
Entandrophragma, Leiopityx and Pseudocedrela

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specimens, becoming blunt and rounded in adult trees, with the stomatal lines faintly marked beneath. The young wood is hairy, which distinguishes it from *T. Sieboldii*; and from *S. diversifolia*, which also has hairy young wood, it differs in its longer, larger leaves. The cone is about 1 inch long and the same in width, sessile.

IV. A New Oak.

Quercus pontica, C. Koch [Cupuliferae].

This striking oak has long been a desideratum for the Kew collection. It is a native of north eastern Armenia, whence it appears to have first been introduced to Germany by Dr. Dieck, of the Zöschen Nursery, about twenty-five years ago. It is, however, extremely rare, and it was not until I saw it in Messrs. Späth's nursery at Berlin, in 1908, that it became possible to obtain it, for it is not offered in catalogues. There is also a good specimen in the Botanic Garden of Dresden. In the Kew Herbarium it is only represented by a single sheet containing a flowering twig and one with three fully-grown leaves.

This oak appears to be a small tree, sometimes a shrub; its leaves are oval or slightly obovate, and up to 8 inches in length and 4 inches in width, and are distinguished by reason of fifteen to twenty-five prominent ribs running parallel to each other from the mid-rib at an angle of about 40 deg. to the margin, where each one terminates in an incurved lanceolate tooth $\frac{1}{4}$ inch long. The upper surface is a bright, rather pale green; the lower one glaucous. Petiole about $\frac{1}{4}$ inch long. I have not seen the acorn either living or preserved, but it is described as being half enclosed in a cup with ovate lanceolate scales.

The affinities of the species appear to be with *Q. castaneaefolia*, but it is also comparable with *Q. Mirbeckii*, and *Q. conferta*. In the beauty of its foliage it is superior to all three.

EXPLANATION OF PLATES.

Larix Potaninii, 70 feet \times 6 feet; west of Tاتienlu; altitude 10,800 ft.

Meliosma Veitchiorum, 45 feet \times 10 feet, with votive board; Changyang Hsien; altitude 4800 ft.

XXVI.—ENTANDROPHRAGMA, LEIOPTYX AND PSEUDOCEDRELA.

T. A. SPRAGUE.

The genus *Entandrophragma* (*Meliaceae*) was described in 1894 by Casimir De Candolle (Bull. Herb. Boiss. vol. ii. p. 582, t. 21) who based it on *Swietenia angolensis*, Welw., and distinguished it from *Swietenia* by the presence of a stipitiform disk, to which the lower part of the staminal tube was connected by means of ten longitudinal membranous partitions.

In 1895 Harms described the genus *Pseudocedrela*, which he distinguished from *Swietenia* and *Entandrophragma* by the seed being provided with a wing pointing to the base of the capsule, as against the apex (Engl. Jahrb. vol. xxii. p. 153); and in 1896 he used this character together with the nature of the insertion of the anthers in his key to the genera of *Swietenioideae* (Engl. & Prantl, Nat. Pflanz. vol. iii. 4. p. 270).

Two additional species of *Entandrophragma* were described within the next three years: *E. Candollei*, Harms in Notizbl. Bot. Gart. Berlin, vol. i. 1896, p. 181, from the Cameroons; and *E. Candolleana*, De Wild. & Th. Dur., Contrib. Fl. Congo, vol. i. fasc. 1, p. 14, from the Congo State. The capsule and seeds were unknown in both cases.

In 1905, in the course of an expedition through Buddu and the Western and Nile Provinces of the Uganda Protectorate, Mr. M. T. Dawe collected material of several important timber trees belonging to the *Meliaceae*, including two species which, in the absence of flowers, were referred to the genus *Pseudocedrela* on account of the nature of their fruit and seeds: the wing of the seed pointing to the base of the capsule. As both species were large forest trees yielding valuable timber, it was thought desirable to describe them, although flowers were not known, and they were, accordingly, published as *Pseudocedrela excelsa*, Dawe & Sprague, and *P. utilis*, Dawe & Sprague, respectively (Journ. Linn. Soc. Bot. vol. xxxvii. 1906, p. 511).

