

Didelotia gracillima Jongkind, sp. nov.
(Leguminosae, Detarioideae), a new forest tree
from Liberia and Ivory Coast

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***Didelotia gracillima* Jongkind, sp. nov. (Leguminosae, Detarioideae), a new forest tree from Liberia and Ivory Coast**

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ABSTRACT

A new tree species, *Didelotia gracillima* Jongkind, sp. nov., from Liberia and Ivory Coast is described. It differs from *D. brevipaniculata* J. Léonard, with which it was earlier confused, by its narrower and pendulous inflorescence and its red flowers and much longer stamens.

RÉSUMÉ

Didelotia gracillima Jongkind, sp. nov., une nouvelle espèce d'arbre forestier du Liberia et de Côte d'Ivoire. Une nouvelle espèce d'arbre, *Didelotia gracillima* Jongkind, sp. nov., du Liberia et de la Côte d'Ivoire, est décrite. Elle se distingue de *D. brevipaniculata* J. Léonard, avec laquelle elle a été précédemment confondue, par son inflorescence pendante à fleurs rouges et des étamines plus longues.

TABLE 1. — *Didelotia* species with more than 10 pairs of leaflets.

Species	Pairs of leaflets	Apex leaflets	Pedicel	Flower colour (as far as noted)	Petals and stamens	Ovary
<i>Didelotia gracillima</i> sp. nov.	21-33	emarginate	pubescent	completely pink to red	filaments c. 10 mm, petals much shorter	pubescent on the margins
<i>Didelotia brevipaniculata</i>	15-23	emarginate	pubescent	filament white, style white, anthers purplish	petals and filaments c. 4 mm	pubescent on the margins
<i>Didelotia minutiflora</i>	8-12	emarginate	glabrous	petal reddish, filament purplish	filaments c. 5 mm, petals much shorter	pubescent all over
<i>Didelotia morelii</i>	26-30	rounded	?	?	?	almost glabrous
<i>Didelotia pauli-sitae</i>	14-18	emarginate	a few hairs only	filament purplish	filaments 6-9 mm, petals much shorter	almost glabrous

INTRODUCTION

The genus *Didelotia* Baill. is now part of tribe Amherstieae (Estrella *et al.* 2018) of Leguminosae subfamily Detarioideae (LPWG 2017). Including the new species described here there are 13 species known in *Didelotia* (Burgt 2016), all of which are forest trees endemic to the Guineo-Congolian Region in Africa.

Recently a first flowering specimen was collected from a tree that had always been identified as *Didelotia brevipaniculata* J. Léonard. These flowers showed clearly that this *Didelotia*, known from Liberia and Ivory Coast, is not the same species as *D. brevipaniculata* s.s. from Cameroon and Gabon. I have therefore chosen to describe it here as *Didelotia gracillima* Jongkind, sp. nov. The inflorescence, flowers and fruits of *D. gracillima* more closely resemble those of *D. engleri* Dinkl. & Harms, another Upper Guinean species with red flowers, than those of *D. brevipaniculata*, whose inflorescence is more spreading, flowers are almost white and stamens are much shorter (Table 1), and whose fruits are more rounded at both ends.

There is a significant variation among *Didelotia* species in the number of leaflets per leaf. They can vary from more than 30 pairs of leaflets, as in *D. gracillima*, to unifoliolate, as seen in *D. idae* J. Léonard, Oldeman & de Wit. Including the new species described here, five *Didelotia* species have more than ten pairs of leaflets. Important features of these species are compared in Table 1. Only one of them, *D. gracillima*, is found in the Upper Guinean forests (sensu White 1979, west of Benin). *Didelotia brevipaniculata* is now restricted to Cameroon and Gabon.

SYSTEMATICS

Didelotia gracillima Jongkind, sp. nov.
(Figs 1-3)

Didelotia gracillima Jongkind differs from *D. brevipaniculata* J. Léonard, with which it was earlier confused, by its narrower and pendulous inflorescence, its red flowers and its much longer stamens (Table 1).

TYPES. — **Liberia.** Krahn-Bassa Forest, close to Solo Town on the ITI road, fl., 30.V.2018, *Jongkind, Sambolah, Cherif, Traore & Kamgar 14034* (holo-, BR; iso-, E, G, MA, MO, P, WAG).

PARATYPES. — **Ivory Coast.** Olodio to Grabo, *Aubréville SF 1321* (K, P); s.l., *Aubréville SF 2801* (P, WAG); Tabou, *Aubréville SF 4167* (P, WAG); along the road from Grabo to Tabou, 30.IV.1995, *Breteler 13394* (MO, S, WAG); near Tiboto, 12.XII.1997, *Jongkind 4209* (WAG); FC de la Ht Dodo, 7.V.1999, *Jongkind & students of the 'Université de Cocody' 4545* (WAG).

