

***Protomegabaria* Hutch. (Phyllanthaceae): some observations concerning its morphology, taxonomy and geography**

Frans J. BRETELER

Herbarium Vadense, Wageningen University
NL-6703 BL Wageningen (Pays Bas)
and Grintweg 303,
6704 AR Wageningen (Pays-Bas)
frans@breteler.xs4all.nl

Breteler F. J. 2014. — *Protomegabaria* Hutch. (Phyllanthaceae): some observations concerning its morphology, taxonomy and geography. *Adansonia*, sér. 3, 36 (1): 103-112. <http://dx.doi.org/10.5252/a2014n1a9>

ABSTRACT

As a result of the treatment of *Protomegabaria* (Phyllanthaceae) for the Flore du Gabon, some morphological features are highlighted. The two species of the original publication of the genus, *Protomegabaria stapfiana* (Beille) Hutch. and *P. macrophylla* Hutch., currently synonymised under the former name, are distinct which is illustrated and demonstrated in the key to the species. *Protomegabaria stapfiana* and *P. macrophylla* are lectotypified. Distribution maps of the species are presented and special attention is given to the disjunct area of the third species *Protomegabaria meiocarpa* J. Léonard.

KEY WORDS

Phyllanthaceae,
Protomegabaria,
Africa,
morphology,
geography.

RÉSUMÉ

Protomegabaria Hutch. (Phyllanthaceae): quelques observations sur sa morphologie, sa taxonomie et sa géographie.

La préparation taxonomique du genre *Protomegabaria* pour la Flore du Gabon a relevé quelques aspects morphologiques qui méritent un traitement plus détaillé. Les deux espèces originales, *Protomegabaria stapfiana* (Beille) Hutch. et *P. macrophylla* Hutch., mise en synonymie sous *P. stapfiana*, sont distinctes, ce qui est illustré et présenté dans une clé. Elles sont lectotypifiées. Leurs cartes de distribution sont présentées et la distribution remarquable de la troisième espèce *Protomegabaria meiocarpa* J. Léonard est discutée.

MOTS CLÉS

Phyllanthaceae,
Protomegabaria,
Africa,
morphologie,
géographie.

INTRODUCTION

During the preparation of the Phyllanthaceae (formerly Euphorbiaceae) for the Flore du Gabon (Breteler 2012), the treatment of the genus *Protomegabaria* Hutch. revealed some interesting elements concerning its morphology, taxonomy, and geography that deserve special attention. *Protomegabaria* was described by Hutchinson in 1911. Two species were assigned to it, *Protomegabaria stapfiana* (Beille) Hutch., based on *Maesobotrya stapfiana* Beille (Beille 1910) and *P. macrophylla* Hutch., based on the homonym *Baccaurea macrophylla* Pax (Pax 1899) not of Müll. Arg. (Müller Argoviensis 1866). The two species, both confined to White's subregions Upper and Lower Guinea (White 1979) have been confused (Keay 1958) and were even synonymised under *Protomegabaria stapfiana* by Keay *et al.* in 1960, while Govaerts *et al.* (2000) considered them "probably not distinct". A third species *Protomegabaria meiocarpa* J. Léonard was described by Léonard (1995) from the East of the Democratic Republic of the Congo. In the same publication the latter author produced also a detailed summary of the history of the genus *Protomegabaria*.

Due to rebuilding activities in combination with scanning operations in the Paris herbarium, only a part of its *Protomegabaria* collections has been examined.

MORPHOLOGY

The *Protomegabaria* species are small to medium-sized trees, sometimes shrub-like. The main stem may be thick (semipachycaul), buttressed and/or with some stilt roots. The branches are soon thickened and become hollow close to their apex (Fig. 1A). They are, at least in *Protomegabaria macrophylla*, often inhabited by small ants that penetrate through small holes (Fig. 1B). The stipules soon fall off, but leave distinct scars that are elongated by the increase of the branch diameter. The leaf lamina are glandular, usually with a few glands near the base on the upper side

(Fig. 1C) and beneath with sparse, small glands (Fig. 1D). The presence of these glands was not mentioned by Hutchinson (1911, 1912) or by Léonard (1995) or Radcliffe-Smith (2001). The lower leaf surface is densely, minutely brown-pustulate in *Protomegabaria meiocarpa* and mostly also in *P. macrophylla* (Fig. 1D). The leaves of *Protomegabaria stapfiana* are without brown pustules.

The inflorescences are spike-like. The flowers are unisexual, dioecious, and apetalous. The sepals are united at the base, and although usually described as imbricate (Léonard 1995; Radcliffe-Smith 2001; Hoffmann *et al.* 2006), they are valvate in bud as Aubréville (1936, 1959) described them, at least laterally; the sepal apices may be slightly imbricate. The male flowers are arranged in cymes of 3-4 flowers each subtended by a bract. The bracts subtending the two lateral flowers of the cymule are united at the base, the four bracteoles, two of each lateral flower, are free (Fig. 1E, G). The female inflorescence is a true raceme as the flowers are solitary in each bract (Fig. 1H). The glands on the basal part of the sepals inside (Fig. 1H, K), 5-6 in *Protomegabaria macrophylla*, (2-)3(-4) in *P. stapfiana* (number unknown for *P. meiocarpa*), have only been recognised as such by Pax (1899) who described them as "drüsigen Anhängseln des Kelchblätter" and by Aubréville (1959: pl. 147, 8) who depicted a female sepal with three glands. Hutchinson (1911: table 2929, 4-5; 1912) described them as sepals with an adnate disc, Léonard (1995) as lobes of the disc which are adnate to the sepals, or as a disc with oppositisepalous lobes (Radcliffe-Smith 2001) and Webster (1994: key) described the pistillate disc as dissected.

The fruits of the three *Protomegabaria* species are glabrous and subglobose in outline, those of *P. stapfiana* are smooth and often slightly 3-lobed, while *P. macrophylla* and *P. meiocarpa* have distinctly costate fruits. The seeds of *Protomegabaria macrophylla* and *P. stapfiana* are obovoid, smooth and glossy and reach at least 1 cm in length. The unknown seeds of *Protomegabaria meiocarpa* are expected to be much smaller owing to the smaller fruits.

