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REGULAR PAPER

A synopsis of *Soyauxia* (Peridiscaceae, formerly Medusandraceae) with a new species from Liberia

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Background – Botanical exploration of the Sapo National Park in Liberia resulted in the discovery of a new species, which, after DNA investigation, was identified as belonging to *Soyauxia* of the small family Peridiscaceae.
Methods – Normal practices of herbarium taxonomy and DNA sequence analysis have been applied. All the relevant herbarium material has been studied, mainly at BR, K, P, and WAG. The presented phylogenetic relationships of the new *Soyauxia* species is based on rbcL gene sequence comparison, inferred by a RAxML analysis including 100 replicates fast bootstrapping. The distribution maps have been produced using Map Maker Pro. Relevant collection data are stored in the NHN (Nationaal Herbarium Nederland) database.
Key results − The new species *Soyauxia kwewonii* and an imperfectly known species are treated in the framework of a synopsis with the six other species of the genus. rbcL sequence comparison followed by RAxML analyses yielded a well-supported match of *S. kwewonii* with the *Soyauxia* clade. Its conservation status according to the IUCN red list criteria is assessed as Endangered. Its distribution as well as the distribution areas of the genus and of the remaining species are mapped. *Soyauxia ledermannii* is neotypified and the most common species in Gabon, *S. glabrescens*, is also illustrated.

Key words – Peridiscaceae, Medusandraceae, *Soyauxia*, taxonomic synopsis, new species, tropical Africa, Liberia.

INTRODUCTION

The genus *Soyauxia* was described by Oliver in 1882, based on *S. gabonensis* Oliv. He classified it in the Passifloraceae. Later on Gilg (1925) placed it in the Flacourtiaceae. Hutchinson & Dalziel (1927) treated it as a member of, again, the Passifloraceae. It remained there till Brenan (1954) recognised it as a member of his then recently described family Medusandraceae, based on *Medusandra* Brenan (Brenan 1952). Hutchinson (1959) still kept *Soyauxia* in the Passifloraceae and opposed Brenan's view that it belonged to Medusandraceae. Metcalfe (1962), when commenting upon the anatomical features of the new genus *Whittonia* (Sandwith 1962), took also *Soyauxia* into account and, despite some distinct elements pointing to Peridiscaceae, suggested that it was best placed in Flacourtiaceae rather than in Passifloraceae. He also considered *Medusandra* not to be closely allied to *Soyauxia.* Cronquist (1981) followed Metcalfe (1962) in placing *Soyauxia* in the Flacourtiaceae and Takhtajan (1997) placed it in the Passifloraceae. Soltis et al. (2007) placed *Soyauxia* in the Peridiscaceae. However, in their DNA-based research on relationships of Peridiscaceae, *Medusandra* was not sampled, nor even mentioned. On the other hand, *Whittonia* was mentioned but not included in their analysis.

Soyauxia shows some distinct morphological features in which it differs from *Peridiscus*, such as the pinnate (also in *Whittonia*) instead of palmate leaf venation, the presence of petals, the quadrilocular anthers, the superior ovary, and the long styles. These elements are not mentioned in table 1 of Soltis et al. (2007), which was based on characters of *Peridiscus* only. A recent DNA-based analysis (Wurdack & Davis 2009) placed also *Medusandra* in Peridiscaceae, which now comprises four genera. Two of these, *Peridiscus* and *Whittonia*, are both monotypic, and natives of tropical South America, whereas *Medusandra* with two species and *Soyauxia* with seven or eight species, occur in tropical Africa.

Recent botanical exploration of the Sapo National Park in Liberia resulted in the discovery of a new species of *Soyauxia*. Based on fruiting material, it was at first classified as a new species of, possibly, *Apodiscus* (Phyllanthaceae). Its

sterile and fruiting material is indeed very difficult to distinguish from this genus and, to a lesser extent, from *Amanoa*, also of Phyllanthaceae. DNA investigation by the second author, however, revealed that it belongs in the Peridiscaceae. Its formal description has been included in the synopsis of all *Soyauxia* species presented below.

Sapo National Park, where the only fertile tree of the new species was found, is an area of c. 1800 km^2 of protected rain forest in the south-east of Liberia. The flora of this national park was practically unknown until the start of this century and is still underexplored. Since 2002 botanical expeditions have discovered several new species in and around the park, most of them endemic to the south-east of Liberia. Example of these endemics are *Eugenia sapoensis* Jongkind (Jongkind 2015: 3), *Heckeldora jongkindii* J.J.de Wilde (De Wilde 2007: 182), *Napoleonaea sapoensis* Jongkind (Prance & Jongkind 2015: 31), *Pavetta sapoensis* W.D.Hawth. (Hawthorne 2013: 573) and *Psychotria tetragonopus* O.Lachenaud & Jongkind (Lachenaud & Jongkind 2013: 228). Several other new species still have to be published. At the moment Sapo National Park is more and more becoming an island

Figure 1 – Phylogenetic relationships of *Soyauxia kwewonii* based on rbcL gene sequence comparison, inferred by RAxML analysis including 100 replicates fast bootstrapping. Numbers at nodes indicate bootstrap values and branch widths are drawn proportional to support; scale bar indicates number of substitutions per site.

of protected forest surrounded by new mining activities, oil palm plantations, roads and railways planned or in progress.

METHODS

Normal practices of herbarium taxonomy have been applied. All relevant herbarium material of the genus *Soyauxia* has been studied, mainly at BR, K, P, and WAG. The distribution maps have been produced using Map Maker Pro. Its collecting data are stored in the NHN (Nationaal Herbarium Nederland) database accessible at http://vstbol.leidenuniv.nl/nhn/Explore.

DNA extraction was performed using standard CTAB-based protocols (see Bakker et al. 1998) and included organic extractions with CH_3Cl. PCR amplification of rbcL followed Wurdack & Davis (2009), using primers 713f and 1460r. Resulting fragments were Sanger sequenced, deposited in GenBank under accession number KR080511, and used as query in BLASTn searches in GenBank. The 100 most similar sequences were then combined in an alignment containing mostly Saxifragales affinity sequences, and using *Ranunculus* as outgroup.

The rbcL sequence alignment, containing 46 sequences, was then subjected to phylogenetic analysis using RAxML (Stamatakis 2014) through the Science Gateway (San Diego; Miller et al. 2010) at www.phylo.org, using default settings. The 'bipartitions.result' tree, containing the best ML tree plus bootstrap values were then visualised in FigTree (Drummond et al. 2012). The data from the two earlier sampled *Soyauxia* species used in the tree are based on *Kpadeyeah* 20 (WAG) from Liberia for *S. floribunda* and *Cheek* 10617 (K) from Cameroon for *S. talbotii*. Both voucher specimens have been seen for this publication.

