

the middle ones, from c. 3×2 mm to 19×10 mm, glabrous. Male flowers sessile, c. 4 mm long; calyx tubular, 2.5–3 mm long, obtusely and shallowly 5-lobed, glabrous or with a few sparse hairs; stamens 5, exserted, filaments 3–3.5 mm long, anthers c. 0.3 mm long, connective glabrous or with a few hairs; pistillode cyathiform, glabrous, ± as long as the calyx. Female peduncle 5–8 mm long glabrous; involucral bracts as in the male inflorescence but at most 11×7 mm. Female flowers sessile; calyx obtusely, shallowly 5-lobed, c. 1.5 mm long, appressed-pubescent outside, glabrous inside; ovary ellipsoid, 4–5 mm long, tomentellous, 3-locular; stigmas 3, palmately 5-lobed, the lobes often bifid at apex. Fruit subglobose to ellipsoid, 2–2.5 × c. 2 cm, obtuse at both ends, rugose, lenticellate, sparsely puberulous; stalk 7–8 m long. Fig. 10.

Habitat and distribution – Tropical rain forest near Libreville, Gabon. Alt. 0–50 m. Fig. 11.

Additional specimens studied – Gabon: forêt de la Mondah, 16 Oct. 2009, Bissiengou et al. 286 (BR, LBV, MO, WAG); 10 Nov. 2009, 823 (BR, G, LBV, MO, P, WAG); N of Libreville, 10 km on road to Cap Esterias, 20 Nov. 1991, McPherson 15521 (MO, WAG).

6. *Uapaca pynaertii* De Wild. (De Wildeman 1908: 274); Hutchinson (1912: 641); Pax & Hoffmann (1922: 305); De Wildeman (1936b: 165). – Type: D.R.Congo, Bumba, 26 Jun. 1905, Pynaert 117 (holo-: BR).

Uapaca nymphaeantha Pax & K.Hoffm. (Pax & Hoffmann 1922: 306); De Wildeman (1936b: 163), **synon. nov.** – Type: Cameroon, Lomie, 1909, Schlosser 33 (holo- B†); neotype, **designated here**: Cameroon, 5 km E of Gribi, km 28 on the Yokadouma–Batouri Rd., 31 May 1963, Letouzey 5179 (P; isoneo-: BR).

Uapaca corbisieri De Wild. (De Wildeman 1927b: 118; 1936b: 107); Hawthorne & Jongkind (2006: 240), **synon. nov.** – Type: D.R.Congo, Jardin botanique d'Eala, 1925, Corbisier s.n. (holo-: BR; iso-: K).

Uapaca goossensis De Wild. (De Wildeman 1927b: 119; 1936b: 116), **synon. nov.** – Type: D.R.Congo, Djanga Senge,

Eala, 5 Oct. 1925, Goossens s.n. (lecto-: BR, **designated here**; isolecto-: FHO).

Uapaca esculenta A.Chev. ex Aubrév. & Leandri (Aubréville & Leandri 1935: 52); Aubréville (1936: 30; 1959: 40); Keay (1958: 392), **synon. nov.** Hawthorne & Jongkind (2006: 240), in synonymy of *U. corbisieri*. – Type: Côte d'Ivoire, Yapo, 60 km of the railway, 4–8 Oct. 1909, Chevalier 22320 bis (lecto-: P, **designated here** n.v.; isolecto-: BR, COI, G, K, WAG).

Trees up to 40 m tall and 70(–115) cm in diameter. Stilt roots up to c. 4 m high. **Branchlets** glabrous. **Stipules** absent. **Leaves** glabrous: petiole terete, (1–)2–5(–13) cm long; lamina thickly coriaceous, ± rigid when dry, obovate, (14–)16–23(–42) × 6–8(–14) cm, cuneate at the base, obtuse to retuse, sometimes up to 1.5 cm long acuminate, at the apex, main lateral nerves (7–)8–12 pairs, indistinct above, prominent beneath. **Male peduncle** 3–5(–7) cm long, glabrous. **Inflorescence** (1.5–)2–4 cm in diameter. **Involucral bracts** c. 10, thick, elliptic, concave, 1.5–2.5 × 1–1.5 cm, glabrous. **Male flower**: sepals ± free, unequal in length, narrowly oblong, 1–1.5 mm long, pubescent; petals present, unequal in length, 1–1.5 mm long, pubescent to glabrous; stamens 4–6(–7), c. 6 mm long, filaments glabrous or with a few hairs, anthers 1.5 mm long; pistillode obconical, lobate at the apex, 1–2 mm long, pubescent. **Female flowers** unknown. Fruits globose, 3–4 cm in diameter, with 5–6 pyrenes, glabrous; peduncle 1–2.5 cm long; persistent calyx glabrous. Fig. 8E.

Habitat and distribution – Primary and secondary forest, on dry land as well under marshy conditions, sometimes in riverine forest, from Guinea to Central African Republic and D.R.Congo. Not known from Togo, Benin and Equatorial Guinea. Alt. up to c. 900 m. Fig. 12.

Additional specimens studied – Guinea: Nzérékoré, Nimba Mts., 12 Dec. 2006, Jongkind et al. 7609 (WAG); Nzérékoré, Mt. Yonon, 5 Feb. 2012, Simons et al. 816 (WAG).

Sierra Leone: Commendi–Gengaru Rd., 7 Nov. 1918, Aylmer 255 (K); Kambui Hills, 12 Sep. 1935, Edwardson 36 (BR, FHO); Dam-baye, 6 Sep. 1936, Edwardson 55 (FHO); foot of Loma Mt., 31 Aug. 1964, Jaeger 7283 (WAG); Kambui Hils F.R., 6 Dec. 1965, Samai 251 (K); Kambui Reserve, 25 Oct. 1932, Wallace 66 (FHO).

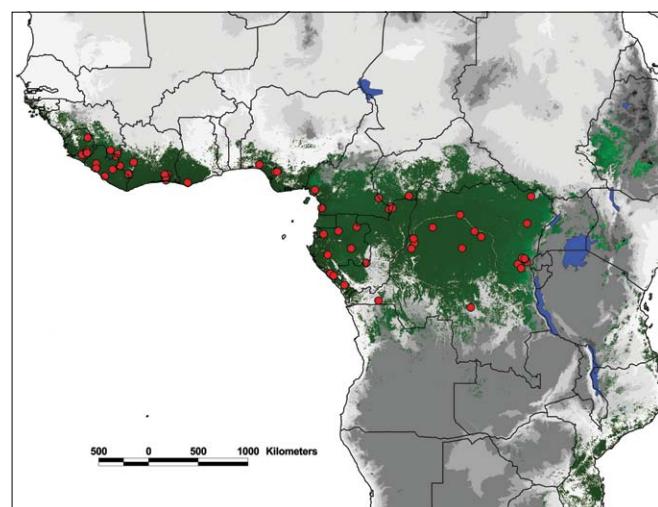


Figure 12 – Distribution of *Uapaca pynaertii*.