GEOGRAPHY

Protomegabaria is confined to the Guineo-Congolian region (White 1979). The lectotype *Protomegabaria stapfiana* (designated by Webster 1994) shows the widest distribution and occurs in the subdivisions Upper and Lower Guinea. *Protomegabaria macrophylla* is confined to the subdivision Lower Guinea and occurs from Kribi in Cameroon southwards to Kouilou in the Republic of the Congo. It is most common in Gabon. Hutchinson & Dalziel (1927) reported it also from South Nigeria and Keay (1958) added Ghana and the former British Cameroons to it. Exell (1944) listed it also for Principe and Sao Tomé. All these mentions from outside its area as described above are based on incorrect identifica-

tions, the collections in question belonging, in fact, to *Protomegabaria stapfiana*.

The third species *Protomegabaria meiocarpa*, originally thought to be restricted to the subdivision Congolia (Léonard 1995), proves with the recent findings in Gabon and the Republic of the Congo to have a much wider, but very disjunct, range of distribution. This may be restricted altitudinally, as the collections from D.R. Congo originate from 930-1200 m altitude and those from Gabon and the Republic of the Congo from 450-600 m. Its presence in SW Gabon is more or less paralleled by *Stapfiella lucida* Robyns of the Turneraceae which shows also a disjunct distribution and has a similar difference in altitude: 800 m in Gabon, 1650-2400 m in Rwanda and Burundi (Leal & Sosef 2011).

KEY TO THE *PROTOMEGABARIA* HUTCH. SPECIES

1. Leaves very often with numerous, small, red-brown pustules beneath; fruits costate 2
— Leaves without red-brown pustules or with greenish pustules; fruits not costate
..... *P. stapfiana* (Beille) Hutch.
2. Female sepals 1.5-2 mm long; ovary not costate; fruits globose, *c.* 1.5 cm in diameter; branchlets pubescent *P. meiocarpa* J. Léonard
— Female sepals (2.5-)3-4 mm long; ovary costate; fruits ellipsoid, *c.* 3.5-4 cm in diameter; branchlets glabrous *P. macrophylla* Hutch.

SYSTEMATICS

1. *Protomegabaria macrophylla* Hutch. (Figs 1K, L; 2)

In Hooker W. J., *Icones Plantarum*, ser. 4, 10 (2) t. 2929 (1911).

Baccaurea macrophylla Pax non Müll. Arg., *Botanischer Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* 28: 21 (1899), nom. illeg., heterotypic homonym, see Remarks.

Megabaria obovatum Pierre, nomen, drawing by Delpy based on *Klaine 575-8/97* in herb. Pierre; Hutchinson in Hooker W. J., *Icones Plantarum* ser. 4, 10 (2) t. 2929 (1911), in synonymy of *Protomegabaria stapfiana*; Pax & Hoffmann, *Das Pflanzenreich*, IV. 147 XV: 44 (1922), in synonymy of *Protomegabaria stapfiana*; Léonard, *Bulletin du Jardin Botanique national de Belgique* 64: 57 (1995), in synonymy of *Protomegabaria stapfiana*.

TYPUS. — **Cameroon**. Batanga, 2. III. 1891, fl. ♀, fr., *Dinklage 1180* (holo-, B†; lecto-, HBG, here designated; iso-, K).

MATERIAL EXAMINED. — **Cameroon**. South Province, Elephant Mt., Mvomba Creek, 10.VI.2001, fr., *van Andel et al. 3575* (WAG).

Equatorial Guinea. Rio Muni, Mitemele R., 18.VI.1988, fl. ♂, *Dibata 460* (WAG); Kogo District, Bafilé-Néo, 7.IV.1998, fr., *Obama 787* (WAG).

Gabon. Ogooué-Maritime, Toucan, 14.VI.2001, fr., *Bourobou Bourobou et al. 742* (P, WAG); Rabi, 12.X.2002, fr., *Bourobou Bourobou et al. 1013* (WAG); Rabi, 30.III.1990, fl. ♀, fr. juv., *Breteler et al. 9652* (BR, WAG); 31.III.1990, fl. ♂, *Breteler et al. 9677* (BR, WAG); 3.IV.1990, fl. ♂, *Breteler et al. 9757* (BR, WAG); 40 km NE of Rabi, 16.V.1992, fl. ♂, *Breteler et al. 11482* (WAG); Boumi Mt., 30 km S of Ndjolé, 18.XI.1998, fr., *Breteler et al. 14675* (WAG); Moyen-Ogooué, 45 km SE of Lambaréné, 7.V.2012, ster., *Dauby et al. 2777* (WAG); Cristal Mts, 20 km NW of Assok, 27.I.1983, fl. ♀, fr., *J.J. de Wilde et al. 278* (BR, P, WAG); 30 km S of Rabi, 28.XI.1989, fr., *J.J. de Wilde et al. 9830* (WAG); Cristal Mts, 10 km S of Mela, Essia R., 2.II.1968, fr., *N. Hallé & Villiers 4859* (P); near Libreville, 27.VIII.1897,

Klaine 383 (P); VIII.1897, fl. ♂, *Klaine* 575 (BM, BR); V.1899, fl. ♀, *Klaine* 575 [sic, see under Remarks] (BM, BR); 7.VIII.1901, fl. ♀, *Klaine* 2314 (BR); Sibang near Libreville, 4.XII.1901, fl. ♂, *Klaine* 2582 (P); near Libreville, 29.I.1902, fl. ♀, *Klaine* 2654 (P); 9.IV.1902, *Klaine* 2837 (P); 13.VIII.1902, fl. ♂, *Klaine* 3017 (P); 25 km N of Libreville, 13.VII.1985, fr., *Reitsma c.s.* 1260 (WAG); Ht Ivindo, near Koumaméyong, 1899, fr., *Spire* 102 (P); Rabi, 11.IV.1994, fr., *van der Burgt* 99 (WAG); 1.5 km NE of Tchimbélé, 17.V.1990, fr., *Wieringa* 962 (WAG); Rabi Kounga, 26.V.1992, fl. ♂, *Wieringa & Nzabi* 1052 (WAG); 12 km on Moukabou-Mbigou Rd., 12.III.2013, fl. ♂, *Wieringa et al.* 7312 (WAG).
Republic of the Congo. Kouilou, II.1974, *Sita* 3659 (P).