DISCUSSION

Molecular phylogenetic analysis

The phylogenetic analysis of the rbcL alignment yielded the tree depicted in fig. 1, in which the Liberian specimen is firmly positioned in a trichotomy with the two *Soyauxia* sequences, showing comparable branch lengths. We therefore conclude that it is phylogenetically very close to the two earlier sampled *Soyauxia* species.

Chorology

The genus *Soyauxia* is confined to the subdivisions Upper and Lower Guinea of the Guineo-Congolian Region (White 1979). Its southeastern limit is situated in the coastal Loango National Park in Gabon, from where an unidentified specimen (number 8 in the synopsis below) has been collected. Both subdivisions contain three endemic species, *Soyauxia floribunda*, *S. grandifolia* and *S. kwewonii* in Upper Guinea, and *S. gabonensis*, *S. glabrescens* and *S. ledermannii* in Lower Guinea. *Soyauxia talbotii* occurs in both subdivisions (fig. 2).

Morphology

The distinct, circular flower disc in *Peridiscus*, from where the Peridiscaceae derived their name, is dehiscent in *Soyaux-*

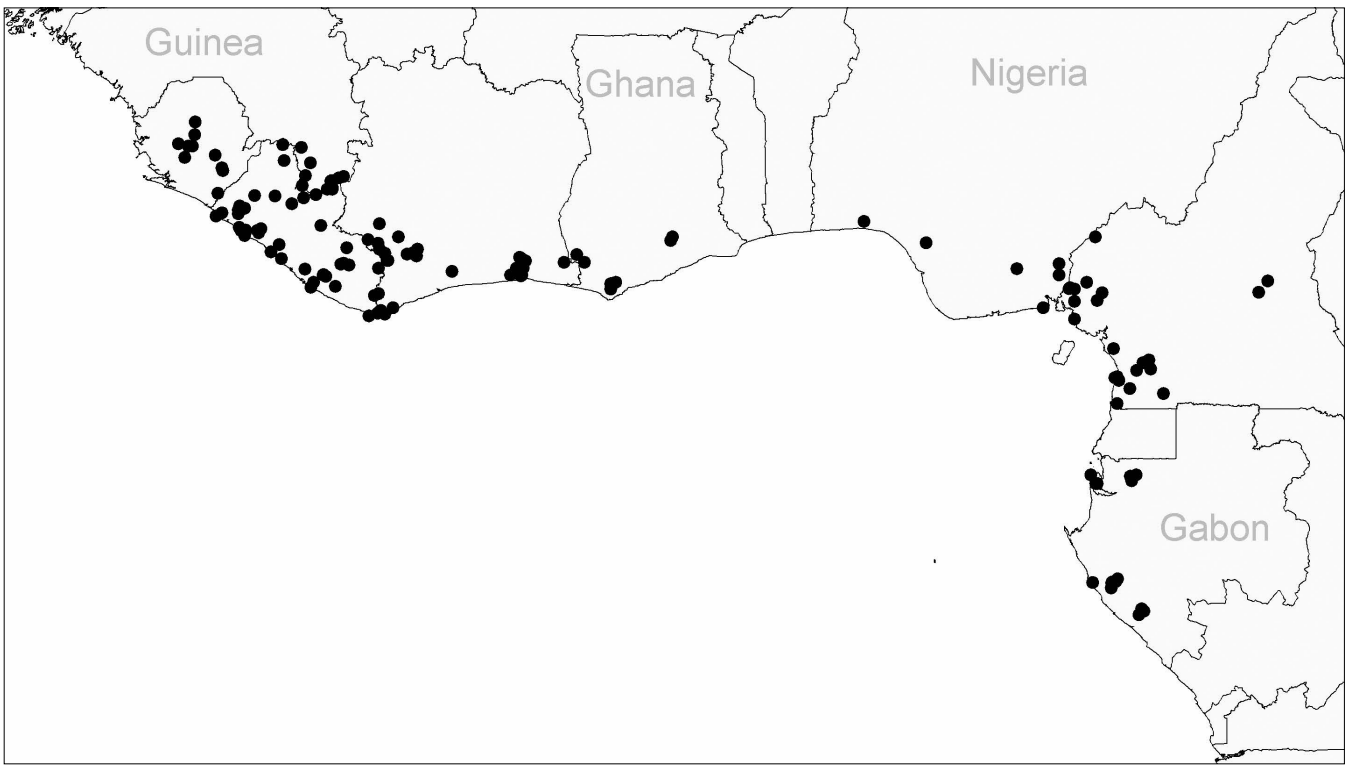

Figure 2 – Distribution of the genus *Soyauxia*.

ia, where it falls off with the stamens or somewhat later. Its appearance and position looks very much like an inner, staminodial row of stamens and may better be conceived as such. From this point of view, and looking at Keay's key to the genera of Medusandraceae (Keay 1958), the two genera become morphologically more similar: *Soyauxia* has now staminodes and no disc just like in *Medusandra*. The fertile stamens of e.g. *Soyauxia glabrescens* (fig. 5E & H) are also more or less united into rows at the base. A true intrastaminal disc however is absent. For *Whittonia*, Sandwith (1962) described and depicted the stamens as "in disco inserta numerosissima", but an intrastaminal disc is not mentioned and also not depicted. The fruit shape of the *Soyauxia* species ranges from depressed-globose, in *S. kwewonii*, to narrowly ovoid to oblongoid, in *S. floribunda*, *S. glabrescens*, and *S. talbotii*. The fruits of *S. ledermannii* are still unknown. *Soyauxia grandifolia* (fig. 7A) has the longest fruits which are distinctly 3-angled and more or less inflated.

TAXONOMIC TREATMENT

Soyauxia Oliv. (Oliver 1882: t. 1393); Gilg (1925: 457); Brenan (1954: 511); Hutchinson (1959: 335); Sandwith (1962: 470); Cronquist (1981: 680); Takhtajan (1997: 207).

Trees or shrubs. Leaves simple, alternate, entire. Stipules present, caducous. Flowers in racemes sometimes in spikes, bisexual. Bracts and bracteoles early caducous. Sepals 5(–6), free, imbricate, persistent in fruit. Petals 5(–6), free, imbricate, shortly clawed at base. Stamens numerous, ± free; anthers 4-locular. Disk annular, see also under Morphology, surrounding the ovary, caducous. Ovary superior, 1-locular, with central column and 6–8 pendulous ovules. Fruit capsular, dehiscent into 3–4 valves. Seed one with copious bony endosperm. Embryo small.