Liberia. Sapo NP, buffer zone, 27.XI.2002, *Jongkind, Blyden, staff & students of the University of Liberia 5462* (WAG); inside Sapo National Park, 15.XI.2010, *Jongkind, Bilivogui & Daniels 9718* (WAG); near footpath from Jalay's Town to Greenville, 27.XI.2010, *Jongkind, Bilivogui & Daniels 9885* (WAG); North of Sapo NP, 9.IX.2013, *Jongkind, de Wet & Sambolah 11972A* (BR); North of Sapo NP, 11.IX.2013, *Jongkind, de Wet & Sambolah 11948* (BR, WAG); c. 50 km east of Greenville, 15.III.2014, *Jongkind, Mulbah, Harris, Charleson & Forkpah 12590* (BR); east of Pelloken village, 5.II.2016, *Jongkind & Sambolah 13000* (BR); not far from Buchanan-Greenville road, 22.V.2018, *Jongkind, Sambolah, Cherif, Traore & Kamgar 13797* (BR, WAG); not far from ITI road, 28.V.2018, *Jongkind, Sambolah, Cherif, Traore & Kamgar 13958* (BR, FHO); Sino, 5.IV.1962, *Voorhoeve & Kunkel 1208* (WAG); c. 32 miles N. of Greenville, 10.IV.1962, *JFFE de Wilde s.n.* (WAG).

ETYMOLOGY. — The specific epithet refers to the slender leaves and leaflets.

HABITAT AND DISTRIBUTION. — Lowland forest in East Liberia and south-west Ivory Coast.

DESCRIPTION

Canopy tree up to c. 40 m high. Stem to 1.7 m in diameter. Bark dull dark brown. Twigs velutinous to glabrescent, hairs orange-brown; last shoot with several overlapping brown bud scales at base, bud scales progressively becoming larger distally.

Stipules

Caducous, in fused pairs, intrapetiolar, lanceolate, up to 6 × 2 cm, with parallel veins, almost glabrous except for a fringe of hairs on the margin; apex bilobed, both lobes acute.

Leaves

Paripinnate, to 25 × 7 cm, with 21-33 pairs of opposite leaflets; petiole 2-3 mm long, orange-brown pubescent; leaf rachis orange-brown pubescent. Leaflets subsessile, 8-34 × 3-10 mm,



FIG. 1. — *Didelotia gracillima* Jongkind, sp. nov.: **A**, leaves from below on a horizontal branch of a young tree; **B**, young shoot, still pendulous and still with green stipules; **C**, bud scales at the base of the last shoot; **D**, base of leaves from above showing the downward-pointing first leaflets. After Jongkind *et al.* 9718. Photos C. Jongkind.



FIG. 2. — *Didelotia gracillima* Jongkind, sp. nov.: **A**, stem base with David Mawolo Mulbah in front; **B**, inflorescence, lines on background 7 mm apart; **C**, probably immature fruits (herbarium); **A**, after Jongkind et al. 9718; **B**, after Jongkind et al. 14034; **C**, after Breteler 13394 (WAG). Photos C. Jongkind. Scale bar: C, 1 cm.



FIG. 3. — *Didelotia gracillima* Jongkind, sp. nov. (●), distribution map (Shorthouse 2010).

asymmetrical, rectangular-oblong, the middle ones largest, gradually decreasing in size towards the apex and the base of the leaf, both sides somewhat glossy, slightly paler green below, upper surface glabrous, lower surface with a few small hairs when young; base asymmetrical; apex obliquely rounded, minutely emarginate; midrib prominent on lower surface; main lateral nerves numerous, more evident on lower surface, anastomosing and forming a marginal nerve at a short distance from the edge.

Inflorescence

Axillary, up to 17 cm long and 4 cm wide, pendant; with short, densely flowered, lateral axes inserted alternately along the main axis; with several basal bud scales, broadly ovate, progressively becoming larger distally, apex bilobed, veins parallel, almost glabrous except for a fringe of hairs on the edge; main axis of inflorescence densely pale brown pubescent; bract at base of lateral axis resembling a bud scale.

