


Novitates Gabonenses 87 – A new *Urobotrya* from Gabon

**Author:**Carel Jongkind¹ **Affiliation:**¹Botanic Garden Meise, Meise, Belgium**Corresponding author:**Carel Jongkind,
carel.jongkind@kpnmail.nl**Dates:**

Received: 18 June 2017

Accepted: 16 Jan. 2018

Published: 24 May 2018

How to cite this article:Jongkind, C., 2018, 'Novitates Gabonenses 87 – A new *Urobotrya* from Gabon', *Bothalia* 48(1), a2275.
<https://doi.org/10.4102/abc.v48i1.2275>**Copyright:**© 2018. The Authors.
Licensee: AOSIS. This work is licensed under the Creative Commons Attribution License.**Background:** Previously unidentified herbarium material from tropical West and Central Africa was selected for renewed study.**Objectives:** To assess the possibility that this material included undescribed species.**Methods:** Seeds were separated from dried or pickled fruits to compare the shape of the endocarp and surface patterning.**Results:** Previously unidentified herbarium material from Gabon is recognised and illustrated as the new species *Urobotrya gabonensis*.**Conclusions:** This new species adds one more endemic species to the already rich flora of Gabon.

Introduction

Several years ago in the forest near Lastoursville in Gabon, we found a shrub with yellow fruits. For years it remained unidentified, but dissection work shows now that its endocarp and seed are almost identical to *Urobotrya congolana* (Baill.) Hiepko. Both species have an endocarp that is ridged and slightly reticulate on the surface, with a similar hole at the base (Figure 1a and b). *Urobotrya* Stapf (Opiliaceae) is an Old World genus with seven species (Hiepko 1985, 2008; Kuijt & Hansen 2014). Opiliaceae is included in Santalales (Kuijt & Hansen 2014; Su et al. 2015).

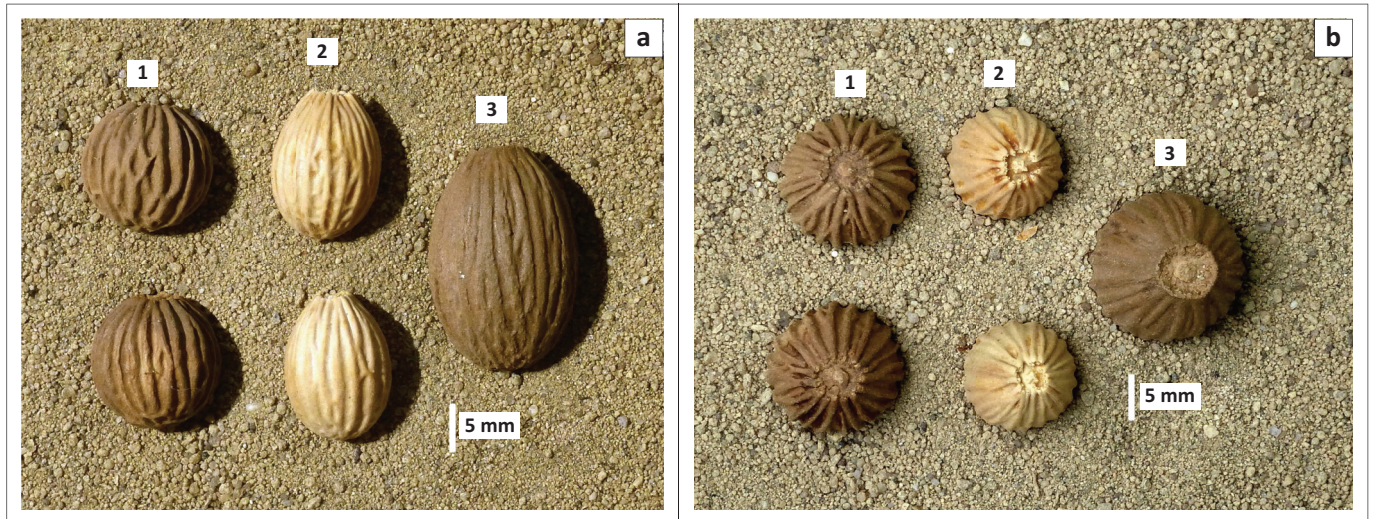
Only two *Urobotrya* species are currently known from Africa, both restricted to the tropical Guineo–Congolian forests (Hiepko 1985, 2008). *Urobotrya sparsiflora* (Engl.) Hiepko usually has a more slender seed than *U. congolana* with a less conspicuous pattern on the surface of the endocarp. However, the endocarp of *U. sparsiflora* plants with large fruits can hardly be distinguished from those of *U. congolana* subsp. *congolana*. *Opilia amentacea* Roxb. is the only other member of Opiliaceae known from the Guineo–Congolian forests with more-or-less similar fruits and infructescences. It has a more fragile endocarp with less closely placed ridges and a clear reticulate pattern between the ridges. These species also differ in the fruit exocarp, which is thin in *U. congolana* and *U. sparsiflora*, but more leathery in *O. amentacea*. In the literature, the main difference between the two genera is the shape of the disk: annular in *Urobotrya* and lobed in *Opilia*.