DISTRIBUTION. — Tropical rain forest in SW Cameroon, Equatorial Guinea, Gabon, and Republic of the Congo. Alt. up to 685 m.

DESCRIPTION

Tree or shrub to 20 m tall and 20 cm in diameter. Branchlets glabrous. Stipules ± triangular, (1-)2-4 mm long, ± pubescent outside. Leaves: petiole ± terete, slightly canaliculate above, (0.5-)1-5(-15) cm long, glabrous; lamina elliptic to obovate-elliptic, 2-2.5(-3) times as long as wide, (5-)10-25(-45) × (2-)5-10(-16) cm, cuneate at base, obtuse to retuse, rarely shortly acuminate at the apex, with (4-)9-13(-16) pairs of main lateral nerves, when young with short, appressed hairs on both sides, soon glabrescent at least above; (1-)2-5 glands usually present above near base, usually sparsely glandular and ± densely brown-pustulate beneath. Inflorescence ± glabrous, the male up to 10 cm long, the female 1-4 cm long, elongated in fruit. Male flower: pedicel *c.* 1.5 mm long; sepals (4-)5, ovate-triangular, 1-1.5 mm long with ciliolate margin; stamens 1.5-2 mm long, glabrous, anthers *c.* 0.4 mm long; pistillode conical, ≤ 0.5 mm long, bilobed or not at the apex. Female flower: pedicel 2.5-5 mm long; sepals narrowly triangular to oblong, (2.5-)3-4 mm long, glabrous, with 5-6 glands at the base inside; pistil 4-6 mm long, glabrous; ovary 6-ribbed, 3-4 mm long with 3, generally bilobed and recurved, 2-2.5 mm long stigmas. Fruit ellipsoid to slightly obovoid, 3.5-4 × 2.5-3.5 cm, 6-ribbed, glabrous. Seeds obovoid, *c.* 10 × 7 mm, smooth, brown, glossy.