Liberia: Cavally R., near Taï, 3 Mar. 1962, *Bernardi* 8450 (G, K, WAG); Dukwai R., 11 Aug. 1928, *Cooper* 147 (BM, FHO, K); Gbi N.P., Oct. 1961, *Voorhoeve* 554 (WAG); Siga Lumber Company, 2 Dec. 1961, *Voorhoeve* 688 (WAG); Bong Range, 15 Aug. 1962, *Voorhoeve* 1185 (WAG); Nimba, 25 Jul. 1962, *Voorhoeve* 1196 (WAG).

Côte d'Ivoire (selection): Banco, 1932, *Aubréville* S.F. 498 (K); Teké forest, Mar. 1970, *Bamps* 2534 (BR, K); Yapo South, 23 Feb. 1962, *Bernardi* 8166 (G, WAG); Yapo, 4–8 Oct. 1909, *Chevalier* 22320 bis (BR, G, K); Banco, 15 Feb. 1973, *de Koning* 1125 (WAG); 8 km Yakassé-Mé to Kodiousou, 28 Jul. 1970, *Leeuwenberg* 7998 (BR, WAG); Guiglo, Aug. 1981 *Stäuble* 65/347 (G).

Ghana: Simpa, 1933, *Vigne* FH 2803 (BR, FHO).

Nigeria: Oni R., 10 Feb. 1946, *Jones & Onochie* FHI 17502 (FHO); Usonigbe F.R., Urhuehue, 27 Oct. 1946, *Keay & Onochie* FHI 21585 (FHO); Sapoba, Jameson R., *Kennedy* 1876 (FHO, K); sin. loc., s.d., *Kennedy* 1895 (BM, FHO, K); Anyangeba, 21 Mar. 1981, *Sharland* 1775 (K).

Cameroon: SW of Kumba, near Boa Bakundu, 19 Apr. 1986, *Etugu & D.W. Thomas* 73 (BR, K, WAG).

Central African Republic: Boukoko, 3 Jun. 1950, *Equipe Tisserant* 1756 (BM, BR); 3 km of Lindjombo on Sangha Economique, 1 Nov. 1988, *Fay & Harris* 8746 (WAG); 5 km N of Bayanga, 24 Jul. 1990, *Harris* 2404 (K, WAG).

Gabon: km 36 Tchibanga-Mayumba Rd., 19 Oct. 2009, *Bissiengou et al.* 344 (LBV, WAG); km 33 Tchibanga-Mayumba Rd., 22 Oct. 2009, *Bissiengou et al.* 431 (LBV, WAG); 6 km SSW of Mitzic, *Bissiengou et al.* 693 (LBV, WAG); Nyanga, SW Pelé Mt., 7 Oct. 2002, *Gillet et al.* 9 (BR); Bélinga, 25 Jul. 1966, *N. Hallé & Thomas* 147 (P); Yombi, 7 Dec. 1925, *Le Testu* 5802 (BM, BR, MO, P, WAG); Lastoursville, 10 Feb. 1930, *Le Testu* 7903 (BM, BR, G, K, MO, P, WAG); Plateau Batéké N.P., gallery forest of Mpassa R., 8 Mar. 2003, *Niangadouma & Walters* 216 (LBV, WAG).

Republic of the Congo: Kouilou, Kakamoeka, 11 Oct. 1990, *Lisowski* B-8079 (BR).

D.R.Congo (selection): Mvuazi, Kinganga forest, 8 May 1958, *J. Dubois* 304 (BR); Ndeke, 23 Sep. 1958, *Evrard* 4900 (BR); Eala, 22 Jun. 1944, *Germain* 1891 (BM, BR, K); Bambesa, 15 Jun. 1942, *Gilbert no 35 in herbier Dubois* (BR); Bunyakiri, 25 Apr. 1958, *Gutzwiller* 1825 (BR); Kabunga, 24 Feb. 1958, *A. Léonard* 1830 (BR); Bakala near Eala, 13 Nov. 1946, *J. Léonard* 1004 (BR, WAG); ibid., 30 Nov. 1946, *J. Léonard* 1078 (BR); Bakwango, Mibabi, 20 Nov. 1956, *Liben* 1951 (BR); Otobora, 25 Jun. 1957, *Pierlot* 1674 (BR, WAG); Eala, Nov. 1930, *Staner* 1562 (BR, K, WAG); Savanne de L'Aka, border Rd., km 73, 22 May 1952, *Troupin* 1048 (BR, WAG).

7. *Uapaca staudtii* Pax (Pax 1897: 522); Hutchinson (1912: 638); Pax & Hoffmann (1922: 300); De Wildeman (1936b: 177); Keay (1958: 390). – Type: Cameroon, Lolodorf, Mbanga Mt., 28 Apr. 1895, *Staudt* 275 (holo-: B†; lecto-: K, designated here; iso-: COI, G).

Trees up to 26 m tall and 30(–60) cm in diameter. **Stilt roots** up to c. 4 m high. **Branchlets** puberulous-tomentellous, soon glabrescent. **Stipules** foliaceous, mostly ear-shaped or capuchin-like, rounded apically, (5–)8–15(–20) mm long, puberulous, glabrescent. **Leaves:** petiole terete, 1–3.5 cm long, puberulous, glabrescent; lamina (4.5–)8–20(–24) times as long as the petiole, coriaceous, narrowly obovate, 18–35 (–62) × 6–15 cm, tapering to a rounded base, acute to 0.5–1.5 cm acuminate or rounded to obtuse at apex, puberulous when young, glabrous or with some sparse hairs on the midrib be-

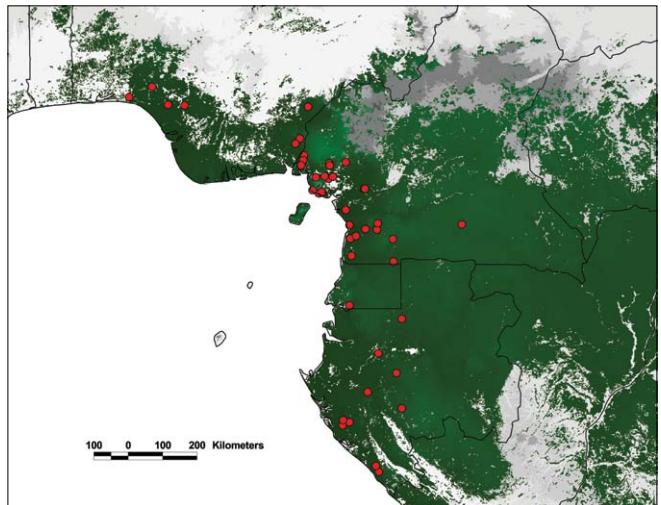


Figure 13 – Distribution of *Uapaca staudtii*.