In many cases fruiting plants cannot be identified in floras because most key characters are floral. However, it is often possible to get to the correct family and even to the genus and species using the characters of habit, exudate, leaves and fruits (Hawthorne & Jongkind 2006). In the case of our yellow-fruited shrub from Gabon, even the family placement was initially doubtful. The axillary racemes with one-seeded, medium-sized, fleshy fruits without clear calyx and the alternate, exstipulate, entire leaves suggested Opiliaceae and Icacinaceae. Unfortunately, no detailed description of the fruit exists for most genera and species in these families. For this identification, the fruits from tropical African species in several genera of the Icacinaceae and Opiliaceae were dissected and characters were compared. Only the endocarp and seed of *U. congolensis* showed a clear match. The very slender embryo that is nearly as long as the seed and surrounded by copious endosperm is a family character for Opiliaceae (Hiepko 2008).

Because our shrub from Gabon is almost certainly a species of *Urobotrya* and because it differs from the two species known from Africa (Table 1), it is described here as the new species, *Urobotrya gabonensis*. The fruiting pedicel of the new species is only ca. 2 mm long, which is much shorter than in the other African *Urobotrya* species, and its infructescence is more compact than in the other species. The leaf shape is also different from the other African *Urobotrya* species, with the blade narrowing more gradually to the apex and petiole.

Read online:

Scan this QR code with your smart phone or mobile device to read online.

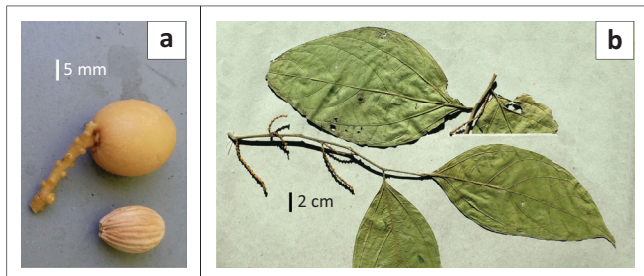


Source: Photos courtesy of C. Jongkind

FIGURE 1: (a) endocarp side view; (b) endocarp view from below. (1) *Urobotrya congolana* subsp. *afzelii* (2x) [Jongkind et al. 2143 (WAG) from Ghana]; (2) *Urobotrya gabonensis* [Breteler et al. 11265 (WAG) from Gabon]; (3) *Urobotrya congolana* subsp. *congolana* [Bos 4917 (WAG) from Cameroon]. The differences in colour of the endocarp is not a species character, but the result of different ways of preservation.

TABLE 1: Comparison of fruit and endocarp of the African *Urobotrya* species.

Variable	<i>U. gabonensis</i>	<i>U. congolana</i> subsp. <i>congolana</i>	<i>U. congolana</i> subsp. <i>afzelii</i>	<i>U. sparsiflora</i>
Fruit pedicel	ca. 2 mm long	15 mm 18 – mm long	12 mm – 17 mm long	10–13 (–16) mm long
Endocarp	ca. 15 mm × 10 mm, ellipsoid-obovoid	20 mm 30 mm × 12 mm – 15 mm, ellipsoid	ca. 13 mm × 12 mm, subglobose	10 mm – 16 mm × 5 mm – 10 mm, ellipsoid to subcylindrical



Source: Photos courtesy of C. Jongkind

FIGURE 2: *Urobotrya gabonensis*. (a) Fruit still attached to part of infructescence and a separate endocarp (pickled material). (b) Branch with leaves and empty infructescences. From the type specimen (WAG).

It is not possible to place the new species in one of the two sections of *Urobotrya* described by Hiepko (2008) because flowers have not been seen. In fruit *U. gabonensis* has, with its short fruit pedicel and its leaf shape, more in common with the Asian *Urobotrya* species than with the African species.

The newly described endemic species is one of over 500 plant species considered to be endemic to Gabon (Sosef et al. 2006).

Research method and design

All relevant herbarium collections from the BR, P and WAG herbaria (Thiers 2017) were examined, including ca. 100 *Urobotrya* specimens. Fruits from different genera and

species of Icacinaceae and Opiliaceae were dissected and the endocarps and seeds were compared.

Taxonomic treatment

Urobotrya gabonensis Jongkind, *sp. nov.*

Type: Gabon, Ogooué-Lolo, Bambidie, ca. 30 km E of Lastoursville, 03 May 1992 [fruiting], Breteler, Jongkind & Wieringa 11265 (WAG, holo. + alcohol sample; BR, E, HJ, K, LBV, MO, W, iso.)