An African genus of seven to eight species confined to forests in Upper and Lower Guinea of the Guineo-Congolian Region.

SYNOPSIS OF THE SPECIES OF *SOYAUXIA*

1. *Soyauxia floribunda* Hutch. (Hutchinson 1915: 44); Keay (1958: 653); Hawthorne & Jongkind (2006: 144); Lisowski (2009: 238). − Type: Sierra Leone, Bunjema, s.d., *Aylmer* 86 (lecto-: K, **designated here**).

Distribution – Guinea, Sierra Leone, Liberia, Côte d'Ivoire (fig. 3).

2. *Soyauxia gabonensis* Oliv. (Oliver 1882: pl. 1393); Keay (1958: 653). − Type: Gabon, Munda, Sibange Farm, s.d., *Soyaux* 48 (holo-: K; iso-: BR, L).

Soyauxia bipindensis Gilg. ex Baker f. (Baker 1914: 4); Keay (1958: 653) as Gilg ex Hutch. & Dalz. – Type: Cameroon, Bipindi, s.d., *Zenker* 2390 (holo-: BM; iso-: BR, K, P, WAG).

Soyauxia laxiflora Gilg ex Hutch. (Hutchinson 1915: 44). – Type: Cameroon, Bipindi, s.d., *Zenker* 1793 (lecto-: K, **designated here**; iso-: BM, P, WAG).

Distribution – Nigeria, Cameroon, Gabon (fig. 4).

Note – Contrary to Hutchinson & Dalziel (1927) and Keay (1958), the names *Soyauxia bipindensis* Gilg ex Baker f.

Key to the species of *Sauyoxia*

1. Fruit depressed-globose to thickly lenticular, 2–2.5 cm in diameter, c. 10 mm thick; seed ± discoid-lenticular, c. 20 × 8–10 mm; sepals glabrous, c. 2 mm long; leaves of mature tree with faint lateral nerves (fig. 9G–I); Upper Guinea (Liberia).....**5. *S. kwewonii***
1. Fruit ovoid to cylindrical in outline, up to 3.5 cm long with trigonous seeds; sepals glabrous or hairy, 2–4 mm long; leaf with distinct lateral nerves (fig. 7B).....2
2. Outer sepals completely hairy outside.....3
2. Sepals glabrous outside or only partly hairy, i.e. at least with glabrous margins (the edges may be ciliate).....6
3. Sepals 2–3 × 1–2.5 mm; petals 3–3.5 × 1.5–2 mm.....4
3. Sepals 3.5–4 × 3–4 mm; petals 4–4.5 × 2–3.5 mm (petals unknown for *Soyauxia* sp. 8).....5
4. Inflorescence very densely flowered, continuous; Upper Guinea (Liberia, Côte d'Ivoire, Ghana).....**4. *S. grandifolia***
4. Inflorescence with scattered flowers, not continuous; Lower Guinea (Cameroon).....**6. *S. ledermannii***
5. Stipules 5–8 × 1–1.5 mm; lateral nerves (12–)15–17 pairs; Upper Guinea (Côte d'Ivoire, Ghana) and Lower Guinea (Nigeria, Cameroon).....**7. *S. talbotii***
5. Stipules 3–4 × 1 mm; lateral nerves 10–12 pairs; Lower Guinea (Gabon).....**8. *S.* sp.**
6. Flowers distinctly pedicellate, pedicel 2–5(–7) mm long; Lower Guinea (Cameroon, Gabon).....**3. *S. glabrescens***
6. Flowers sessile or shortly pedicellate, pedicel 0–1.5(–2.5) mm long.....7
7. Stipules (4–)5–8(–10) × 1 mm; midrib of leaves glabrous above, sometimes with a few sparse hairs; fruit oblong, (13–)16–20 × 7–9 mm; Upper Guinea (Guinea, Sierra Leone, Liberia, Côte d'Ivoire).....**1. *S. floribunda***
7. Stipules 7–12 × 2–4 mm; midrib of leaves hairy above; fruit ovoid-ellipsoid, 8–12 × 6–7 mm; Lower Guinea (Nigeria, Cameroon, Gabon).....**2. *S. gabonensis***

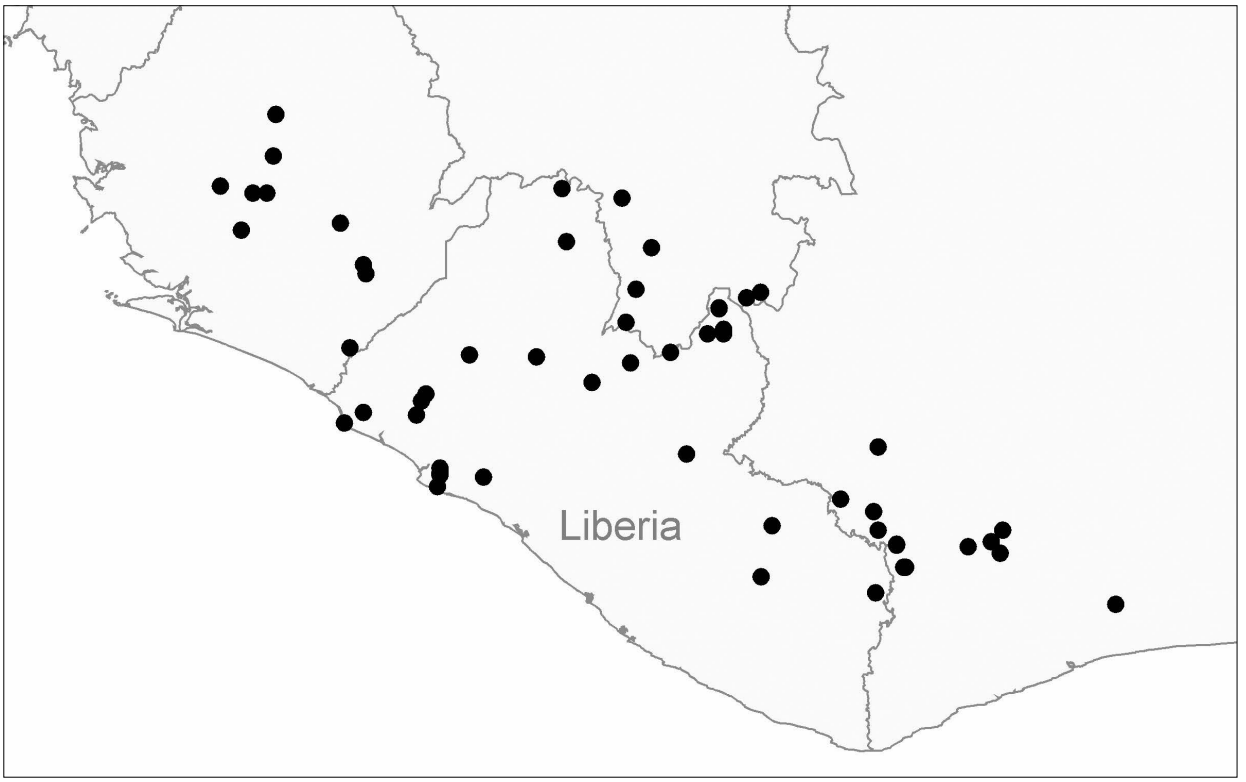

Figure 3 – Distribution of *Soyauxia floribunda*.