Two additional species, obviously congeneric with *P. excelsa* and *P. utilis*, were received subsequently from the Transvaal and the Gold Coast respectively, and were described as *P. caudata*, Sprague, and *P. cylindrica*, Sprague (Kew Bull. 1908, pp. 163, 257).

During a visit to the Budongo Forest early in 1910, Mr. Dawe obtained flowers of *Pseudocedrela utilis* and *P. cylindrica*, which he has forwarded to Kew. These showed the structure characteristic of *Entandrophragma*, namely, a stipitiform disk and a partitioned staminal tube. A capsule of *Entandrophragma angolense* preserved in the Kew Museum was accordingly examined and it was found that the wing of the seed pointed to the base of the capsule just as in *Pseudocedrela*. It thus became evident that the seed of *Entandrophragma* had been incorrectly described, and that several of the species published under *Pseudocedrela* would have to be transferred to *Entandrophragma*.

The mistake in the description of the seeds appears to have arisen as follows: Casimir De Candolle described the seeds as "superne alata," apparently meaning thereby that the seeds were winged at the end opposite to their place of attachment. Unfortunately, however, the phrase "semina superne alata" had been used in quite a different sense by Bentham & Hooker (Gen. Pl. vol. i. p. 338) and by C. De Candolle himself (Monogr. Phan. vol. i. p. 723), as meaning that the seeds were provided with a wing pointing to the apex of the capsule; and in this more usual sense it was naturally interpreted by Harms.

Although flowers are not known of *Pseudocedrela excelsa* and *P. caudata*, it may safely be assumed that these two species belong to

Entandrophragma, as they are obviously much more closely related to *P. utilis* and *P. cylindrica*, which are now known to be species of *Entandrophragma*, than to *P. Kotschyi*, on which the genus *Pseudocedrela* was founded.

The distinguishing characters of *Entandrophragma* and *Pseudocedrela* may now be summarised as follows:—

Entandrophragma: disk stipitiform; lower part of staminal tube partitioned; valves of the capsule not connected by a fibrous network after dehiscence; cotyledons elliptic or ovate; leaflets entire.

Pseudocedrela: disk cupular; staminal tube not partitioned; valves of the capsule connected by a fibrous network after dehiscence; cotyledons obovate; leaflets repand-dentate.

The genus *Leioptyx*, which was described by De Wildeman in 1908 (*Etudes Fl. Bas- et Moyen-Congo*, vol. ii. p. 258, tt. 76–77), has since been reduced to *Entandrophragma* by Aug. Chevalier (*Veg. Ut. Afr. Trop. Franç. fasc. 5*, p. 200). According to Chevalier, two distinct species are included under De Wildeman's description and figures of *Leioptyx congoensis*: *Entandrophragma Pierrei*, A. Chev., based on specimens collected at Ogowe, French Congo, by Jolly (*Etudes Fl. Bas-et Moyen-Congo*, vol. ii. t. 76, ff. 2–7); and *Entandrophragma congoense*, A. Chev., based on material collected at Eala, Congo State, by Pynaert (t. 76, ff. 1, 8–10; t. 77).

As Chevalier (l.c.) has described five additional species of *Entandrophragma*, none of which is represented at Kew, it is not possible at the moment to give a key to the species. In view of their economic importance, however, it seems desirable to give an enumeration of those hitherto described along with their geographical distribution, as far as it has been ascertained. The species are arranged in chronological order.