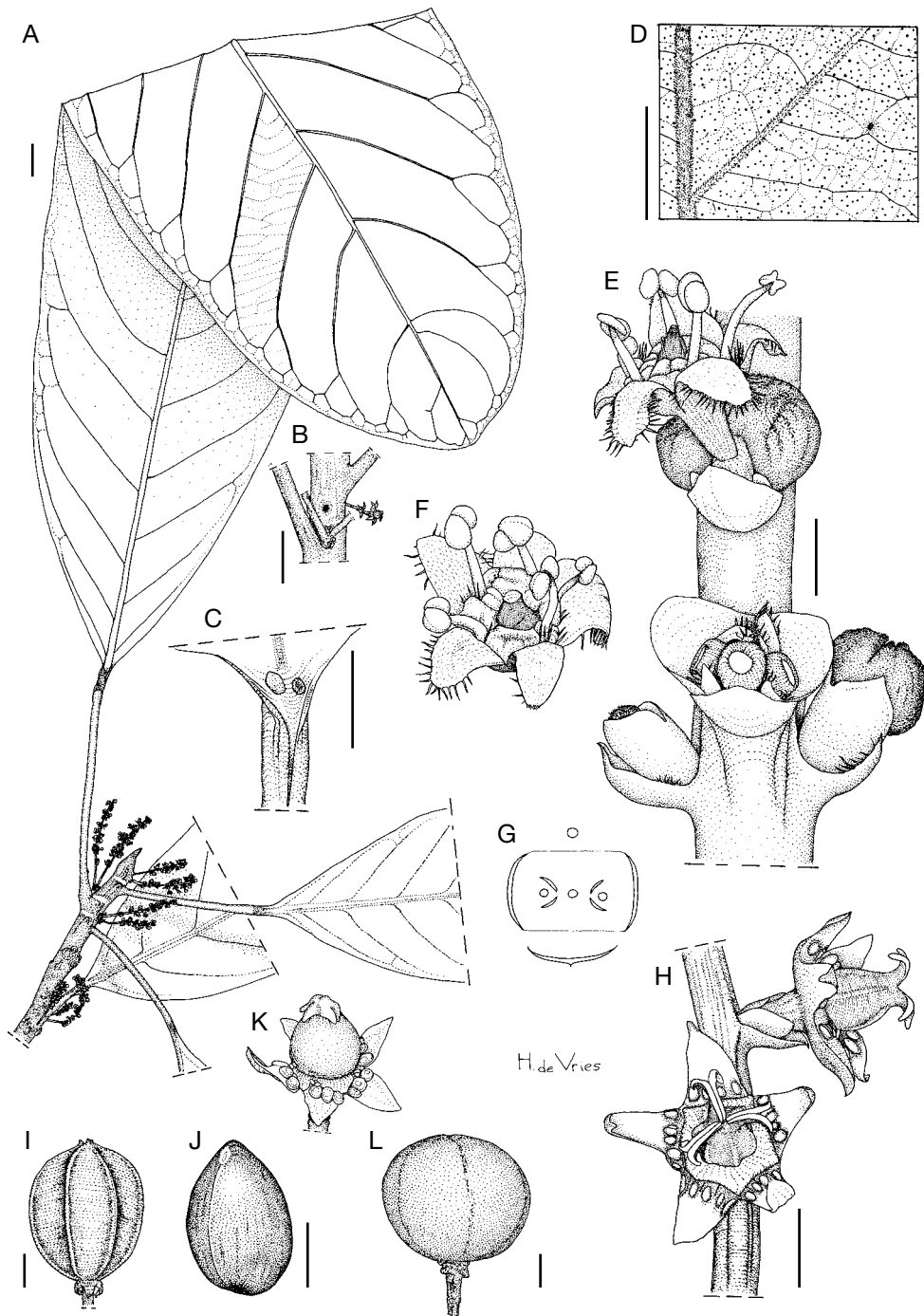
REMARKS

Hutchinson (1911) followed by Pax & Hoffmann (1922) and Léonard (1995), wrongly identified Pierre's names *Megabaria klaineana* and *M. obovatum*, as published by the distribution of Delpy's drawings in late 1900 or early 1901 (Breteler 2005). They assigned *Megabaria klaineana* to *Protomegabaria macrophylla* and *M. obovatum* to *P. stapfiana*. The drawing of *Megabaria obovatum*, present in BM, BR, and K, and reproduced in Govaerts *et al.* (2000), distinctly shows the costate fruits and the long-styled angular ovary, hence it belongs to *Protomegabaria macrophylla*. Moreover, the two *Klaine* 575 collections, one from August 1897 and the other from May 1899, that have been used for this drawing, have been examined and proved to represent *Protomegabaria macrophylla*. *Megabaria klaineana* is conspecific with *Protomegabaria stapfiana*. Delpy's drawing of this species, based on *Klaine* 575, shows the 1 mm long stigmas (2-2.5 mm in *P. macrophylla*) and the non-costate fruits.

As has been mentioned under the paragraph Geography, the distribution of *Protomegabaria macrophylla* extends, according to Hutchinson & Dalziel (1928) and Keay (1958), into the area of the Flora of West Tropical Africa, and Exell (1944) mentioned its presence in Sao Tomé and Principe. The specimens cited in the aforementioned Flora, which represent in fact *Protomegabaria stapfiana*, are separated from the other *P. stapfiana* specimens by, as may be expected, a very difficult key. As a result Keay (1958) concluded that *Protomegabaria macrophylla* might be only varietally distinct from *P. stapfiana*. Shortly thereafter (Keay *et al.* 1960) *Protomegabaria macrophylla* was reduced to a synonym of *P. stapfiana*, with the comment that it can "scarcely be distinguished in the field". This synonymy was maintained by Keay in 1989.

Protomegabaria macrophylla must, according to Art. 58 of the Vienna Code (McNeil *et al.* 2006), be treated as a nomen novum with Hutchinson as its sole author, based on the type of *Baccaurea macrophylla*.

FIG. 1. — *Protomegabaria macrophylla* Hutch.: **A**, male flowering branch; **B**, detail of branch showing ant entrance; **C**, glands at base of leaf-blade above; **D**, detail of leaf-blade beneath showing indumentum, pustules, and gland; **E**, part of male inflorescence; **F**, male



flower; **G**, diagram of male cymule; **H**, part of female inflorescence; **I**, fruit; **J**, seed. *Protomegalaria stapfiana* (Beille) Hutch.: **K**, female flower; **L**, fruit. **A**, **D**, **E**, **F**, *Breteler et al.* 9677; **B**, *J.J. de Wilde et al.* 278; **C**, **J**, *Breteler et al.* 14675; **H**, **I**, *Breteler et al.* 9652; **K**, *Leeuwenberg 3721*; **L**, *Breteler et al.* 11518. Scale bars: **A**, **B**, **D**, **I**, **L**, 1 cm; **C**, **J**, 5 mm; **E**, **F**, 1 mm; **H**, **K**, 3 mm. Drawing by H. de Vries.

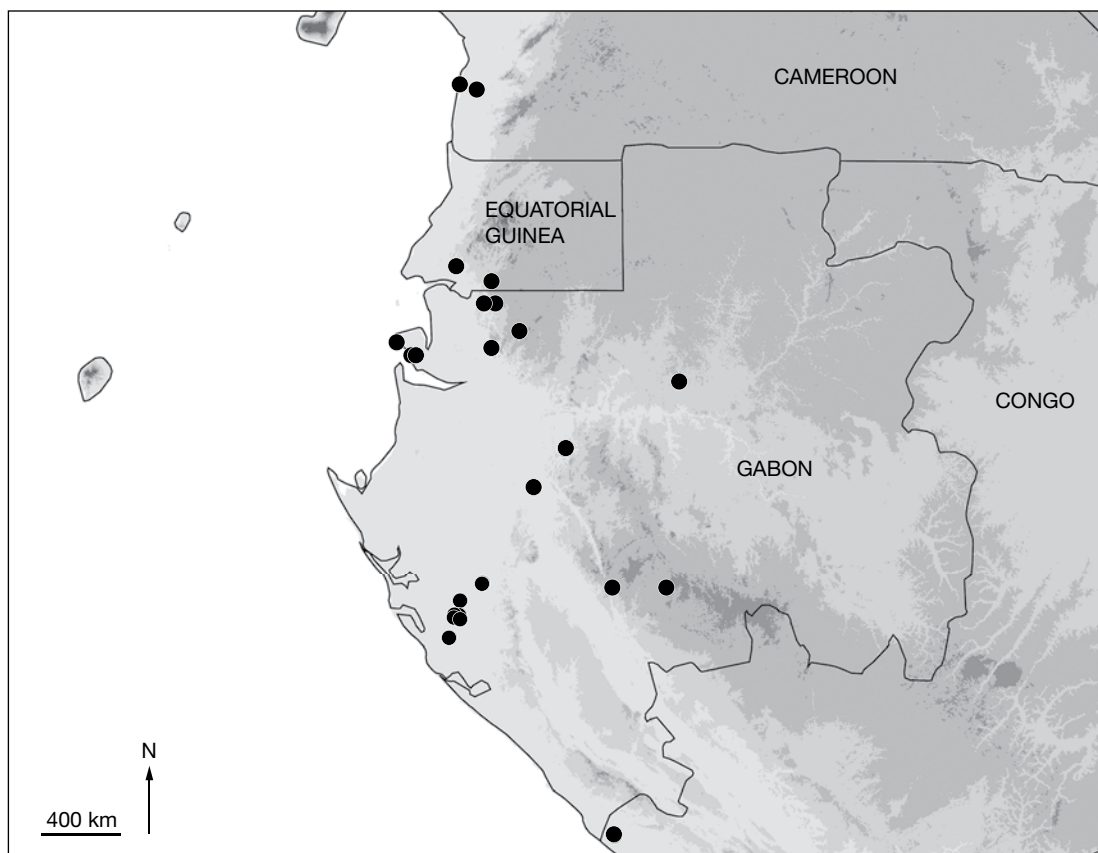


FIG. 2. — Distribution of *Protomegalaria macrophylla* Hutch.

