

## Description of *Dactyladenia globosa* (Chrysobalanaceae), a new tree species from Sierra Leone, Liberia and Côte d'Ivoire

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**Background and aims** – While working on an inventory of forests in Nimba County in Liberia several species were collected that could not be identified. One of them, the *Dactyladenia* described here, proved to be new to science.

**Key results** – The new forest tree species *Dactyladenia globosa* Jongkind is described and illustrated. It resembles *D. barteri* (Hook.f. ex Oliv.) Prance & F.White and *D. scabrifolia* (Hua) Prance & F.White, but the fruits of the new species are globose and not pear-shaped and pointed as in the other species. The new species is known from four localities in West Côte d'Ivoire, Liberia, and East Sierra Leone.

**Conservation Status** – The new species is not likely to be common with its conspicuous flowers and fruits and only five specimens collected in the fairly well known area where it occurs. Looking at the relatively small area of occupancy and the rapidly ongoing deforestation in this area the species should be listed as Endangered: EN B2ab(iii).

**Key words** – Chrysobalanaceae, *Dactyladenia*, IUCN, endangered species, Africa, Sierra Leone, Liberia, Côte d'Ivoire.

### INTRODUCTION

In early 2010 two fruiting forest trees were found in the north of Nimba County in Liberia that clearly belonged to the Chrysobalanaceae but that could not be readily identified as one of the known species. All species from this family mentioned in the Flora of West Tropical Africa (Keay 1958), in the Flora of the World: Chrysobalanaceae (Prance & Sothers 2003) and in the more recent Woody plants of Western African forests (Hawthorne & Jongkind 2006) have either a differently shaped fruit or different leaves. In the herbarium at Kew two flowering specimens of the same species were found, they showed the long exerted ligulately connate stamens that made clear without a doubt that the new species belongs in *Dactyladenia*.

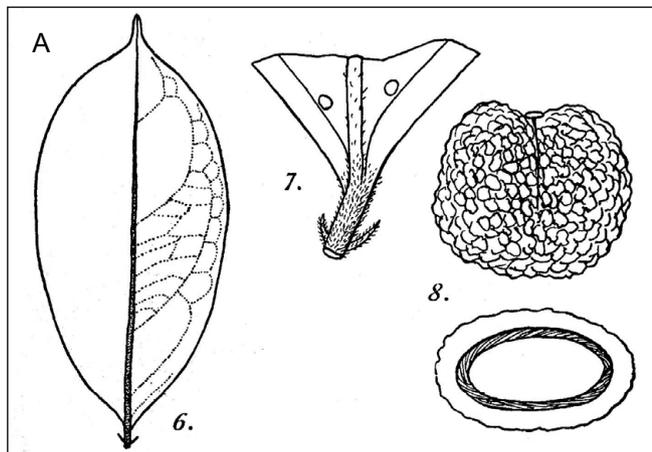
The new *Dactyladenia* can be confused with two species found in the same region, *D. barteri* (Hook.f. ex Oliv.) Prance & F.White and *D. scabrifolia* (Hua) Prance & F.White. These two species have leaves that closely resemble the leaves of the new species and also have the same size and shape of flowers. Three of the specimens that were collected earlier were stored at the Kew herbarium under *D. barteri*. The only botanist that recognized the new species as special was Aubréville (1959: 190), who, in his *Flore Forestière de la Côte*

*d'Ivoire*, identified his specimen as an unnamed *Acioa* (for Africa *Acioa* is a former generic name for *Dactyladenia*). His illustration shows the relatively small glands near the leaf-base (fig. 1A); these glands are usually larger and closer to the petiole in *D. barteri* and *D. scabrifolia*. The subglobose fruit is the most obvious difference between the new species and the two related *Dactyladenia* species; the other two species have flattened ovoid fruits that are usually pointed at the apex. In flower the new species can at first sight be more easily confused with *D. barteri* and *D. scabrifolia* but in *D. globosa* the glands on the inflorescence bracts and bracteoles are larger and much more conspicuous.