neath when older; lateral nerves 7–13(–15) pairs, indistinct above, prominent beneath. **Peduncle** (15–)20–30(–45) mm long, glabrous. **Involucral bracts** c. 12, slightly concave, 10 × 3.5–15 × 9 mm, glabrous. **Male flower** 3–4 mm long, sepals united at base, 1.5–2.5 mm long, glabrous; petals absent; stamens 3–4 mm long, glabrous, anthers c. 0.5 mm long; pistillode cyathiform, as long as the calyx, glabrous. **Female flowers** unknown. **Fruits** globose to ellipsoid, often slightly lobed, 2–3 × 2–3 cm, sparsely pubescent, lenticellate, stipe 5–12 mm long. Fig. 8F & G.

Habitat and distribution – Riverine forest, swamp forest, from Nigeria to Gabon. Alt. 0–500 m. Fig. 13.

Additional specimens studied – Nigeria: Agba Reserve, 27 Jul. 1946, Chizea 19020 (FHO); 25 km N of Oban, road to Ekang, 20 Jun. 1981, Gentry & Pilz 32879 (WAG); Afi River F.R., 29 May 1946, Jones & Onochie FHI 17335 (FHO); Osomba on Calabar-Mamfe Rd., 11 Mar. 1973, Latilo & Oguntayo FHI 70559 (WAG); Benin, Okumu F.R., 27 Nov. 1948, Onochie 9159A (FHO, K); Ondo District, Oluwa F.R., 24 Dec. 1958, Osain FHI 43118 (FHO, K, WAG); Sasha F.R., 28 Apr. 1935, Richards 3416 (BR, G); Oni, 12 Oct. 1916, Sankey 14 (K);

Cameroon (selection): Banga, SW Province, 9 Jan. 1956, *Binuyo & Daramola* FHI 35162 (FHO, K, WAG); 4 km W of Fifinda, 28 Feb. 1970, *Bos* 6450 (BR, K, P, WAG); Nkoemvone, 29 Oct. 1974, *J.J. de Wilde* 7667 (K, WAG); 8 km W of Masok, 6 Apr. 1965, *Leeuwenberg* 5413 (BR, K, WAG); c. 30 km ESE of Kribi, 20 Apr. 1968, *Letouzey* 9413 (BR, COI, P, WAG); 20 km SW of Ambam, 19 Mar. 1970, *Letouzey* 10176 (BR, K, P, WAG); Victoria, Bumba Rd., Feb. 1929, *Maitland* 397 (K); Kumba, Bambuko F.R., 25 Sep. 1951, *Olorunfemi* FHI 30773 (K); Korup N. P., 23 Apr. 2005, *van der Burgt* 751 (K, WAG); Campo Res. near Nkoelon, 30 Nov. 1976 *Webb & Bullock* 489 (K); Bipindi, 1913, *Zenker* 4614 (BM, BR, G, K).

Equatorial Guinea: E of Cogo, near Gabonese border, 3 May 1989, *McPherson* 14018 (P).

Gabon (selection): Nyanga, Dougni, 21 Oct. 2009, *Bissiengou et al.* 422 (LBV, WAG); Ndjeniba on Fougamou-Lambaréne Rd., 29 Oct. 2009, *Bissiengou et al.* 618 (LBV, WAG); between Rabi-Kounaga and Yeno, 18 May 1992, *Breteler et al.* 11514 (WAG); Rabi, 7 Mar. 2007, *Choo* 855 (MO); 22 km Mayumba-Tchibanga Rd., near Dousan R., 10 Dec. 1986, *J.J. de Wilde et al.* 9286 (WAG); 30 km S of Rabi, Echira Rd., 26 Nov. 1989, *J.J. de Wilde et al.* 9759 (LBV,

WAG); 15 km NE of Oveng, 8 May 1986, Reitsma 2184 (LBV, WAG); 35 km ESE of Mitzic, 28 Feb. 1988, Wilks 1690 (LBV).

8. *Uapaca togoensis* Pax (Pax 1904: 371); Hutchinson (1912: 638); Pax & Hoffmann (1922: 304); De Wildeman (1936b: 180); Keay (1958: 390); Essou (2006: 582). – Type: Guinea, Gonkwi Mt., Talla, 16 Febr. 1892, Scott Elliott 4828 (lecto-: K, **designated here**).

Uapaca chevalieri Beille (Beille 1908: 68); Hutchinson (1912: 638), in synonymy of *U. togoensis*; Pax & Hoffmann (1922: 304), in synonymy of *U. togoensis*; De Wildeman (1936b: 181), in synonymy of *U. togoensis*; Keay (1958: 390); Poorter et al. (2004: 78, 375); Hawthorne & Jongkind (2006: 240). – Type: Guinea, between Ditinn and Diaguissa, Apr. 1905, Chevalier 12670 (lecto-: P, **designated here**).

Uapaca guignardii A.Chev. ex Beille (Beille 1908: 66); Hutchinson (1912: 640), in synonymy of *U. guineensis*; Pax & Hoffmann (1922: 304), in synonymy of *U. togoensis*; De Wildeman (1936b: 180), in synonymy of *U. togoensis*. – Type: Central African Republic, Ungour-ras Plateau, 13–14 Nov. 1902, Chevalier 6154 (lecto-: P, **designated here**, n.v.; isolecto-: BR, K).

Uapaca guignardii A.Chev. ex Beille var. *sudanica* Beille (Beille 1908: 67); *Uapaca guineensis* Müll.Arg. var. *sudanica* (Beille) Hutch. (Hutchinson 1912: 641); De Wildeman (1936b: 122); Govaerts et al. (2000: 1579). – Type: Central African Republic, Cercle du Gribingui, 7°1'N, between Fort Crampel and the Kaya M'Bra, Nov. 1902, Chevalier 6450 (holo-: P, n.v.).

Uapaca perrotii Beille (Beille 1908: 67); Hutchinson (1912: 640), in synonymy of *Uapaca guineensis*; Pax & Hoffmann (1922: 306), in synonymy of *Uapaca guineensis*; De Wildeman (1936b: 121). – Type: Guinea, Fouta-Djalon, Ymbo–Orobé, 19 Nov. 1905, Caille 14790 (holo-: P, n.v.).