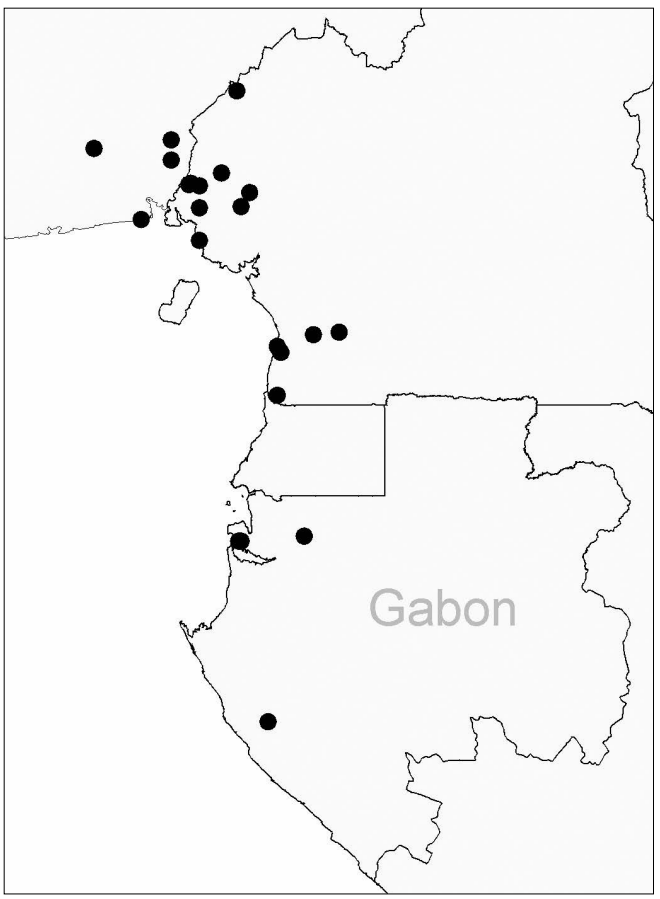

Figure 4 – Distribution of *Soyauxia gabonensis*.

(Gilg ex Hutch. & Dalz. according to Keay) and *S. laxiflora Gilg.* ex Hutch. are here considered to be validly published. The so-called herbarium names *S. bipindensis* Gilg found on *Zenker* 2390 and *S. laxiflora* Gilg on *Zenker* 1793, in fact nomina nuda, were used in diagnoses to describe new species of *Soyauxia*. Baker f. (1914) compared his new species *Soyauxia talbotii* with *S. bipindensis* Gilg and by this comparison he gave a validating description of Gilg's nomen nudum. The same holds for Hutchinson (1915) when he compared his new *Soyauxia floribunda* with Gilg's name *S. laxiflora*. In doing so he validated the latter name (see also under *S. talbotii*).

3. *Soyauxia glabrescens* Engl. (Engler 1891: 390). – Type: Gabon, Munda, Sibange Farm, s.d., *Soyaux* 66 (holo-: B†; lecto-: P, **here designated**; iso-: K). Fig. 5.

Distribution – Cameroon and Gabon (fig. 6).

Note – A sheet in the herbarium in Paris with a specimen of *S. glabrescens* labeled only 'M'Gila Kumbi' and 'env. Dimonica' could be from Congo Brazzaville. There is a place named Dimonika in the south of that country but this is about 250 km away from the nearest known *S. glabrescens* location. Since all other usual label information is missing, this locality is too doubtful to be shown on the distribution map.

4. *Soyauxia grandifolia* Gilg & Stapf (Stapf 1905: 102); Keay (1958: 653); Hawthorne & Jongkind (2006: 144). – Type: Liberia, Sinoe Basin, s.d., *Whyte* s.n. (lecto-: K, **here designated**). Fig. 7.

Distribution – Liberia, Côte d'Ivoire, Ghana (fig. 8).