Adam, in his *Flore descriptive des Monts Nimba* (1971: 536 & 537), already cites *Adames* 152 (as 752), also a specimen that belongs to the new species, but under *Dactyladenia* (*Acioa*) *barteri*. However, his illustration is not after this specimen but clearly represents the real *D. barteri* with bracts and bracteoles that are not showing any stalked glands and leaves with comparatively large glands close to the petiole. With this new species *Dactyladenia* counts now 31 species (Prance & Sothers 2003), all from tropical Africa. The new species will be the sixth from this genus for Liberia.

**Table 1 – Principal differences between *D. globosa*, *D. barteri* and *D. scabrifolia*.**

	<i>D. globosa</i>	<i>D. barteri</i>	<i>D. scabrifolia</i>
size of the tree (dbh)	tree up to 50 (or 120?) cm in diameter	tree up to 30 cm in diameter	tree up to 30 cm in diameter
glands on lower sides of leaves	small flat glands near base of leaf but not very close to petiole	conspicuous flat glands very close to petiole	conspicuous flat glands very close to petiole
receptacle pubescence	pubescent	pubescent	glabrous
glands on petals, bracts and bracteoles	conspicuous stalked glands present	stalked glands absent	stalked glands absent
fruit shape	subglobose fruits	flattened ovoid fruits that are usually pointed at the apex	flattened ovoid fruits that are usually pointed at the apex



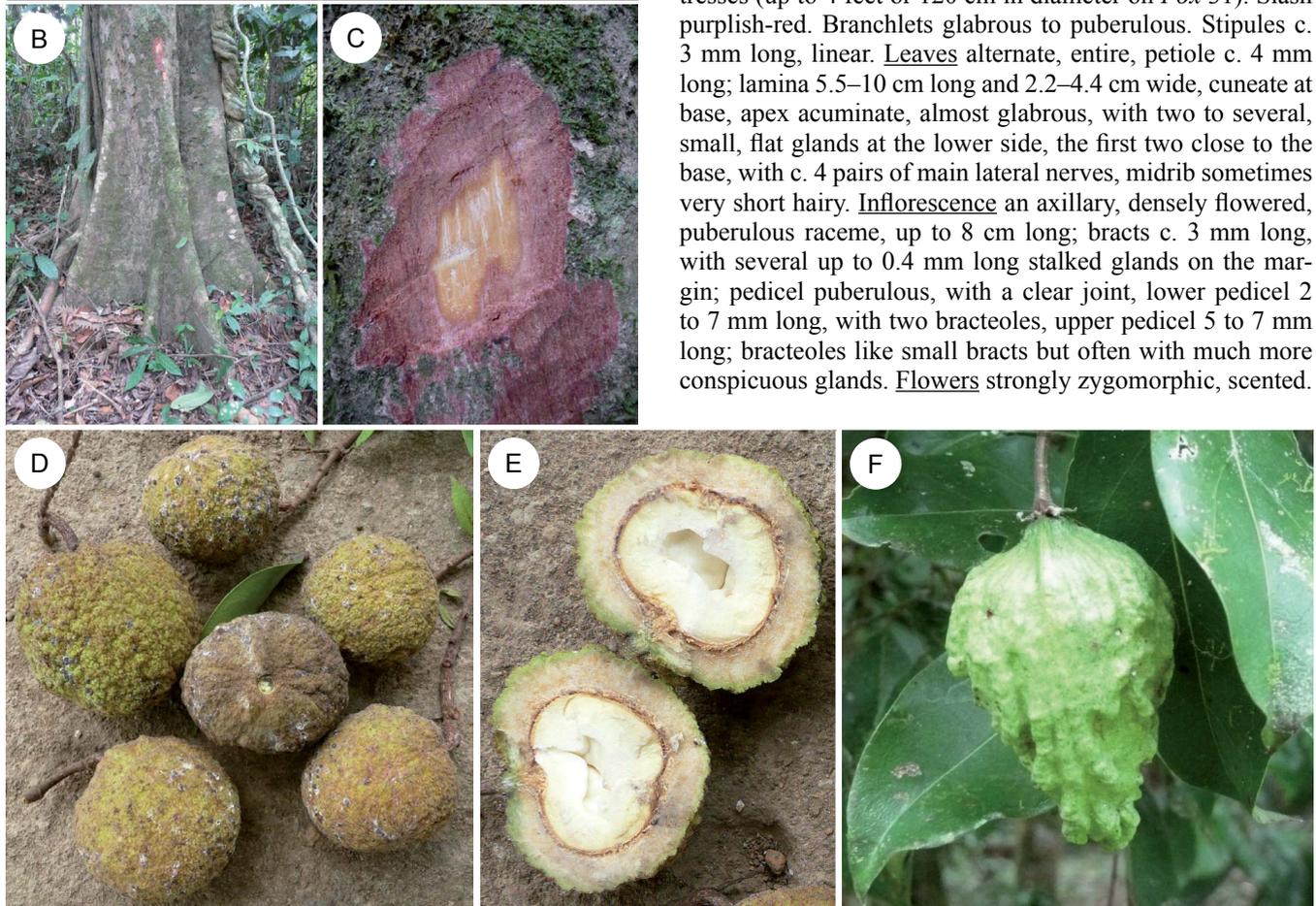
**Figure 1 – A**, copy of Fig 52, 6–8 in *La Flore Forestière de la Côte d’Ivoire* 2<sup>nd</sup> Ed. 1: 177; **B**, stem base of *D. globosa*; **C**, slash of *D. globosa*; **D**, fruits of *D. globosa*; **E**, fruits of *D. globosa* on cross-section; **F**, fruit of *D. barteri*. **D & E** from Jongkind 9592.