2. *Protomegalaria meiocarpa* J. Léonard
(Fig. 3)

Bulletin du Jardin botanique national de Belgique, 64: 60 (1995).

TYPUS. — **D. R. Congo.** Forestier Central, Topetope, 30.VII.1959, fr., *A. Léonard* 5153 (holo-, BR; iso-, K, WAG).

MATERIAL EXAMINED. — **Gabon.** Nyanga, SW of Pélé Mt., 7.XI.2002, fr., *Doucet et al.* 26 (BR), *Doucet et al. J.F.G.* 49 (BR); Estuaire, Cristal Mts, Mbe Nat. Park, Mbilan Mt., 10.IV.2005, fl. ♂, *Leal et al.* 544 (WAG). **Republic of the Congo.** Lékoumou, 24.V.2010, fr., *Nkouka Saminou et al.* 1311 (WAG).

D. R. Congo. Kigulube, Shabunda Territory, 2.IX.1959, fl. ♀, *A. Léonard* 3824 (BR, K, WAG); fl. ♂, *A. Léonard* 3829 (BR, K); Nyabongo, Mvenga Territory, 10.VII.1959, fr. juv., *A. Léonard* 4918 (BR).

DISTRIBUTION. — East D.R. Congo, Republic of the Congo, and Gabon. Alt. 450-1200 m. See also under Geography.

DESCRIPTION

Tree up to 15 m tall. Branchlets pubescent, soon glabrescent. Stipules ovate, 3-4 mm long, pubescent outside. Leaves: petiole (1.5-)2-7(-10) cm long, pubescent, glabrescent; lamina oblong-elliptic, sometimes obovate, (9-)11-28 × 5-10.5 cm, obtuse to acute at the base and usually with *c.* 2 glands above, acute to obtuse at the apex, with (10-)12-16 pairs of main lateral nerves, glabrous both sides, often pubescent along the midrib and with numerous reddish pustules and some glands beneath. Inflorescence single or 2-3 together, ± glabrous, the male 9-12 cm long,

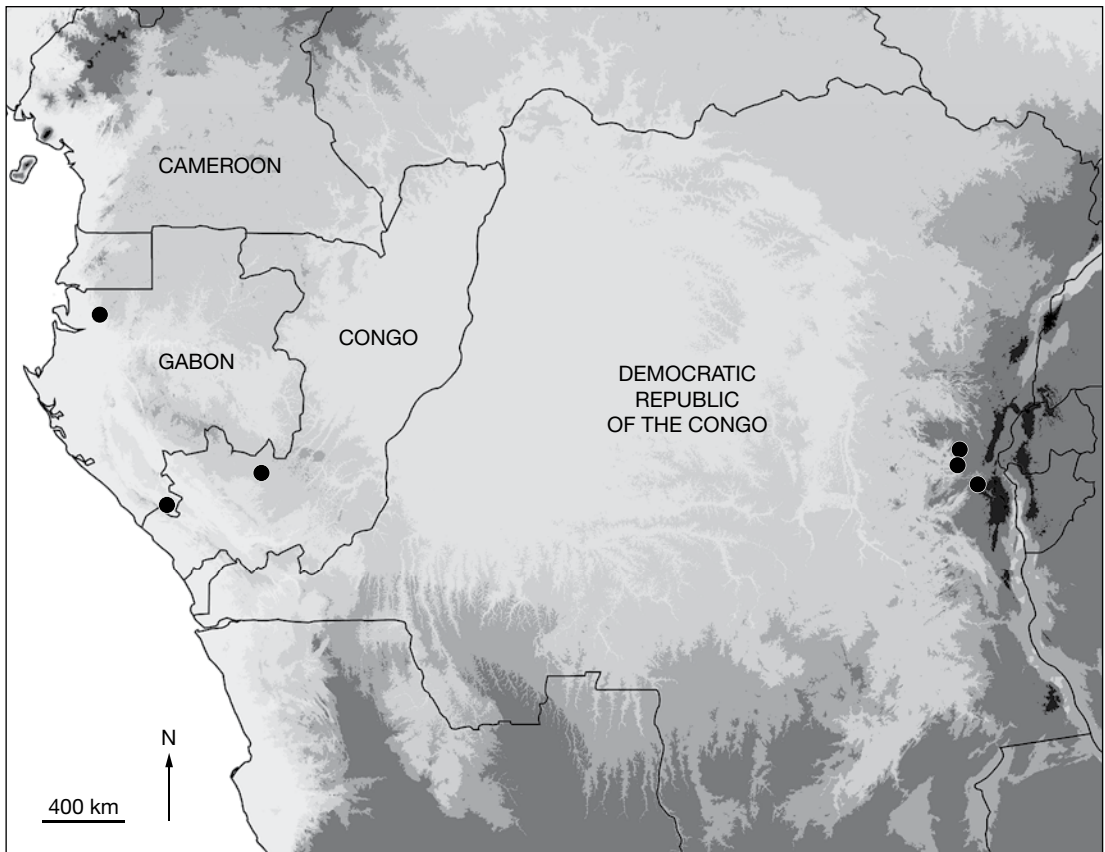


FIG. 3. — Distribution of *Protomegalaria meiocarpa* J. Léonard.

the female 4-6 cm long and up to 17 cm long in fruit. Male flower: pedicel 1.5-2.5 cm long; sepals oblong, 1.5 mm long, ciliate at apex; stamens 0.5-2 mm long; pistillode entire, 0.5 mm long, glabrous. Female flower: pedicel 2-3 mm long, 7-10 mm long in fruit; sepals ovate, 1.5-2 mm long, glands not seen; ovary subglobose, 1.5-2 mm in diameter, glabrous, with stigmas 1 mm long. Fruit subglobose, 14-17 × 12-14 mm, 6-ribbed, glabrous. Seeds not seen.