Uapaca somon Aubrév. & Leandri (Aubréville & Leandri 1935: 50); Aubréville (1936: 34); Keay (1958: 390), in synonymy of *U. togoensis* – Type: Côte d'Ivoire, sin. loc., s.d., Aubréville 728 (lecto-: P, **designated here**, n.v.; isolecto-: K).

Small to medium-sized tree up to 20(–30) m tall and 20(–30) cm in diameter. Stilt roots usually present but sometimes absent in savannah woodland. Branchlets puberulous when young, soon glabrescent, often longer persistent around petiole bases. Stipules absent or small, narrowly triangular, 0.5–2 mm long, pubescent, soon caducous. Leaves: petiole terete, 2–6 cm long, glabrous, to sparsely pubescent, glabrescent; lamina coriaceous, obovate-elliptic, (9–)11–18(–21) × 5–9(–12) cm, rounded to cuneate at base, obtuse to truncate-retuse at apex, glabrous above, sparsely hairy beneath especially on the midrib, glabrescent; lateral nerves 6–9 pairs. Peduncle 5–22 mm long, glabrous, the female one shorter than the male. Involucral bracts 10, glabrous or with a few hairs, concave, up to 9 × 6 mm. Male flower: sepals united, 0.5–1.5 mm long, lobes 0.2–1 mm long; petals absent; stamens 5, 1–1.5(–2) mm long, filaments glabrous, anthers 0.5 mm long, hairy; pistillode 1–1.5 mm long, pubescent. Female flower: calyx gamosepalous with undulate margin, densely hairy outside; ovary ellipsoid, 4 mm long, tomentose. Fruit

± ellipsoid, c. 2.5 × 2 cm, lenticellate, glabrous to sparsely hairy; persistent calyx mostly densely hairy. Fig. 14A.

Habitat and distribution – Mostly in fringing forest and savannah woodland, from Sénégál to Central African Republic, D.R.Congo, and Angola; not known from Equatorial Guinea. Alt. up to c. 1400 m. Fig. 15.

Additional specimens studied – **Sénégal** (selection): Youkounkoun, Jan 1952, Berhaut 1508 (BR); Oussoye region, Kaème, 14 Feb. 1964, Berhaut 6940 (BR); Basse-Casamance, Djibelor, 24 Sep. 1984, vanden Berghe 6638 (BR); Bofa Bayot, 25 Dec. 1977, vanden Berghe 2452 (BR).

Mali: Segouna, Cercle de Kita, 10 Apr. 1935, R. Dubois 192c (K); Sikasso-Bobo Rd., 14 Dec. 1978, J. Raynal 21008 (K).

Guinea Bissau (selection): Piche, 14 Dec. 1961, Alves Pereira 2372 (G, K); Cabuca, 19 Dec. 1961, Alves Pereira 2444 (K); Lengerera, Nov. 1932, Espírito Santo 272 (LISC); between Cumura and Bor, 25 Mar. 1945, Espírito Santo 1891 (LISC); Cacheu, Bissabur, 1 Feb. 1989, Sané 213 (LISC).

Guinea (selection): Kala to Dalaba, 17 Apr. 1905, Chevalier 13477 (P); Bayla, Tetini Mts., 6 Dec. 2007, Haba et al. 109 (K, WAG); Kérouane, Damou, 28 Oct. 2008, Haba et al. 201 (K, WAG); Nzérékoré, 13 Dec. 2006, Jongkind et al. 7636 (FHO, WAG); Macenta, Boussédou, 15 Jan. 2008, Kamon 100 (G); Ziama Massif, 17 Dec. 1963, Lisowski 12853 (BR); N of Mamou, 14 Dec. 1946, Roberty 6574 (G); Erimakuna, 24 Mar. 1892, Scott Elliot 5395 (K); Beyla, Korandou Mts., 28 Oct. 2008, Traoré et al. 134 (K, WAG).

Sierra Leone (selection): near Port Loko, 7 Feb. 1939, Deighton 3609 (K); Pendembu, 23 Feb. 1946, Deighton 4212 (K); Lake Sonfon, 23 Apr. 1949, Deighton 5069 (K); Loma Mts., 6 Apr. 1951, Frith 21 (K); Falaba, 20 Feb. 1966, Gledhill 384 (K); Fikong Massif, 29 Aug. 1964, Jaeger 7269 (WAG); fort Loma Mt. N, 13 Jan. 1966, Jaeger 8925 (G, K); Loma Mts., above Yifin, 25 Mar. 1964, Morton & Gledhill SL 1041 (K, WAG); Tingi Mts., 13 Dec. 1965, Morton & Gledhill SL 3087 (K, WAG); Musaia, 21 Sep. 1951, Small 205 (K).

Liberia (selection): Mecca, 24 Dec. 1947, Baldwin 10799 (WAG); N of Zorzor, 22 Dec. 1966, Bos 2571 (K, WAG); 10 miles S of Kakata, Aug. 1970, Jansen 2182 (WAG); Nimba, Gongra Mt., 12 Jan. 2009, Jongkind et al. 8434 (WAG); Porobush, 11 Oct. 1963, van Harten 145 (K, WAG).

Côte d'Ivoire (selection): between Toupé and Dobakala, 20 Jun. 1968, Aké Assi 10319 (G); between Bouaké and Katiola, 18 Jan. 1979, Aké Assi 14640 (G), 14641(G); Djambala plateau, 17 Jul. 1985, Aké Assi 16944 (G); Katiola, 18 Sep. 1978, Dekker 181 (WAG); 32 km W of Ouangofétini in Bouona Res., 1 Mar. 1962, J.J. de Wilde & Leeuwenberg 3496 (K, WAG); Marahoué, 2 Jan. 1958, de Wit 7942 (WAG); 8 km N of Kakpin, 11 Sep. 1967, Geerling & Bokdam 846 (WAG); N of Ferkessedougou, 18 Nov. 1958, Leeuwenberg 1987 (K, WAG); 25 km ENE of Bouaké, 24 Sep. 1963, Oldeman 385 (K, WAG); Boundiali, 8 Dec. 1980, Poilecot 275 (G).

Ghana: Kintampa, Nov. 1950, Andoh FH 5436 (K); Ejura, 20 Aug. 1921, Chipp 725 (K); Nkwanta, 15 Apr. 1959, Hall 1352 (K); Techiman–Tamale Rd., 2 Feb. 1995, Jongkind 2005 (K, WAG); Banda–Ahinkro, 16 Nov. 1995, Jongkind 2460 (WAG); 3 miles below Ejura escarpment, 9 Dec. 1953, Motton GC 9745 (K); Wenchi, 21 Dec. 1953, Morton 25163; Nahari, 6 Nov. 1958, Rose Innes GH 30824 (K).