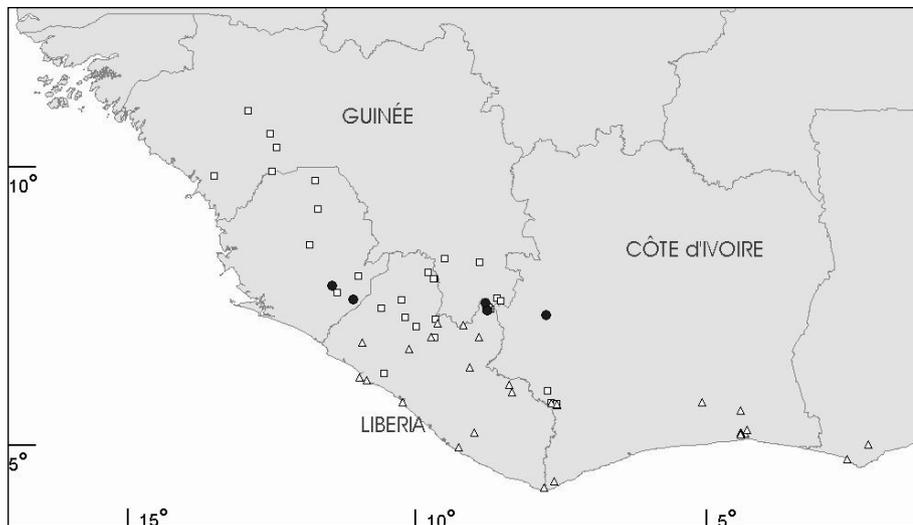
TREATMENT OF THE NEW TAXON

***Dactyladenia globosa* Jongkind, sp. nov.**

Species nova *Dactyladenia barteri* (Hook.f. ex Oliv.) Prance & F.White maxime similis, sed differt fructibus globosis et folio glandibus parvioribus munito. Type: Liberia, Nimba County, between Yekepa and Bonpla, alt. 500 m, 10 Apr. 2010, Jongkind 9592, fr (holo-: WAG; iso-: BR, K, MO).

Tree up to 50 cm in diameter with narrow 1.5 m high buttresses (up to 4 feet or 120 cm in diameter on *Fox* 31). Slash purplish-red. Branchlets glabrous to puberulous. Stipules c. 3 mm long, linear. Leaves alternate, entire, petiole c. 4 mm long; lamina 5.5–10 cm long and 2.2–4.4 cm wide, cuneate at base, apex acuminate, almost glabrous, with two to several, small, flat glands at the lower side, the first two close to the base, with c. 4 pairs of main lateral nerves, midrib sometimes very short hairy. Inflorescence an axillary, densely flowered, puberulous raceme, up to 8 cm long; bracts c. 3 mm long, with several up to 0.4 mm long stalked glands on the margin; pedicel puberulous, with a clear joint, lower pedicel 2 to 7 mm long, with two bracteoles, upper pedicel 5 to 7 mm long; bracteoles like small bracts but often with much more conspicuous glands. Flowers strongly zygomorphic, scented.