3. *Protomegalaria stapfiana* (Beille) Hutch.
(Figs 1K-L; 4)

In Hooker W. J., *Icones Plantarum*, ser. 4, 10 (2) t. 2929 (1911).

Maesobotrya stapfiana Beille, *Bulletin de la Société botanique de France* 57, mémoire 8 c: 121 (1910).

Megalaria klaineana Pierre, nomen, drawing by Delpy based on *Klaine* 575 from August 1898 in herb. Pierre; Hutchinson *in* Hooker W. J., *Icones Plantarum* ser. 4, 10 (2) t. 2929 (1911), in synonymy of *Protomegalaria macrophylla*; Pax & Hoffmann, *Das Pflanzenreich*, IV.147.XV: 44 (1922), in synonymy of *Protomegalaria macrophylla*; Léonard, *Bulletin du Jardin botanique national de Belgique* 64: 57 (1995), in synonymy of *Protomegalaria macrophylla*.

TYPUS. — Côte d'Ivoire. Malamalasso on the lower Comoe R., 8-9.III.1907, fl. ♂, *Chevalier* 16249 (lecto-, P, here designated; isolecto-, K, WAG).

SELECTION OF MATERIAL EXAMINED. — **Sierra Leone.** Falaba-Pujehun, 20.IV.1939, fl. ♂, *Aylmer 18* (K); Gorahun, 1.III.1945, fl. ♀ *Deighton 4106* (BR, K).

Liberia. Nyaake, 23.IV.1947, fl. ♂ *Baldwin jr. 6193* (K); Kitoma, 28.I.1950, fr., *Baldwin jr. 14066* (K); Gola Nat. Forest, NE of Bomi Hills, 28.IV.1966, fl. ♂, *Bos 1916* (BR, K, WAG); Dukwai R. near Monrovia, 12.III.1929, fr., *Cooper 294* (BM); Montserrado, 4.III.1967, fl. ♂, *Goll 24* (WAG); Lofa, SW of Ziggida, 15.II.2010, fr., *Jongkind et al. 9528* (WAG); Bomi Hills, 6.II.1966, *van Meer 395* (WAG); Nimba Mts., 10.IV.1962, fl. ♂, *Voorhoeve 1074* (BR, WAG).

Côte d'Ivoire. Forêt de Gnau, 28.IV.1981, fr. juv., *Aké Assi 15888* (BR); Tai Nat. Park, 23.I.1990, *Albers 39* (WAG); Soubiré à Yaon, 28.III.1907, fl. ♂, *Chevalier 17782 bis* (P); Teké Forest, 28.I.1970, fr., *de Koning 150* (WAG); along Agéby R., 30 km on new road Abidjan-Ndouci, 28.V.1979, fr., *de Kruif 70* (WAG); Tai-Tabou Rd., 4 km N of crossing with Hana R., 7.III.1962, fl. ♂, *J.J. de Wilde & Leeuwenberg 3534* (BR, K, WAG); 25 km S of Guéyo, 24.III.1962, fl. ♂, *Leeuwenberg 3718* (K, WAG); near Yapo, 26.VI.1969, fr., *Versteegh & den Outer 386* (WAG).

Ghana. Tarkwa, IV.1951, fl. ♂, *Andoh 5474* (BR, K); Bronikromi, 25.V.1977, fl. ♂, *Hall & Nabooh GC 46638* (K); Axim, II.1934, fr., *Irvine 2223* (K); Atewa Range, 2.VII.1994, fl. ♂, *Jongkind & Abbiw 1657* (K, WAG), fr., *1657a* (WAG); Bawdia W.P., IV.1926, fl. ♂, *Vigne 954* (K).

Nigeria. Calabar, 30.IV.1952, fl. ♂, *Ejiofor FHI 21889* (K); Cross R., near Oban, 21.VI.1981, fr., *Gentry & Pilz 32949* (K, WAG); Calabar District, Dukwe Division, 10.III.1959, fl. ♂, *Latilo FHI 41308* (BR, K); 57 miles Calabar-Mamfe, 21.VIII.1964, fr., *Latilo & Oneye-achusim FHI 53984* (K); near Ndebiji on Calabar-Mamfe Rd., 9.III.1973, fr., *Latilo & Oguntayo FHI 70552* (K, WAG); Awi Forest, Akamkpa District, 9.IV.1975, fr., *Olorunfemi et al. FHI 76198* (K); Oban, 1912, fl. ♂, *Talbot 2325* (BM, K, Z).

Cameroon. Bomana, 10.X.1993, fr., *Akogo 144* (K, WAG); E of Kribi, 12.V.1969, fr., *Bos 4494* (BR, K, WAG); 16.IV.1970, fl. ♂, *Bos 6817* (HBG, K, WAG); 34 km N of Kribi, 23.IV.1970, fl. ♂, *Bos 6826* (BR, K, WAG); Onge R., 27.X.1993, fr., *Cheek et al. 5146* (K, WAG); Mundemba, Ndiang Division, 8.IV.1994, fl. ♂, *Gereau & Namata 5510* (WAG); 40 km N of Kumba, 21.VIII.1975, fr., *Letouzey 14362* (BR); near Konye, 25.III.1986, fl. ♂, *Nemba & Thomas 57* (WAG); SW Province, Korup N.P., 26.VI.1951, fr., *Olorunfemi FHI 36654* (K); 10.VI.1988, fr., *Thomas 8092* (BR, K, WAG); Onge R., 31.X.1993, fr., *Watts 875* (K, WAG); near Nkoelon in Campo Reserve, 19.V.1977, fr., *Webb & Bullock 618* (K).

Equatorial Guinea. Bioco, 1986-1989, fl. ♂, *Carvalho & Fernandez Casas 4255-1* (K).