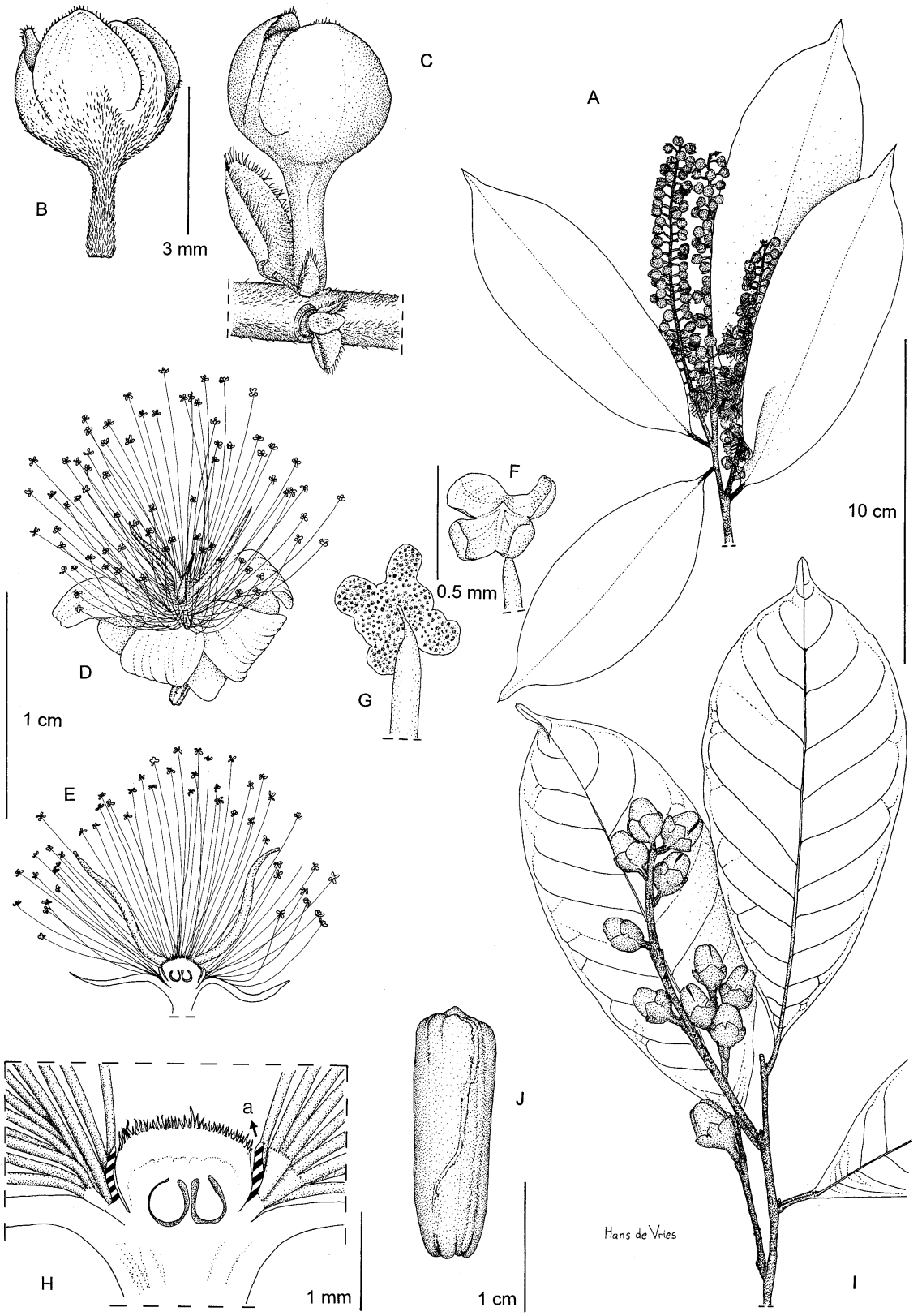

Figure 5 – *Soyauxia glabrescens*: A, flowering branch; B, hairy flower bud; C, flower bud with bract and bracteole; D, open flower; E, open flower cut lengthwise; F, anther front view; G, anther back view; H, detail of length cut of flower showing disc (a) and stamens united into bundles; I, fruiting branch; J, seed. A, C–H & J from *J.J.de Wilde & van der Maesen* 10990 (WAG); B from *Reitsma et al.* 1920 (WAG); I from *Breteler et al.* 11497 (WAG). Drawn by Hans de Vries.

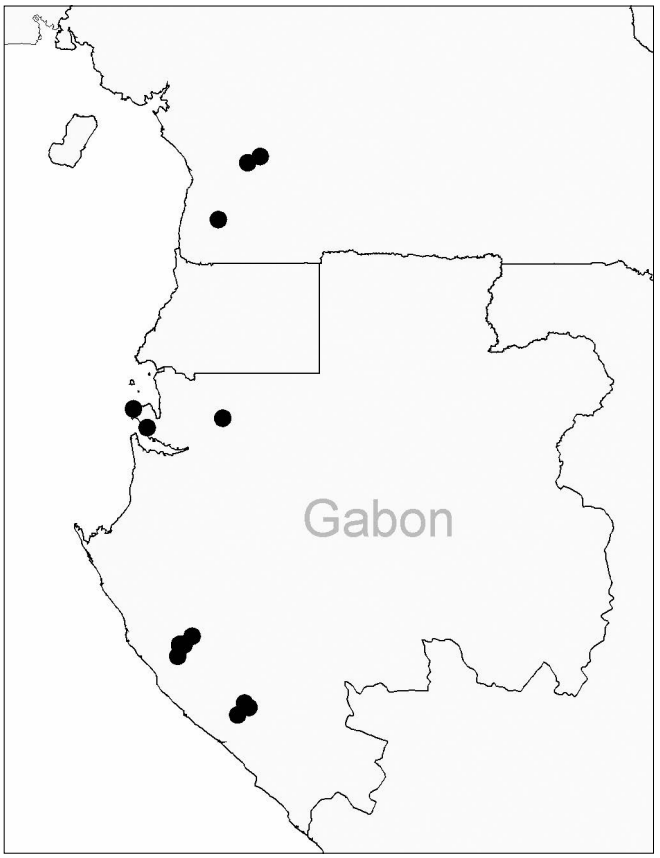

Figure 6 – Distribution of *Soyauxia glabrescens*.

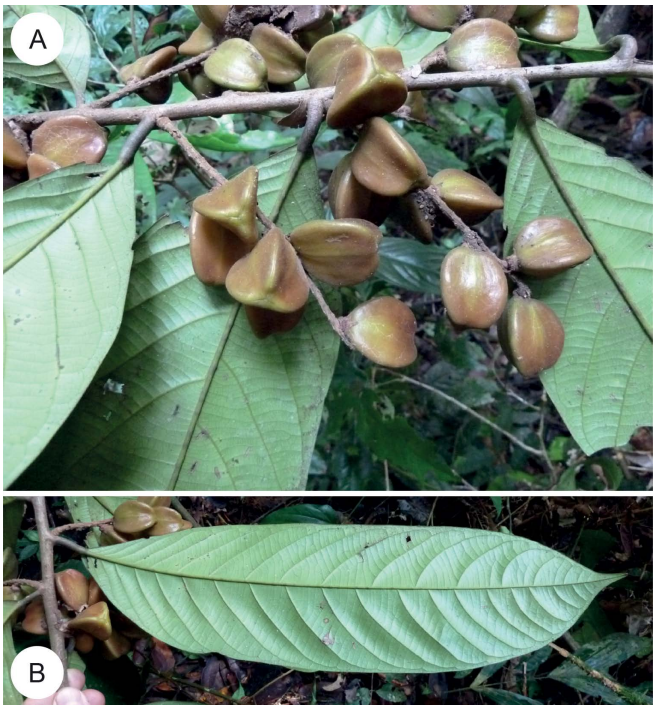

Figure 7 – *Soyauxia grandifolia*: A, fruiting branch; B, leaf from below. From *Jongkind* 10056 (Liberia, 4 Dec. 2010).