Togo (selection): Faillé d'Alèdjo, 28 Mar. 1967, Aké Assi 9624 (G); km 37 Sokodé–Lamakara, 8 Nov. 1971, Breteler 7290 (WAG); Bola, 16 Oct. 1977, Ern et al. 1860 (K); Sotouboua, 23 Apr. 1978, Hakki et al. 420 (K); Sokodé, Mar. 1905, Kersiting 22 (K); Adélé, 24 Jan. 1984, Pasch 8011 (WAG).

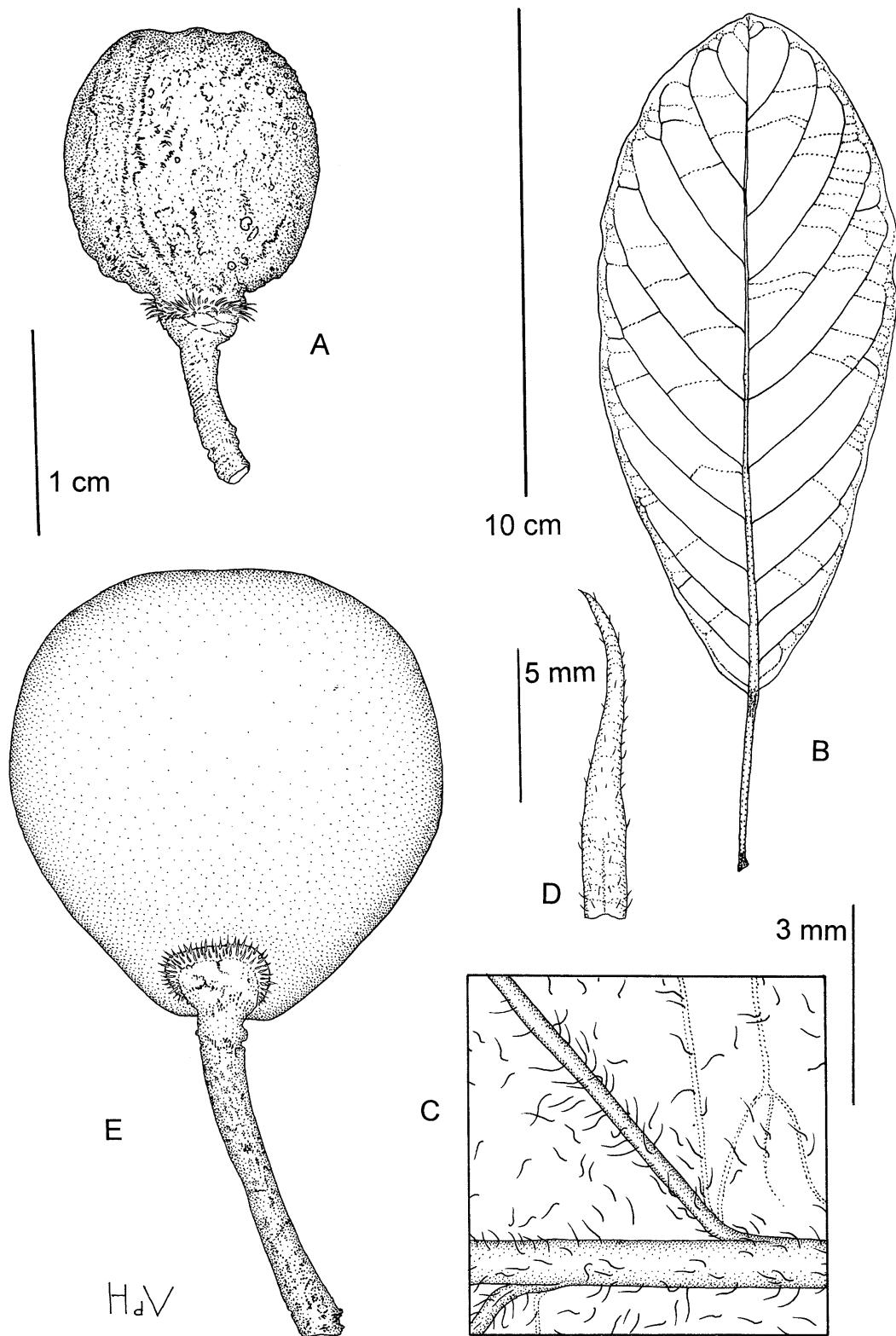


Figure 14 – A, fruit of *Uapaca togoensis*; B–E, *Uapaca vanhouttei*: B, leaf; C, detail of indumentum on lower leaf surface; D, stipule; E, fruit. (A, Breteler 6779; B–C, Wieringa 3567; D, Bissiengou et al. 421; E, van Valkenburg et al. 3567). Drawn by H. de Vries.

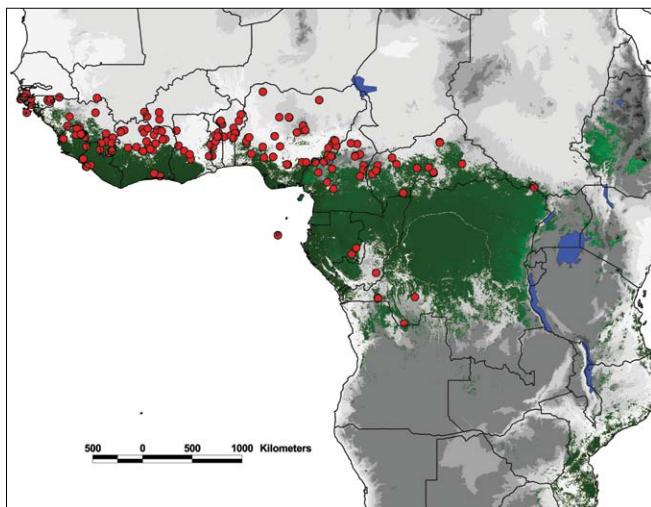


Figure 15 – Distribution of *Uapaca togoensis*.

Benin: Gbasse, 4 Oct. 2001, *Adjakidjé* 5133 (WAG); Yeripao, 14 Apr. 1999, *Akoègninou et al.* 2542 (WAG); Kalé, 23 Mar. 2001, *Akoègninou et al.* 4534 (WAG); Goro, 13 Jan. 2002, *Akoègninou et al.* 6029 (WAG); Pouya, 4 Apr. 2000, *Essou* 2032 (WAG); 7 Sep. 1998, *Sokpon et al.* 351 (WAG), 15 May 2001, *Sokpon* 2020 (WAG); Kori, 18 Nov. 1999, *van der Maesen et al.* 7038 (WAG).