Entandrophragma, C. DC. in Bull. Herb. Boiss. vol. ii. 1894, p. 582, t. 21; Harms in Engl. & Prantl, Nat. Pflanz. vol. iii. 4. p. 273; A. Chev. Veg. Ut. Afr. Trop. Franç. fasc. 5, p. 200.—*Leioptyx*, Pierre ex De Wild. *Etudes Fl. Bas- et Moyen-Congo*, vol. ii. 1908, p. 258.

1. *E. angolense*, C. DC. l.c.; Hiern Cat. Welw. Afr. Pl. vol. i. p. 135. *Swietenia angolensis*, Welw. Apont. p. 561; C. DC. Monogr. Phan. vol. i. p. 724.

Capsule pendulous, dehiscing from the base upwards, valves cohering above, deciduous in the form of a calyptra, then separately arching outwards. Hilum of seed linear.

ANGOLA. Golungo Alto, *Welwitsch*, 1313! UGANDA. Western Province: Budongo Forest, *Dawe*, 984! The specimens sent by Dawe differ somewhat from the type: the midrib on the lower surface of the leaflets being much less pilose, and the calyx rather larger (4.5 mm. in diameter). The differences observed do not seem to warrant separation as a distinct species.

According to Mr. Dawe, this species is of considerable economic importance. It is more abundant than *E. utile*, and is distributed over a considerable portion of the Budongo Forest at an average of about 1 tree to the acre.

2. *E. Candollei*, *Harms* in *Notizbl. Bot. Gart. Berlin*, vol. i. 1896, p. 181.

Capsule and seeds not known.

CAMEROONS. Johann Albrecht's-Höhe, *Staudt*, 459!

3. *E. Candolleianum*, *De Wild. et Th. Dur.*, *Contrib. Fl. Congo*, vol. i. fasc. 1, 1899, p. 14; *Ill. Fl. Congo*, p. 125, t. 63; *Reliq. Dewevr.* 41.

Capsule and seeds not known.

CONGO STATE. Stanley Falls region, *Dewèvre*.

4. *E. excelsum*, *Sprague*, *comb. nov.*—*Pseudocedrela excelsa*, *Dawe & Sprague* in *Journ. Linn. Soc. Bot.* vol. xxxvii. 1906, p. 511.

Position and mode of dehiscence of the capsule not known. Seeds attached in the middle of each face of the central column; hilum elliptic.

UGANDA. Western Province: West Ankole Forest, *Dawe*, 358!

5. *E. utile*, *Sprague*, *comb. nov.*—*Pseudocedrela utilis*, *Dawe & Sprague* l.c.; H. N. Thompson, *Gold Coast, Report on Forests*, t. 13.

Capsule pendulous, dehiscing from the apex downwards. Seeds attached in the middle of each face of the central column; hilum elliptic or narrowly oblong.

UGANDA. Western Province: Budongo Forest, *Dawe*, 786! 1002! GOLD COAST. Near Nyinahin, *Thompson*, 48!

The capsule collected by Thompson differs from the type in having the central column considerably produced above the uppermost seed.

Mr. Dawe writes of this species as follows: "*Pseudocedrela utilis* is now (mid-February) in full flower, but capsules still hang on the trees in some cases, and seeds are available although it appears rather late for them. The tree is easily recognised, not only by its distinct fruits, but by its bark, which is brownish and roughly channelled, whereas the bark of the other three (?) species [which occur in the Budongo Forest] is almost smooth, is lighter in colour and scales off in irregular pieces."

6. *E. caudatum*, *Sprague*, *comb. nov.*—*Pseudocedrela caudata*, *Sprague* in *Kew Bull.* 1908, p. 163.

Capsule pendulous, dehiscing from the apex downwards. Seeds attached near the middle of each face of the central column; hilum small, elliptic.

TRANSVAAL. Zoutpansberg District: Blauwberg, *Baily in Transv. Dep. Agric. Herb.*, 2926!

7. *E. cylindricum*, *Sprague*, *comb. nov.*—*Pseudocedrela cylindrica*, *Sprague* in *Kew Bull.* 1908, p. 257 (July 3); H. N. Thompson, *Gold Coast, Report on Forests*, t. 10.