Flowers

Floral bract caducous, broadly ovate, up to 5×4 mm, veins parallel, a few hairs on the outside, glabrous inside, with a fringe of hairs on the edge; pedicel pink, 4–5 mm long, pale brown, velutinous; bracteoles 2, valvate when enveloping the bud, elliptic, pinkish outside and red inside, 5×3 mm, outside with a few hairs, inside glabrous, nerves parallel; receptacle 1 mm high, 3 mm diam. at the top, glabrous; disk pale brown, 3 mm diam., 1 mm high, glabrous, centre depressed; sepals 5, reddish, rectangular, $c. 1 \times 1$ mm, glabrous; petals 5, alternate to the sepals, red, linear, $c. 3$ mm long, glabrous; stamens 5, alternate to the petals; filaments red, glabrous, $c. 10$ mm long; anthers pale brown, $c. 1.3$ mm long, glabrous; staminodes 5, alternate to the stamens, red, filiform, $c. 3$ mm long, glabrous; ovary greenish,

flat, oblong, $c. 2$ mm high, base and margins densely hirsute, sides glabrous; stipe 0.5 mm long, glabrous; style red, $c. 11$ mm long, proximal part sparsely hirsute, distal part glabrous; stigma capitate.

Fruits

Oblong-rectangular, dull, glabrous, $c. 6 \times 2.5$ cm, beak to 3 mm long, sutures not winged; one faint longitudinal vein running from the base to the apex.

NOTES

The tree from which the flowering type specimen was collected was 18 m high. The 40 meter height in the species description is based on the information from a single tree (*JFFE de Wilde s.n.*) but knowing the stem diameter from several other individuals (see Fig. 2A) it is likely to be correct. Information from collections of the related *D. afzelii* indicates that that species can also flower when still relatively small (Burgt 2016: 52).

The fruit description is based on material collected from the ground, that was probably immature (*Breteler 13394*).

On his line drawing of *Didelotia (Toubaouate) brevipaniculata* in the “*Flore forestière*”, Aubréville (1959: 299) indicated that the flower is from his collection no. 4053 near Grabo, in south-west Ivory Coast. Regrettably this specimen cannot be found in the Paris herbarium. The illustrated flower does not, however, agree with those from the type specimen cited in this publication. The most likely explanation is that Aubréville only had flower buds and no open flowers, and that several flower parts are not fully grown yet. The fruit shown on this illustration is likely based on a specimen from Cameroon, as it matches that of *D. brevipaniculata* s.s. and in any case, does not belong to *D. gracillima*. Other specimens from south-west Ivory Coast are without doubt *D. gracillima*.

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REFERENCES

- AUBRÉVILLE A. 1959. — *La Flore forestière de la Côte d'Ivoire* 2nd ed. Vol. 1. Centre technique forestier tropical, Nogent-sur-Marne, 368 p.
- AUBRÉVILLE A. 1968. — Légumineuses-Césalpinioïdées, in HALLÉ N. (ed.), *Flore du Gabon*. Vol. 15. Muséum national d'Histoire naturelle, Paris, 362 p. (Flore du Gabon; 15).
- BURGT X. M. VAN DER 2016. — *Didelotia korupensis* and *Tessmannia korupensis* (Leguminosae, Caesalpinioideae), two new tree species from Korup National Park in Cameroon. *Blumea* 61: 51-58. <https://doi.org/10.3767/000651916X691402>
- ESTRELLA M. DE LA, FOREST F., KLITGÅRD B., LEWIS G. P., MACKINDER B. A., QUEIROZ L. P. DE, WIERINGA J. J. & BRUNEAU A. 2018. — A new phylogeny-based tribal classification of subfamily Detarioideae, an early branching clade of florally diverse tropical arborescent legumes. *Scientific Reports* 8: 6884. <https://doi.org/10.1038/s41598-018-24687-3>
- LPWG (LEGUME PHYLOGENY WORKING GROUP) 2017. — A new subfamily classification of the Leguminosae based on a taxonomically comprehensive phylogeny. *Taxon* 66 (1): 44-77. <https://doi.org/10.12705/661.3>
- LÉONARD J. 1957. — Genera des Cynometreae et des Amherstieae africaines (Léguminosae-Caesalpinioideae). Essai de blastogénie appliqué à la systématique. *Mémoires de l'Académie royale des Sciences, Lettres et Beaux-Arts de Belgique. Classe des Sciences* [in octavo] 30 (2): 1-314.
- LETOUZEY R. 1977. — *Didelotia pauli-sitai* R. Letouzey, Césalpiniacée nouvelle du Congo. *Adansonia*, sér. 2, 17 (2): 125-127.
- OLDEMAN R. A. A. 1964. — Primitiae Africanae IV. Revision of *Didelotia* Baill. (Caesalpinioideae). *Blumea* 12: 209-239. <http://www.repository.naturalis.nl/document/564964>
- SHORTHOUSE D. P. 2010. — *SimpleMappr, an Online Tool to Produce Publication-Quality Point Maps*. Retrieved from <https://www.simplemappr.net>. Accessed June 12, 2019.
- WHITE F. 1979. — The Guineo-Congolian Region and its relationships to other phytochoria. *Bulletin du Jardin Botanique National de Belgique* 49: 11-55. <https://doi.org/10.2307/3667815>

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