Burkina Faso: Poni, 12 Jun. 2004, *Boussim* BUR 305 (K); Kenedougou, Bougoula, 18 Apr. 2005, *Sanou* BUR 348 (K).

Nigeria (selection): Oke-Opin, 26 Dec. 1950, *Ajaji* FHI 36098 (K); Jos Plateau, 1956, *Batten-Poole* 251 (K); Mabilla Plateau, 1 Apr. 1972, *Chapman* 2751 (FHO, K, WAG); Katagum District, May 1908, *Dalziel* 356 (K); Munchi, May 1913, *Dalziel* 733 (K); Ogun Game Res., 14 Sep. 1971, *Geerling* 4181 (WAG); Dakemi, 18 Nov. 1957, *Hepper* 1396 (K); Kan Gimi, 17 May 1948, *Keay* FHI 22884 (K); 25 Miles NNW of Ikom on Bansara Rd., 6 Dec. 1950, *Keay* FHI 28146 (K); Tegina-Kaduna Rd., 17 Sep. 1966, *van Eijnatten* 1963 (WAG); 20 km Igboho to Igbetti, 30 Sep. 1971, *Wit* 519 (K, WAG), 520 (K, WAG); Agaie, 5 Nov. 1911, *Yates* 24 (K), 24 A (K).

Cameroon (selection): 8 km S of Ngaoundéré, 31 Oct. 1960 Breteler 597 (K, BR, WAG); 17 km S of Meiganga, 23 Nov. 1964, *W. de Wilde c.s.* 3943 (WAG); 65 Km E of Ngaoundéré, 10 Dec. 1964, *W. de Wilde c.s.* 4723 (WAG); 4724 (WAG); 20 km S of Gidjiba, 8 May 1974, *Geerling & Néné* 4752 (WAG); Gangumi, 7 Dec. 1954, *Latilo & Daramola* FHI 28844 (K); 22–24 km Kon Kelbot to Bafa, 26 Nov. 1969, *Letouzey* 9644 (K, WAG); 9644 bis (K, WAG); Rankim, 28 Nov. 1967, *Meurillon* 1079 (BR, K); Kongola, Apr. 1914, *Mildbraed* 9004 (K); Buar, 8 May 1914, *Mildbraed* 9327 (K); Buala, 6 Jun. 1914, *Mildbraed* 9555 (K); Béré, 10 km S of Poli, 13 Jan. 1965, *J. & A. Raynal* 12953 (K).

Central African Republic (selection): km 15 Bouar-Baboua, 19 Nov. 1968, *Badré* 272 (K); Nana, 16 Nov. 1902, *Chevalier* 6220 (K); Mondjas Country, 20 Nov. 1902, *Chevalier* 6350 (G); Boukoko, 16 Dec. 1947, *Equipe Tisserant* 547 (BM); 4 km SE of Bambari, 22 Oct. 1981, *Fay* 1835 (K); Bossangoa, 1983, *Fay & Doka* 5016 (K); Yalinga, 1 Oct. 1921, *Le Testu* 3313 (BM, G, K, LISC, MO, WAG); Tobobinga (neu Kamerun), 31 Jul. 1914, *Tessmann* 2687 (K); Waka, 7 Aug. 1923, *Tisserant* 1196 (LISC).

Saô Tome & Principe: Saô Tome, Robeira Peixe, 8 Jun. 1968, *Espirito Santo* 4593 (LISC).

Gabon: Le Lama, near Lekori R., 17 Nov. 2009, *Bissiengou & Breteler* 904 (LBV, WAG), 906 (LBV, WAG); km 23 Moanda-Franceville, 5 Oct. 1970, *Breteler* 6779 (BR, LBV, WAG).

Republic of the Congo: Louna R. to Lac Bleu, 29 Oct. 1991, *Harris & Fay* 3121 (WAG).

D.R.Congo: Sengi-Kwango, 28 Mar. 1955, *Devred* 1718 (BR, WAG); Lutshima-Kwango, 24 Jul. 1955, *Devred* 2336 (BR, WAG); Dungu, 6 Jan. 1952, *de Saeger* 1595 (WAG); Kifutingulu, 17 Feb. 1959, *Pauwels* 1663 (BR, WAG); Congo-Nile crête, border road, 4 Mar. 1952, *Troupin* 285 (BR, WAG).

Angola: Sumba, Poco, Aug. 1926, *Gossweiler* 9195 (BM).

Notes – Pax (1904) based his *Uapaca togoensis* on seven syn-types: *Scott Elliot* 4828 & 5395 from Sierra Leone, (in fact from Guinea, see below), *Rowland* s.n. from West-Lagos, *Büttner* 340 and *Kersting* 80 & 166 from Togo, and *Rudatis* 36 from Cameroon. Of this original material only duplicates of both *Scott Elliot* numbers remain at K. Pax described *U. togoensis* as ‘glaber’ which fits *Scott Elliot* 5395 better than *Scott Elliot* 4828, with pilose indumentum on the midrib and main laterals beneath. According to Hutchinson (1912) and Keay (1958) these specimens belong to two different species. Hutchinson assigned the hairy-leaved 4828 to *U. togoensis* and the glabrous-leaved 5395 to *U. guineensis*. The two syntypes of *U. chevalieri* were also classified by him under *U. togoensis*. Keay, who maintains *U. chevalieri* as a distinct species, does not agree with Hutchinson’s ‘choice’ (not a lectotypification!), because the glabrous 5395 should have been chosen as the ‘type’ of *U. togoensis* and the hairy 4828 been placed in *U. chevalieri*. A study of several specimens of both *U. togoensis* and *U. guineensis* from throughout their ranges, learns that both *Scott Elliot* specimens belong to the same species *U. togoensis*, which is well distinguished from *U. guineensis*. The variation in indumentum of the lower leaf surface between the two, more or less extremes as seen in the two *Scott Elliot* specimens, is connected by many intermediates. I have therefore followed Hutchinson (1912) and Pax & Hoffmann (1922), who treated *U. chevalieri* as a synonym of *U. togoensis*, and the latter two authors who maintained both *Scott Elliot* specimens as *U. togoensis*. *Scott Elliot* 4828 is designated as the lectotype. Both collections of *Scott Elliot* have originally been reported from Sierra Leone, but Gledhill (1969) proved that their localities are located in Guinea.