Capsule pendulous. Seeds attached alternately to the right and left of each face of the central column.

GOLD COAST. Near Mansu and Supom, *Thompson*, 16! near Tsifufu, *Thompson*, 34! SOUTHERN NIGERIA. Western Province, *Thompson*, 10! UGANDA. Western Province: Budongo Forest, *Dawe*, 983!

8. *E. Pierrei*, *A. Chev.*, Veg. Ut. Afr. Trop. Franç. fasc. 5, p. 203.—*Leiopyx congoensis*, De Wild., Etudes Fl. Bas- et Moyen-Congo, vol. ii. 1908, p. 259, partly, t. 76, f. 2-7.

Position and mode of dehiscence of the capsule not known. Seeds attached alternately to the right and left of each face of the central column.

FRENCH CONGO. Ogowe, *Jolly*.

9. *E. congoense*, *A. Chev.*, l.c.—*Leiopyx congoensis*, De Wild., Etudes Fl. Bas- et Moyen-Congo, vol. ii. 1908, p. 259, partly, t. 76, ff. 1, 8-10, t. 77.

Capsule dehiscing from the base upwards. Seeds attached in the middle of each face of the central column.

CONGO STATE. Eala, *Pynaert*, 367.

10. *E. ferrugineum*, *A. Chev.*, l.c. 195, 284.

Capsule erect, according to Chevalier; attachment of seeds not mentioned.

IVORY COAST. Middle course of the Comoé River; Mbassa, *Chevalier*, 16261.

11. *E. macrophyllum*, *A. Chev.*, l.c. 196, 278, 280.

Capsule erect, dehiscing from the base upwards, valves cohering above, deciduous in the form of a calyptra. Seeds attached alternately to the right and left of each face of the central column; hilum linear.

IVORY COAST. Here and there throughout the forest, *Chevalier*, 16136, 16146, 16147, 16181.

12. *E. rufum*, *A. Chev.*, l.c. 201, 278.

Capsule and seeds not known.

IVORY COAST. Here and there in the forest, apparently rather rare, *Chevalier*, 16166.

13. *E. macrocarpum*, *A. Chev.*, l.c. 203.

Position and mode of dehiscence of the capsule, and mode of attachment of the seeds not mentioned. I suspect, from the description, that this species may be conspecific with *E. utile*.

IVORY COAST. Middle course of the Sassandra River; Guidéko, *Chevalier*, 16390.

14. *E. septentrionale*, *A. Chev.*, l.c. 205, 276, 278.

Capsule erect, dehiscing from the base upwards. Mode of attachment of the seeds not mentioned.

IVORY COAST. Fairly frequent in the forest between Cavally and Indenié and Sanwi, *Chevalier*, 16126, 16145, 16158.

15. *E. sp.*—*Pseudocedrela* sp. (near *P. cylindrica*), Thompson, Gold Coast, Report on Forests, t. 12.

GOLD COAST. Near Tsifufu, *Thompson*, 36!

Pseudocedrela, *Harms* in Engl. Jahrb. vol. xxii. 153; et in Engl. & Prantl, Nat. Pflanz. vol. iii. 4. p. 272.

P. Kotschyi, *Harms*, l.c. 154; l.c. 273.—*P. Chevalieri*, C. DC. in Bull. Soc. Bot. France, vol. liv. Mém. 8, 1907, p. 12. *Cedrela Kotschyi*, Schweinf. Reliq. Kotsch. p. 36, t. 35. *Soymida roupali-folia*, Schweinf. l.c. 37. *Boswellia* sp.?, Oliv. in Trans. Linn. Soc. vol. xxix. p. 44.