Gabon. Waka, 21.XI.1984, fr., *Arends et al. 351* (WAG); Nyanga, 53 km Tchibanga-Ndende, 24.X.2009, ster.,

Bissiengou et al. 485 (WAG); between Rabi-Kounga and Yéno, 18.V.1992, fr., *Breteler et al. 11518* (WAG); Nyanga, 20 km NE of Ndidi, 30.III.2012, ster., *Dauby et al. 2632* (WAG); near Makande, 6.XII.1995, fr., *Doucet 265* (BR, WAG); Libreville, fl. ♀, *Klaine 2314* (K); Mougouma, 9.VI.1926, fl. ♂, *Le Testu 5946* (BM); Ngounie, Boutapolo, 18.VI.1926, fl. ♂, *Le Testu 5960* (BM, BR, K, P); NE of Mouila, 23.IV.1989, fr., *Mc Pherson 13901* (K, P, WAG); Cristal Mts., 17.XI.2000, ster., *Nguema Miyono 1372* (WAG).

Sao Tomé and Príncipe. Sao Tomé, SW Region, 1905, ster., *Chevalier 14485* (BM); VIII-IX.1905, fr., *Chevalier 14620* (BM); Príncipe, SW of Esperança, 26.XII.1932, ster., *Exell 667* (BM); Sao Tomé, Clothilde, 13.IX.1978, *Groenendijk 33* (WAG); Sao Tomé, San Shelma, 13.X.1912, ster., *Watt 7126* (BM).

Angola. Maiombe, N'Zango R., M'Bulu Hills, 29.I.1919, fr., *Gossweiler 7758* (BM, K).

DISTRIBUTION. — From Sierra Leone to Gabon and Angola (Cabinda), also on Sao Tomé and Príncipe. Alt. up to 500 m.

DESCRIPTION

Medium sized tree up to 15 m tall and 22 cm in diameter, or shrub. Branches glabrous. Branchlets usually puberulous, very soon glabrescent. Stipules ± triangular, (1-)2-4(-6) mm long, puberulous outside. Leaves: petiole ± terete, slightly canaliculate above, sparsely puberulous, glabrescent; lamina narrowly oblong-elliptic, (2-)2.5-3(-4.5) times as long as wide, (13-)16-28(-43) × 5-10(-13) cm, rounded to shortly cuneate at base, rounded to shortly (0.5-1.5 cm) acuminate at the apex, with (9-)11-15(-17) pairs of main lateral nerves, glabrous above, puberulous beneath when young, glabrous when older or puberulous on the midrib and/or main laterals; 1-2(-5) glands usually present at the base above, sparsely glandular beneath. Inflorescence ± glabrous, the male up to 20 cm long, the female *c.* 4 cm long and up to 15 cm long in fruit. Male flowers: pedicel 1-2.5 mm long; sepals ovate-triangular, 1-2 mm long, with ciliolate margin; stamens 1.5-2.5 mm long with 0.5 mm long anthers; pistillode conical, ≤ 1 mm long. Female flowers: pedicel 1-3 mm long; sepals ovate-triangular, 1.5-2 mm long, with (2-)3(-4) glands on the base inside; ovary (2-)3(-4)-locular, subglobose to ovoid, 2-3 mm long; stigmas (2-)3, ≤ 0.5 mm long, bilobed at apex. Fruit subglobose, often slightly 3-lobed, 3-4 × 3.5-4.5 cm, glabrous. Seeds obovoid, *c.* 12 × 7 mm, smooth, glossy.

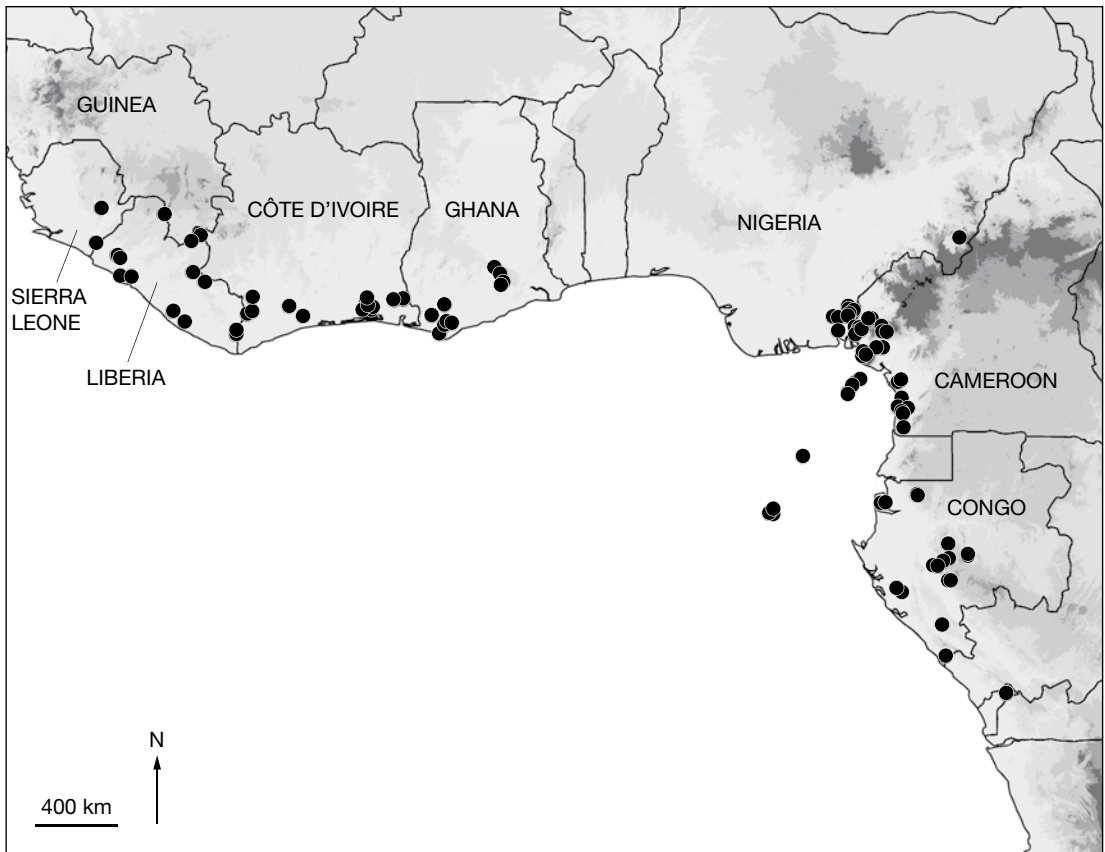


FIG. 4. — Distribution of *Protomegabaria stapfiana* (Beille) Hutch.