9. *Uapaca vanhouttei* De Wild. (De Wildeman 1908: 275); Hutchinson (1912: 642); Pax & Hoffmann (1922: 303); De Wildeman (1936b: 184); Keay (1958: 390). – Type: D.R.Congo, Kisantu-Makela, Oct. 1903, *Van Houtte* in coll. *Gillet* 3454 (holo-: BR).

Uapaca brieyi De Wild. (De Wildeman 1914: 362); Pax & Hoffmann (1922: 303), in synonymy of *U. vanhouttei*; De Wildeman (1936b: 103). – Type: D.R.Congo, Ganda-Sundi, 1911, *de Briey* 121 (holo-: BR).

Uapaca letestuana A.Chev. (Chevalier 1917: 304); De Wildeman (1936b: 140), **synon. nov.** – Type: Mayombe, Tchibanga, 2 Dec. 1908, *Le Testu* 1493 (lecto-: P, **designated here**; isolecto-: BM, BR, WAG).

Small to medium sized tree up to 20(–30) m high and 30(–50) cm in diameter. Stilt roots up to 5 m high. Branchlets hispidulous or with ± appressed hairs. Stipules narrowly triangular to linear, (4–)5–11 × 0.5–2 mm, ± hispidulous. Leaves: petiole terete, 1–4(–7) cm long, hispidulous or with ± appressed hairs; lamina ± coriaceous, elliptic to obovate-

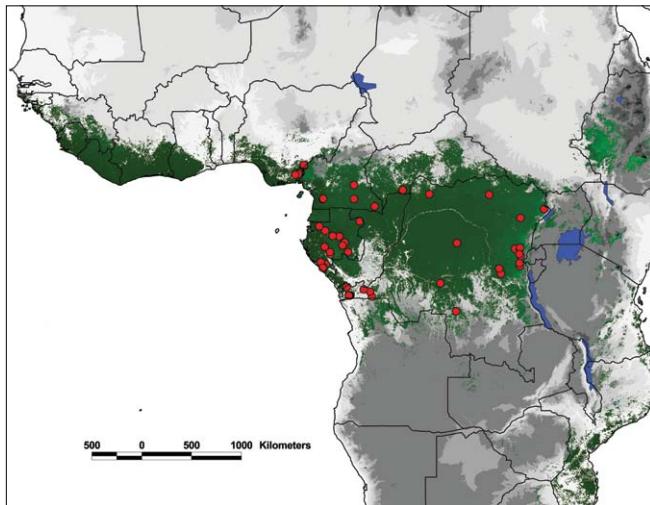


Figure 16 – Distribution of *Uapaca vanhouttei*.

elliptic, (6–)13–20(–25) × (2.5–)4–10 cm, rounded to slightly cuneate at the base, generally rounded to obtuse, sometimes shortly acuminate or acute, rarely retuse at the apex, glabrous or with a few sparse hairs on the midrib above, hispidulous or with ± appressed hairs beneath; lateral nerves (7–)8–12 pairs, ± indistinct above, prominent beneath. Peduncle 5–28 mm long, with a few bracts, slightly hispidulous or not, the female slightly shorter than the male one. Involucral bracts 7–9, glabrous, elliptic to obovate, from 6 × 4 to 10 × 6 mm. Male flower: calyx gamosepalous or with ± free sepals, 1–1.5 mm long, pubescent outside; a few filiform petals of ≤ 1 mm length usually present; stamens 4–6, glabrous, anthers c. 0.5 mm long; pistillode cyathiform, ± as long as the calyx, pubescent. Female flower: calyx gamosepalous, c. 1 mm long, with undulate margin, hispidulous outside; ovary ovoid to ellipsoid, 3–5 mm long, glabrous, styles glabrous. Fruits subglobose, 20–31 × 18–28 mm, glabrous, ± smooth (not lenticellate); peduncle 10–22 mm long. Fig. 14B–E.

Habitat and distribution – Riverine forest, marshy forest, from Southern Nigeria to D.R.Congo. not known from Equatorial Guinea and Republic of the Congo. Alt. 0–1500 m. Fig. 16.

Additional specimens studied – Nigeria: Duden, 21 Jul. 1959, *Binnuo* FHI 41395 (FHO, K); 25 km N of Oban, 20 Jun. 1981, *Gentry & Pilz* 32859 (K, WAG); 1.5 miles S of Aboabam, 10 May 1946, *Jones & Onochie* 18705 (FHO, K); Aboabam, 10 Dec. 1950, *Keay* FHI 28203; Osombo on Calabar-Mamfe Rd., 11 Mar. 1973, *Latilo & Oguntayo* FHI 70564 (K, WAG); 51–52 miles Calabar–Mamfe Rd., 18 Feb. 1964, *Onyeachusim & Latilo* FHI 54019 (FHO, K); sin loc., 1911, *Talbot* 671 (BM).

Cameroon: Dimako, 6 Dec. 1961, *Breteler* 2162 (BR, K, WAG); Kombolo camp. 23, Nov. 1998, *Harris* 6494 (WAG); 7 km N of Ebom, Aug. 1996, *Parren* 91 (WAG); Djomedjoh, 23 Jul. 1995, *Sonké* 1467 (BR).

Central African Republic: Boukoko, 17 Nov. 1947, *Équipe Tisserant* 472 (BM, BR, K, LISC); 20 Nov. 1948, *Équipe Tisserant* 1250 (BM, BR); 26 Nov. 1953, *Équipe Tisserant* 2612 (BM, BR).

Gabon (selection): Dougni, 7 km from Malouango 1, 21 Oct. 2009, *Bissiengou et al.* 421 (LBV, WAG); near Bakoumba, 2 Dec. 1993, *Breteler* c.s. 12470 (WAG); Tchibanga, 2 Dec. 1908, *Le Testu* 1494 (BM, BR, K, P, WAG); Lastoursville, 18 Nov. 1929, *le Testu* 7655

(BM, BR, G, K, P, WAG); Koulamoutou, 4 Dec. 1930, *Le Testu* 8551 (BM, BR, G, K, MO, P, WAG); near Guévedé, 29 Nov. 1983, *A.M. Louis et al.* 1020 (BR, LBV, P, WAG); 13 km on Mékambo–Madjingo Rd., 25 Dec. 2000, *Wieringa et al.* 3567 (LBV, WAG); 2 km Tchimbélé–Kinguélé Rd., 13 Dec. 2001, *Wieringa* 4717 (WAG); 15 km SSE of Ogooué-Ivindo confluence, 16 Dec. 1983, *Wilks* 784 (LBV, WAG); Otouma, 29 Jan. 1992 *Wilks* 2558 (BR, K, LBV, MO, WAG).