GOLD COAST. Northern Territories : Bere, *Dudgeon*, ser. II. 105 ! LAGOS. *E. W. Foster*, 17 ! NORTHERN NIGERIA. Katagum District, *Dalziel*, 218 ! Nupe : Jeba, *Barter*, 1633 ! 1712 ! EASTERN CHARI. Snoussi Country : Ndelle, *Chevalier*, 7478 ! 7803.

GALABAT. Matamma, *Schweinfurth*, 2249 ! UPPER SENNAR. Near Fazokl, *Cienkowski*, 93. SUDAN. Sobat River, 20 miles below Nasser, *Muriel*, L. 104 ! JUR. Seriba Ghattas, *Schweinfurth*, 1333 ! UGANDA. Nile Province : Acholi, *Dawe*, 843 ! Madi, *Grant*, 739 !

XXVII.—DIAGNOSES AFRICANAE: XXXVI.

1091. *Thesium atrum*, *A. W. Hill* [Santalaceae] ; species nulli arcte comparanda, *T. doloensi*, Pilger, similis in sicco nigrescens sed foliis et bracteis minutis orbiculari-ovatis marginibus ciliatis distincta.

Suffrutex perennis, rhizomate lignoso ; caules plurimi, prostrati, lignosi, robusti, 30 cm. vel plures longi, rami adscendentes, in sicco nigrescentes, 10–15 cm. longi, ramulis lateralibus aliis elongatis aliis brevibus numerosis instructi. *Folia* squamiformia, orbiculari-ovata, subacuta, 1 mm. longa, carnosa, margine minute ciliolata. *Flores* versus apices ramulorum foliatorum axillarum dispositi : bractee bracteolaeque foliosae, apiculatae, involucrem formantes. *Perianthium* album, 1.75 mm. longum, segmentis 1 mm. longis ovatis subacutis glabris paullo cucullatis marginibus membranaceis subpapillois. *Antherae* filamentis aequilongae, 0.4 mm. longae. *Stylus* 1 mm. longus. *Fructus* in sicco ater, globoso-ovoideus, 2.5 mm. longus, 2 mm. latus, costis et venis inconspicuis.

ANGOLA. Suassingua, *Gossweiler*, 2713 (Herb. Mus. Brit.).

1092. *Thesium brachyanthum*, *Baker* [Santalaceae] ; species distincta caulibus profunde sulcatis foliis carinatis membranaceis reductis ; *T. subaphyllo*, Engl., paullo affinis bracteis bracteolis inflorescentisque elongatis differt.

Suffrutex, caulis erectus, 30 cm. altus, glaber, quadrangularis, angulis plus minusve alatis profunde sulcatis ramis numerosis fastigiatis. *Folia* squamiformia, ovata, acuta, 2–3 mm. longa, membranacea, conspicue carinata. *Flores* in spicas laxas elongatas terminales dispositi ; bractee et bracteolae ovatae, acutae, 2–3 mm. longae, membranaceae, carinatae. *Perianthium* circiter 1.5 mm. longum, segmentis 1 mm. longis elliptico-ovatis subacutis glabris. *Antherae* 0.5 mm. longae. *Stylus* circiter 1 mm. longus. *Fructus* turbinatus, 3 mm. longus, costis conspicuis et reticulationibus transversis instructus.

NYASALAND. Tanganyika plateau : Fort Hill, *Whyte*.

1093. *Thesium cinereum*, *A. W. Hill* [Santalaceae] ; species dense pilosa *T. lycopodioidi*, Gilg, et *T. striguloso*, Welw., similis sed pedunculis nudis axillaribus elongatis uti ramulis gracilibus, stylo brevi differt.

Herba vel suffrutex perennis, caudex ramosus, planta omnino dense cinereo-pilosa ; caules prostrati, cylindrici, sulcati, 15–30 cm. longi, ramulis floriferis axillaribus filiformibus dense obtecti. *Folia* subulata, acuta, 2–5 mm. longa, dorso pilosa. *Inflorescentia* 1–3-flora,