REMARKS

For the synonymy of the two names in *Megabaria* see under *Protomegabaria macrophylla*.

The basionym *Maesobotrya stapfiana* is based on two collections *Chevalier 16249* and *17782 bis* from Côte d'Ivoire, of which the first has been designated as the lectotype.

Acknowledgements

I am very grateful to H. de Vries for the nice drawing and to my wife B. J. M. Breteker-Klein for preparing the electronic version of the manuscript. J. J. Wieringa is kindly acknowledged for the production of the distribution maps. At last, G. McPherson and H.-J. Esser are acknowledged for their remarks on a previous version of the manuscript.

REFERENCES

- AUBRÉVILLE A. 1936. — *La Flore forestière de la Côte d'Ivoire*. Vol. 2. Larose, Paris: 58.
- AUBRÉVILLE A. 1959. — *la Flore forestière de la Côte d'Ivoire*. Ed. 2. Centre Technique Forestier Tropical, Nogent-sur Marne: 68, pl. 147.
- BEILLE L. 1910. — Euphorbiaceae, in CHEVALIER A. (ed.), *Novitates Florae Africanae. Bulletin de la Société botanique de France* 57, mémoire 8 C: 119-130.
- BRETEKER F. J. 2005. — *Novitates Gabonenses* 55. Manuscript names and drawings of the French botanist Louis Pierre (1833-1905): a discussion about their validity with some examples of nomenclatural consequences for the Gabonese flora in particular. *Adansonia*, sér. 3, 27 (2): 325-335.
- BRETEKER F. J. 2012. — Phyllanthaceae, in *Flore du Gabon* 43. NCB-Naturalis, NHN, Leiden, 107 p.
- EXELL A. W. 1944. — *Catalogue of the Vascular Plants of S. Tomé (with Principe and Annobon)*. Trustees of the British Museum, London, 428 p.

- GOVAERTS R., FRODIN D. G. & RADCLIFFE-SMITH A. 2000. — *World Checklist and Bibliography of Euphorbiaceae (and Pandaceae)*. 4. Royal Botanic Gardens, Kew: 1370, 1371.
- HOFFMANN P., KATHRIARACHI H. & WURDACK K. J. 2006. — A phylogenetic classification of Phyllanthaceae (Malpighiales; Euphorbiaceae *sensu lato*). *Key Bulletin* 61: 37-53.
- HUTCHINSON J. 1911. — *Protomegabaria*, in HOOKER W. J. (ed.), *Icones Plantarum*, ser. 4, 10 (2) t. 2929.
- HUTCHINSON J. 1912. — *Protomegabaria*, in THISELTON-DYER W. T. (ed.), *Flora of Tropical Africa* VI, 1. Lovell Reeve & Co, London: 656-658.
- HUTCHINSON J. & DALZIEL J. M. 1928. — *Flora of West Tropical Africa* 1 (2). Crown Agents for the Colonies, London: 282.
- KEAY R.W.J. 1958. — Euphorbiaceae, in HUTCHINSON J. & DALZIEL J. M. (eds), *Flora of West Tropical Africa*, ed. 2. Crown Agents for Oversea Governments and Administrations, London: 373.
- KEAY R. W. J., ONOCHIE C. F. A. & STANFIELD D. P. 1960. — *Nigerian Trees*. Federal Department of Forest Research, Ibadan, 329 p.
- KEAY R. W. J. 1989. — *Trees of Nigeria*. Clarendon Press, Oxford, 476 p.
- LEAL M. E. & SOSEF M. S. M. 2011. — Turneraceae, in *Flore du Gabon* 42. N.C.B Naturalis, NHN, Leiden: 87-90.
- LÉONARD J. 1995. — *Protomegabaria meiocarpa* J. Léonard espèce nouvelle d'un genre nouveau pour le Zaïre (Euphorbiaceae). *Bulletin du Jardin botanique national de Belgique* 64: 53-63.
- MCNEILL J., BARRIE F. R., BURDET H. M., DE MOULIN V., HAWKSWORTH D. L., MARTHOLD K., NICHOLSON D. H., PRADO J., SILVA P. C., SKOG J. E., TURLAND N. J. & WIERSEMA J. H. 2006. — *International Code of Botanical Nomenclature (Vienna Code)*. A.R.G. Gantner Verlag, Ruggell, Liechtenstein.
- MÜLLER ARGOVIENSIS J. 1866. — Euphorbiaceae, in DE CANDOLLE A. (ed.), *Prodromus Systematis Naturalis, Regni Vegetabilis*. Vol. 15 (2). V. Masson & Sons, Paris: 459.
- PAX F. 1899. — Euphorbiaceae Africanae 5, in ENGLER A. (ed.), *Beiträge zur Flora von Afrika*. XIX. *Botanischer Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* 28: 18-27.
- PAX F. & HOFFMANN K. 1922. — *Protomegabaria*, in ENGLER A. (ed.), *Das Pflanzenreich*, IV. 147. XV. Wilhelm Engelmann, Leipzig: 43-44.
- RADCLIFFE-SMITH A. 2001. — *Genera Euphorbiacearum*. Royal Botanic Gardens, Kew, 455 p.
- WEBSTER G.L. 1994. — Classification of Euphorbiaceae. *Annals of the Missouri Botanical Garden* 81 (1): 1-444.
- WHITE F. 1979. — The Guineo-Congolian Region and its relationship to other phytochoria. *Bulletin du Jardin botanique national de Belgique* 49: 11-55.

Submitted on 19 August 2012;
accepted on 16 April 2013;
published on 27 June 2014.