D.R.Congo (selection): Luki, 13 Nov. 1947, *Donis* 1557 (FHO, K); Singa Valley, 14 Jan. 1949, *Donis* 2316 (BR); Kwada Lake, 23 Mar. 1955, *Evrard* 539 (BR); Bambesa, 15 Nov. 1956, *Gerard* 2368 (BR); Epulu, 25 Feb. 1994, *Gerau et al.* 5367 (K); Walikale, 25 Jun. 1957, *Gutzwiller* 1163 (BR); Bukondo, 24 Sep. 1957, *Gutzwiller* 2061 (BR); between Kama and Lumuna, Jul. 1932, *Lebrun* 5867 (BR); Mera, 9 Jan. 1959, *A. Léonard* 2457 (BR); Tumba, 26 Feb. 1957, *Liben* 2576 (BR, WAG); km 101 Bukavu–Shabunda, Lulimbi R., 20 Aug. 1958, *Pierlot* 2424 (BR); Luki, 17 Mar. 1947, *Toussaint* 2215 (BR, WAG); km 110 Kavumu–Walikale, 16 May 1957, *Troupin* 3432 (BR, COI, K, WAG).

SUPPLEMENT

Uapaca lissopyrena Radcl.-Sm. (Radcliffe-Smith 1993: 612; 1996: 97). – Type: Zambia, Mwinilunga, 5 Sep. 1955, *Holmes* 1164 (holo-: K).

Habitat and distribution – Dense evergreen swamp forest (mushitu) and riverine forest, in eastern Angola, southern D.R.Congo, Zambia, Zimbabwe, Malawi, and Mozambique. Alt. 400–1650 m. Fig. 17.

Additional specimens examined – Angola: Lunda region, Dala, near Chiumbe R., Apr. 1937, *Gossweiler* 11209 (COI).

D.R.Congo: Kamina, Lufufuye R., 27 Jun. 1952, *Delvaux* 310 (BR).

Zambia: Fort Roseberry, 23 Aug. 1952, *Angus* 297 (BR, FHO, K); 25 Aug. 1952, *Angus* 308 (BR, COI, FHO, K); 1 Sep. 1952, *Angus* 361 (BR, FHO, K); Lake Bangweulu, 1 Sep. 1952, *Angus* 363 (BR, FHO, K); Mwinilunga District, 4 miles N of Kalene Hill, 26 Sep. 1952, *Angus* 556 (BR, FHO, K); Kawambua, 30 Oct. 1952, *Angus* 680 (BR, FHO, K); Chishimba Falls, 26 Nov. 1952, *Angus* 850 A (FHO, K); Liwinungu, 15 May 1958, *Angus* 1959 (FHO); Misampu, 17 May 1958, *Angus* 1971 (FHO, K); 22 miles Mwinilunga to Kalene Hill, 27 Oct. 1932, *Duff* 3 (FHO); Kapala area,

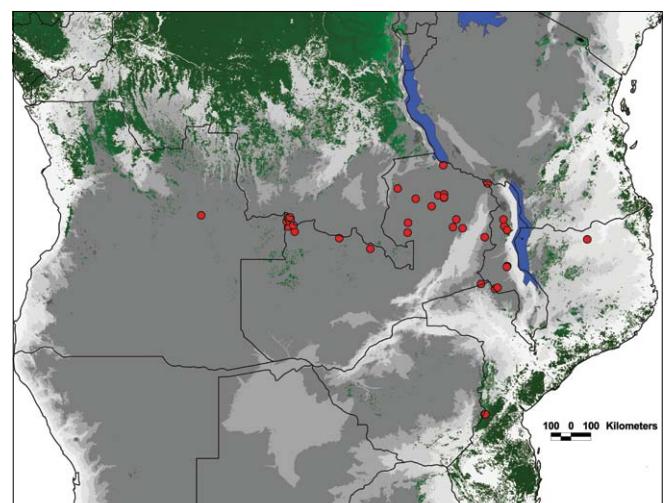


Figure 17 – Distribution of *Uapaca lissopyrena*.

Nov. 1952, *Edmonds* 46 (FHO); Lisombo R., 11 Jun. 1963, *Edwards* 733 (K); Chigola, 25 Aug. 1954, *Fanshawe* 1482 (FHO, K); Kasame, 3 Jul. 1964, *Fanshawe* 8796 (FHO, K); Shiwa Ngandu, 21 Jul. 1938, *Greenway* 5443 (FHO, K); 5 miles NNE of Solwezi, 5 Sep. 1949, *Hoyle* 1199 (FHO); Lunzua, Tiger Point, Feb. 1955, *Lawton* 159 (K); Lisombo R., 10 Jun. 1963, *Loveridge* 893 (BR, K, LISC); Luao R., 10 Feb. 1938, *Milne-Redhead* 4525 (BR, K); 16 Feb. 1938, *Milne-Redhead* 4592 (BR, K); Mwinilunga, 19 May 1969, *Mutimushi* 3388 (K); Lunzua Gorge, Tiger Point, 23 Feb. 1955, *Richards* 4629 (K); Chisimba Falls, 17 Oct. 1967, *Simon & Williamson* 1064 (K, LISC); Mwaleshi R., Muchinga escarpment, 14 Sep. 1994, *Smith* 1247 (K); 22 miles N of Mpika, 28 Nov. 1952, *White* 3762 (FHO).

Zimbabwe: Haroni Forest N.P., 9 Oct. 1994, *van Wyk* BSA 2632 (K); Haroni / Makurupini Forest, 3 Dec. 1964, *Wild et al.* 6622 (K); 4 Dec. 1964, *Wild et al.* 6636 (BR, FHO, K, LISC).

Malawi: Lilongwe District, Dzalanyama F.R., 26 Mar. 1977, *Brummitt et al.* 14965 (K); Kasakolowe, 7 Sep. 1929, *Burtt Davy* 21412 (FHO); Stevenson Road, Nov. 1894, *Carson in Scott Elliot* 8246 (K); Lilongwe District, Choulongwe Stream, 7 Feb. 1963, *Chapman* 1795 (FHO, K); Nkhata Bay District, Kanningina F.R., 2 Feb. 1986, *La Croix* 3628 (WAG); Ntchisi F.R., 18 Apr. 1991, *Radcliffe-Smith* 5995 (K); Luwazi R., *Topham* 809 (FHO); Lemba, 1940, *Townsend* 308 (FHO).

Mozambique: Chimaniman Mts, Musapa gap, 1962, *Chase* 2930 (BR); Mecula, 11 Jun. 2003, *Golding et al.* P64 (K).

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