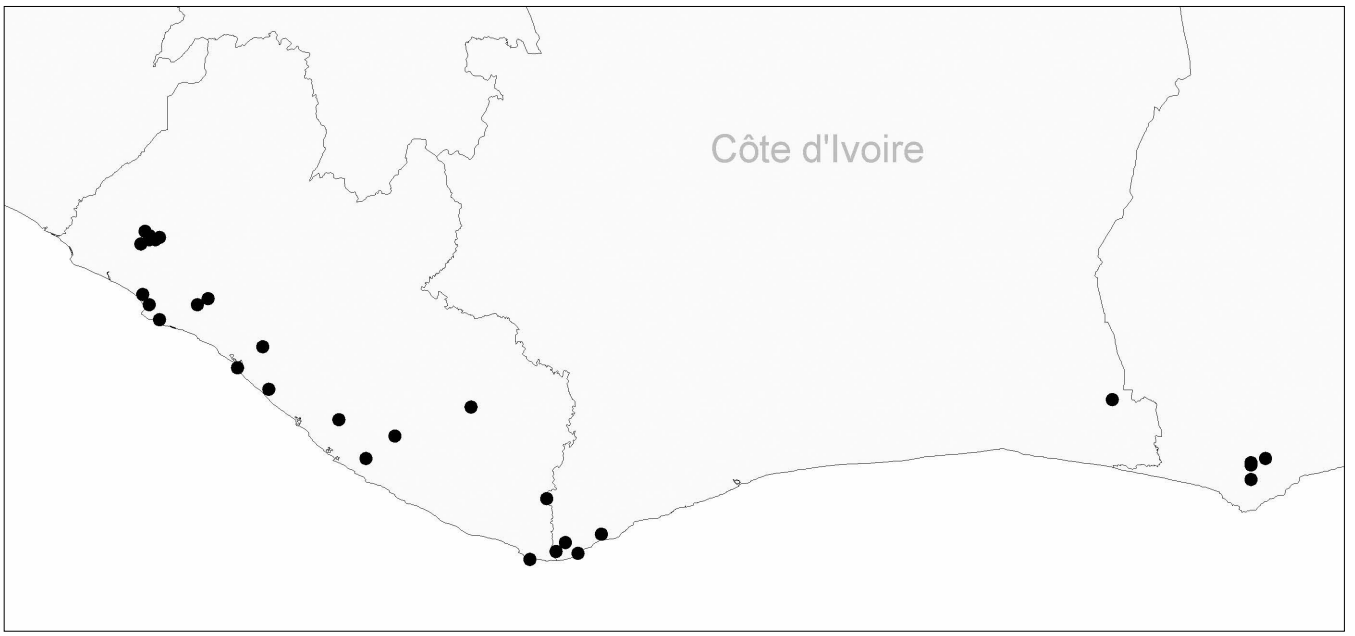

Figure 8 – Distribution of *Soyauxia grandifolia*.

5. *Soyauxia kwewonii* Breteler & Jongkind **sp. nov.**

Differing from all known species of *Soyauxia* by its tree habit of up to at least 30 m tall and 90 cm dbh, its leaves with faint lateral nerves, and by its depressed-globose fruits with very distinct, corky lenticels on its stipe. – Type: Liberia, Sino County, Sapo National Park, next to Sino R., 5°19.90′N 8°48.50′W, alt. 100 m, 26 Nov. 2010, *Jongkind*, *Bilivogui & Daniels* 9868 (holo-: WAG, 2 sheets [WAG0424439, WAG0334357])_

Tree up to at least 30 m tall and to at least 90 cm in diam. with slightly fluted bole with narrow buttresses; slash of bark orange-brown, of wood almost white. Branchlets appressed-puberulous, glabrescent. Stipules narrowly triangular, 5–8 × c. 2 mm, appressed-pubescent, early caducous, leaving a distinct scar. Leaves: petiole canaliculate above, (3–)6–9 mm long, glabrous above, appressed-puberulous beneath; lamina papery to coriaceous, elliptic, 2–3(–3.5) times as long as wide, (6–)10–18(–21) × (2.5–)4–7 cm, cuneate at base, acutely 0.5–1.5 cm acuminate at apex, glabrous above, ap-