**Figure 2** – Map showing the distribution of *Dactyladenia globosa* (solid circles), *D. barteri* (open triangles) and *D. scabrifolia* (open squares). *D. barteri* is also found East of the area on this map.

**Receptacle-tube** 5–6 mm long, with minute erect hairs on the outside. **Sepals** 5, ovate-oblong to elliptic, 4 mm long, rounded at apex, tomentose inside as well as on the outside parts covered in bud; the outer sepals often with a few conspicuous stalked glands on the edge. **Petals** 5, 5–6 mm long and 4 mm wide, oblong-elliptic, glabrous, thin, white. **Stamens** c. 14, 2–2.5 cm long, glabrous, filaments ligulately connate for c. 2/3 of their length; anthers c. 0.6 mm long. **Staminodes** short, denticulate, glabrous. **Style** about as long as the stamens, glabrous; ovary in the mouth of the receptacle, long-velutinous. **Fruit** subglobose, 4–4.5 cm in diameter, tuberculate, velutinous, 1-seeded; seed white in cross-section, surrounded by a dense layer of long golden-brown hairs. Fig. 1.

**Habitat and distribution** – High forest from eastern Sierra Leone to western Côte d’Ivoire. Fig. 2.

**Additional specimens studied** – **Sierra Leone**: Kambui Hills Forest Reserve, 16 Mar. 1965, *Fox* 31, fr (K); Gola north, Lalehun camp, 26 Nov. 1964, *Samai* 181, fl (K).

**Liberia**: Nimba Reserve, LAMCO Hq Camp, 12 Nov. 1964, *Adames* 152, fl (K). **Côte d’Ivoire**: Région de Man, Apr. 1932, *Aubréville* 1183, fr (P).

**Conservation status** – The new species is not likely to be common with its conspicuous flowers and fruits and only five specimens collected. In the past several botanists worked for longer periods in the area from where the new species is known now. The extent of occurrence was calculated to be 6521.1 km<sup>2</sup>, the area of occupancy is estimated as 49.93 km<sup>2</sup> (cell size 3.16 km). The number of locations is five. The main threat for the species is the rapidly ongoing deforestation in the area where most forest is already gone. Therefore, following the IUCN criteria (IUCN 2001), the species should be listed as Endangered: EN B2ab(iii).

**Notes on related taxa** – When comparing the material of the three *Dactyladenia* species mentioned in this publication it was surprising to see how much *D. barteri* and *D. scabrifolia* do look alike. It seems that the only difference is the indumentum on the flowers. It is possible that *D. scabrifolia* is no more than a geographical form of *D. barteri*. *D. scabrifolia* is known from Guinée, Sierra Leone and Liberia, *D. barteri* from Liberia all the way to the East of the Democratic Republic of Congo (Letouzey 1988).

#### ACKNOWLEDGEMENTS

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#### REFERENCES

- Adam J.G. (1971) Flore descriptive des Monts Nimba (2e partie). Mémoires du Muséum National d’Histoire Naturelle, série B, Botanique 22: 535–905. Paris, Editions du Muséum.
- Aubréville A. (1959) La Flore Forestière de la Côte d’Ivoire 2<sup>nd</sup> Ed. vol. 1. Nogent-sur-Marne, Centre Technique Forestier Tropical.
- Hawthorne W.D., Jongkind C.C.H. (2006) Woody plants of Western African forests, A guide to the forest trees, shrubs and lianes from Senegal to Ghana. Kew, Royal Botanic Gardens.
- IUCN (2001) IUCN Red list categories and criteria: version 3.1. Gland, Switzerland and Cambridge, United Kingdom, IUCN Species Survival Commission..
- Letouzey R. (1988) *Dactyladenia*. In: Prance G.T., White F. (eds) The genera of Chrysobalanaceae. Philosophical Transactions of the Royal Society, B, 320: 133–145.
- Keay R.W.J. (1958) Rosaceae. In: Flora of West Tropical Africa, 2<sup>nd</sup> Ed., part 1, 2: 423–433. London, Crown Agents for Oversea Governments and Administrations.
- Prance G.T., Sothers C.A. (2003) Chrysobalanaceae 2: *Acioa* to *Magnistipula*. In: Species Plantarum: Flora of the World Part 10: 1–268.

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