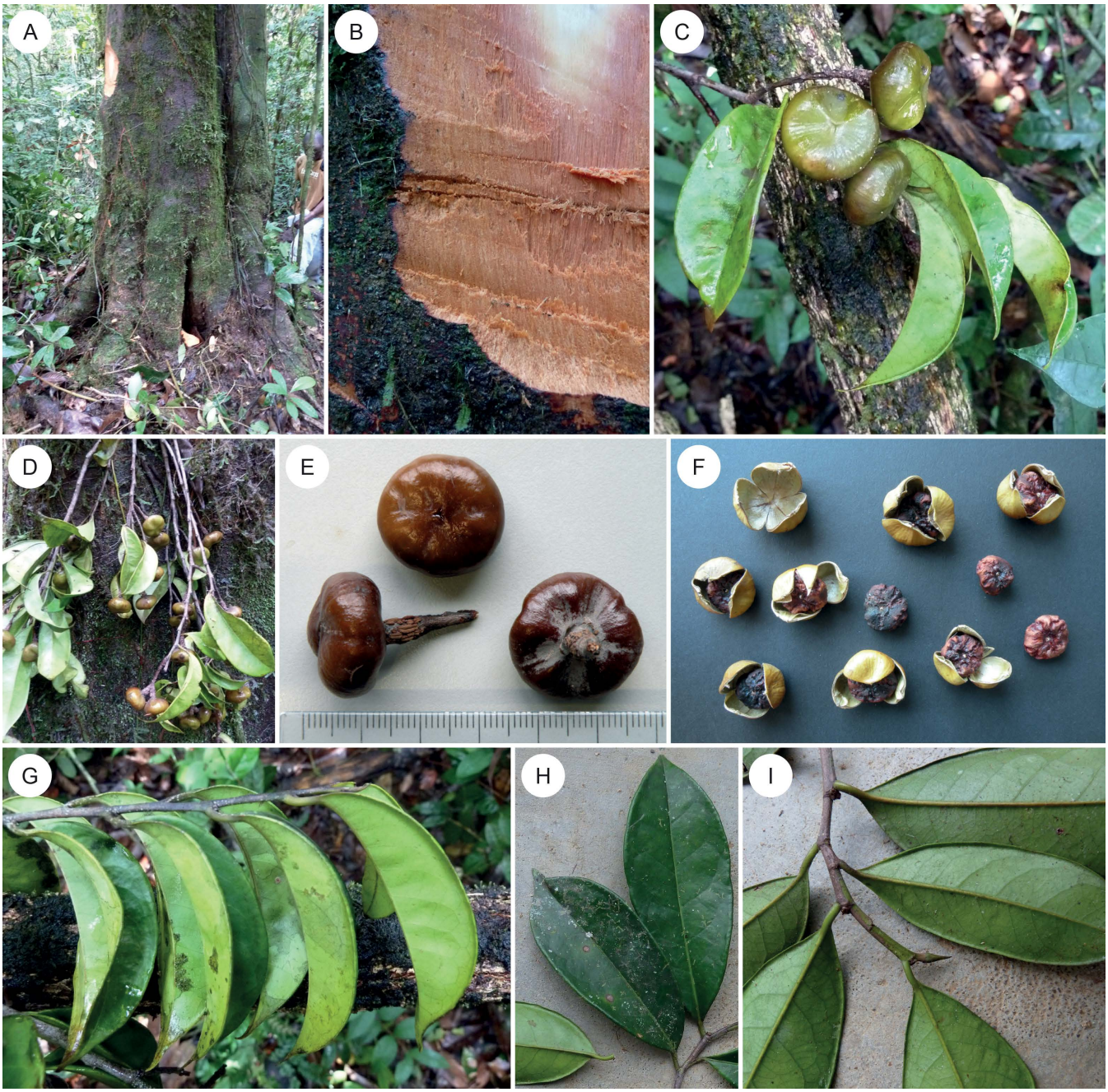

Figure 9 – *Soyauxia kwewonii*: A, stem base; B, slash; C, fruits; D, branch with fruits; E, pickled fruits showing from all sides, the pedicel showing characteristic lenticels; F, dry fruits collected from forest floor; G, leaves from canopy; H, leaves from smaller tree; I, twig with characteristic leaf bud on top. A–D & G *Jongkind* 9868, E *Jongkind* 8880, F *Jongkind* 8919, H, I *Jongkind* 9809. Photographs A–D, G–I by C. Jongkind; E & F by L. Westra.

pressed-puberulous and soon glabrescent beneath; midrib ± indistinct and plane above, prominent beneath, the 9–13 pair of main lateral nerves ± indistinct and plane above, plane to very slightly prominent beneath. Inflorescence an axillary raceme, up to 5 cm long, up to 15-flowered, appressed-puberulous, glabrescent. Flowers unknown. Fruits depressed-globose to disc-shaped, 2–2.5 cm in diameter, c. 1 cm thick, glossy, glabrous, dehiscent, 3-valved, 1-seeded; fruiting pedicel 6–10 mm long, thickened by the distinct corky lenticels, glabrous; persistent calyx glabrous, c. 2 mm long. Seeds discoid-lenticular, c. 20 × 8–10 mm: seed coat thin, brittle, brown, glossy; endosperm white, bony; embryo small, green. Fig. 9.

Habit and distribution – Tropical rain forest in SE Liberia, altitude up to 220 m (fig. 10).

Note – All type material is collected from one single tree.

Additional specimens studied – **Liberia**: Sino, Sapo National Park, Sinoe R., 8 Mar. 2009 *Jongkind et al.* 8880 (WAG); ibid., 10 Mar. 2009, *Jongkind et al.* 8919 (WAG); ibid., 14 Nov. 2010, *Jongkind et al.* 9809 (WAG); ibid., 22 Nov. 2010, *Jongkind et al.* 9829 (WAG); Sino, west of Greenville, 10 Sep. 2013, *Jongkind et al.* 12318 (BR); Sino, Sapo National Park, 18 Sep. 2013, *Jongkind et al.* 12319 (WAG); Sino, c. 50 km east of Greenville, 14 Mar. 2014, *Jongkind et al.* 12444 (BR).

Conservation status (IUCN 2011) – This species is given an IUCN Red List Category of Endangered (EN B1+2ab(iii)). The species occurs in SE Liberia. Forests of West Africa are among most threatened on earth, its habitat is thus highly threatened by logging and clearing. The extent of occurrence (EOO) of the species is estimated to be 2,121 km^2 (which falls within the limits 5000 km^2 upper limit for EN status under the subcriterion B1), whereas its area of occupancy (AOO) is estimated to be 24 km^2 (which falls within the limits for EN status under the subcriterion B2). This species is known from five specimen's localities. These five subpopulations represent a total of four locations according to the IUCN which qualifies the species as Endangered under conditions 'a' (less or equal than 5). We can expect a decrease of the quality of the habitat (condition 'b').

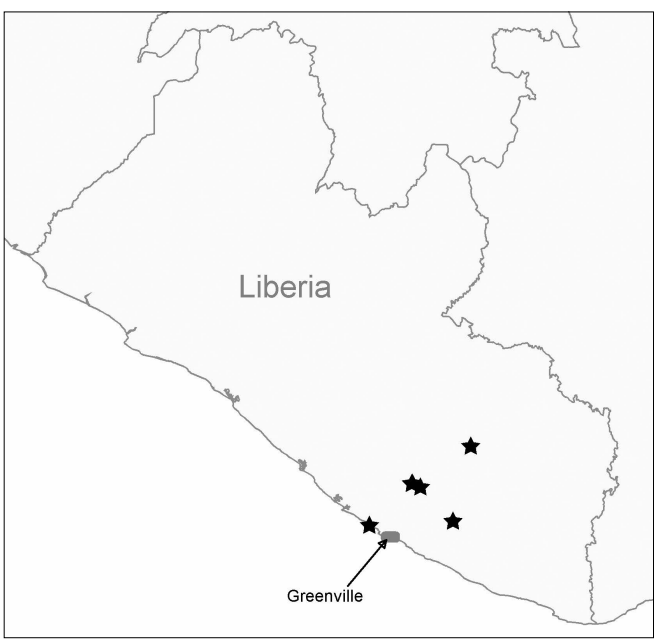

Figure 10 – Distribution of *Soyauxia kwewonii*.

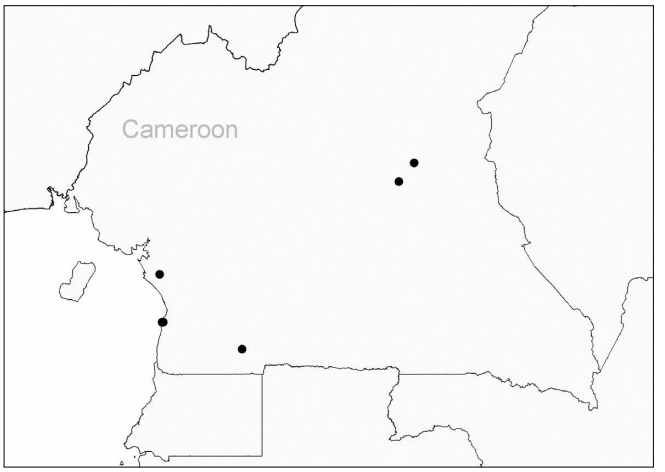

Figure 11 – Distribution of *Soyauxia ledermannii*.

Etymology – The new species has been named after David Kwewon, excellent and famous forest botanist of Liberia.

6. *Soyauxia ledermannii* Sleumer (Sleumer 1938: 13). – Type: Cameroon, Ilende, Elabi, s.d., *Ledermann* 631 (holo-: B†). Neotype, **designated here**: Cameroon, 2 km S of Kribi, 12 Feb. 1970, *Bos* 6312 (neo-: WAG; isoneo-: K, P, YA).

Distribution – Cameroon (fig. 11).

Note – The original type material was lost in Berlin during World War II and no duplicate has been found elsewhere. The designated neotype was collected very close to, if not in the same place, as where Ledermann collected his number 631. Comparison of the neotype *Bos* 6312 with the original diagnosis of Sleumer revealed that the petioles of it are much shorter than those of *Ledermann* 631: 3–5 mm vs. 8–10 mm. Sleumer compared his new species with *Soyauxia glabrescens* and noted that it can be distinguished from the latter by its long petioles. However, this is doubtful, because *S. glabrescens* has petioles of (5–)7–12 mm. Another element of distinction mentioned between these two species is seen in the "aussen (auch am Rand) stark behaarten Petalen" of *Soyauxia ledermannii*. Here it is evident, that instead of petals (which are glabrous as described by Sleumer) sepals are meant, which are only partly hairy or even glabrous outside in *S. glabrescens* and completely hairy in *S. ledermannii*. The neotype *Bos* 6312 fits Sleumer's diagnosis of *Soyauxia ledermannii* to most if not all of its characteristics.

7. *Soyauxia talbotii* Baker f. (Baker 1914: 4); Hutchinson & Dalziel (1927: 170); Keay (1958: 653). – Type: South Nigeria, Eket District, Ikotobo Rd., s.d., *Mr. & Mrs. Talbot* 3254 (holo-: BM).

Soyauxia laxiflora Gilg ex A.Chev. (Chevalier 1920: 288), non Gilg ex Hutch. (sub. *S. gabonensis*). – Type: Côte d'Ivoire, bassin de la Moyenne Sassandra, à Guideko, 21–23 May 1907, *Chevalier* 16427 (lecto-: P**, designated here**).

Soyauxia velutina Hutch. & Dalz. (Hutchinson & Dalziel 1927: 170; 1928: 214); Keay (1958: 653); Hawthorne & Jongkind (2006: 144). – Type: Côte d'Ivoire, bassin de la Moyenne Sassandra, à Guideko, 21–23 May 1907, *Chevalier* 16427 (lecto-: P, **designated here**).

Distribution – Côte d'Ivoire, Ghana, Nigeria, Cameroon (fig. 12).

Note – Chevalier (1920) enumerated some of his *Soyauxia* collections from Côte d'Ivoire as *S. laxiflora* Gilg, a nomen nudum. For one of the specimens cited he gave a short description. Although Chevalier's material is not conspecific with the Zenker collection from Cameroon to which the name *Soyauxia laxiflora* Gilg is adhered, Chevalier's publication is a validation of Gilg's name. Since we consider the validation of *Soyauxia laxiflora* Gilg by Hutchinson in 1915 (see note under *S. gabonensis*) as correct and thus accepted here, the validation by Chevalier is superfluous.

8. *Soyauxia* sp.

Specimen examined – W Gabon, Loango National Park, 6 Dec. 2004, *Mouandza* 358 (LBV, WAG).

Note – This fruiting specimen differs from the known Gabonese species *Soyauxia gabonensis* and *S. glabrescens* in having the sepals completely hairy outside. Its leaves resemble those of *S. glabrescens*. The nearest place where a species with similar sepals (size and indumentum) is found is in Cameroon, near Edea, the SE boundary of the distribution of *Soyauxia talbotii*. However, this species has larger stipules and leaves with more lateral nerves than *Mouandza* 358. The authors have refrained from describing *Mouandza* 358 as a new species because its variation as regards stipules and number of lateral nerves is insufficiently known.

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SUPPLEMENTARY DATA

Supplementary data are available at *Plant Ecology and Evolution*, Supplementary Data Site (http://www.ingentaconnect.com/content/botbel/plecevo/supp-data) and consist of: (1) GenBank accessions used, with voucher information (Excel file); and (2): The NEXUS format rbcL alignment as used in this study (NEX file). Both files are provided by Freek T. Bakker.

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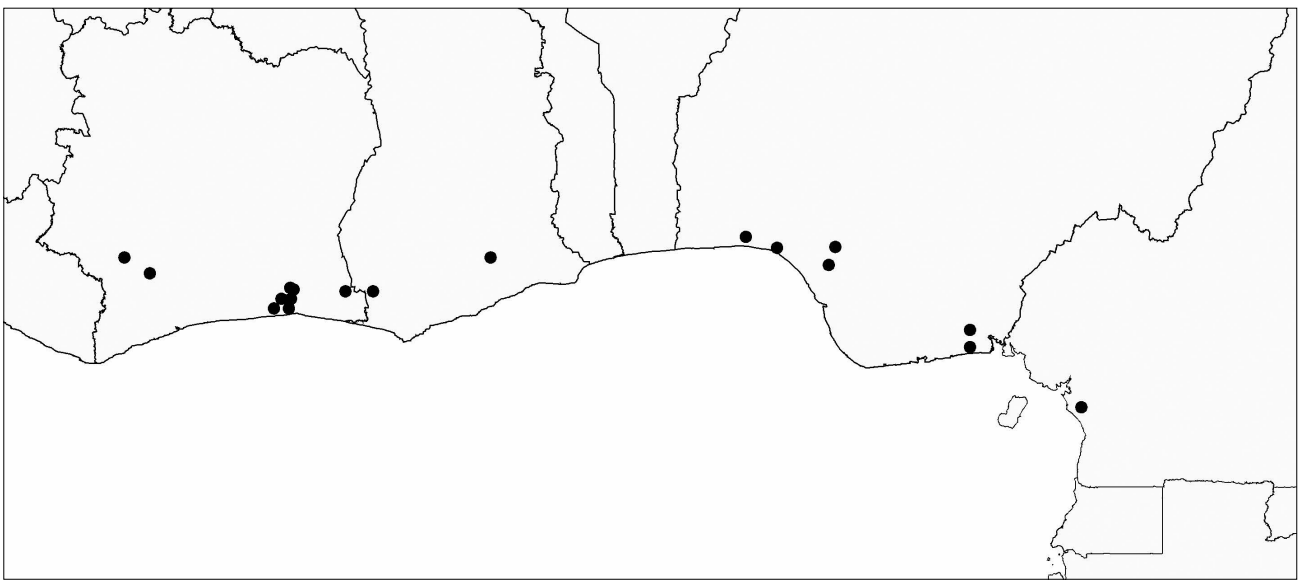

Figure 12 – Distribution of *Soyauxia talbotii*.

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