Description

Shrub ca. 4 m high. *Leaves* – alternate, exstipulate, petiole glabrous, 3 mm – 9 mm long, blade ovate to elliptic, 70 mm – 200 mm × 35 mm – 120 mm, glabrous and glossy above, dull beneath, with small scattered hairs, pinnately nerved with 4–7 pairs of main lateral nerves, the one or two lowest pairs thicker than the others and often ascending far beyond the middle of the leaf, margin entire, base acute, apex acuminate. *Flowers* – not known. *Infructescence* – a raceme up to 60 mm long, solitary or paired per axil, shortly pedunculate, ebracteate, densely puberulous. *Drupe* – ellipsoid, ca. 20 mm × 15 mm, smooth, yellow, with four small fleshy disk remnants at base, stipe ca. 2 mm long, jointed in the middle; mesocarp of fresh fruit 3 mm – 4 mm thick; endocarp ca. 15 mm × 10 mm, with longitudinal, slightly reticulate ridges and a strong, more-or-less square depression at base; embryo very slender, embedded in copious endosperm and nearly as long as the seed (Figures 1a2, 1b2 and Figure 2).

Ecology and distribution

Urobotrya gabonensis is known only from undergrowth of the tropical forest at the type location in Gabon (Figure 3).

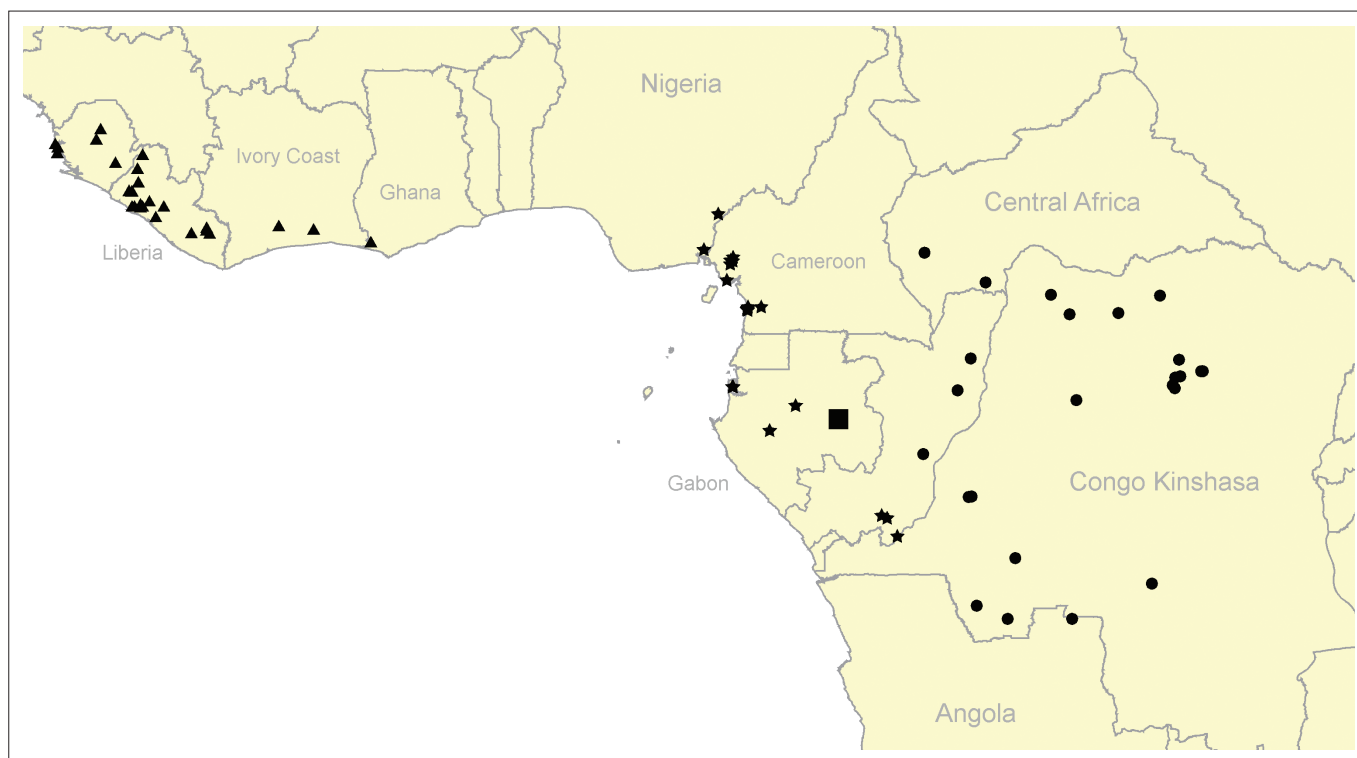


FIGURE 3: Map of *Urobotrya gabonensis* (■), *U. congolana* subsp. *afzelii* (▲), *U. congolana* subsp. *congolana* (★) and *U. sparsiflora* (●). Based on herbarium specimens.

Diagnosis

Urobotrya gabonensis differs from the other African species in the shape of the leaf, the blade narrowing more gradually to the apex and especially to the petiole. The drupe is similar to that of *U. congolana*, ellipsoid and ca. 20 mm × 15 mm. The fruit stipe is ca. 2 mm long, thus much shorter than in the other African *Urobotrya* species in which it is 12 mm – 18 mm long, and the infructescence is more compact than in the other species (Table 1).

Conservation notes

Urobotrya gabonensis is currently known from a single locality. Following the International Union for Conservation of Nature Red List Categories and Criteria (IUCN 2015), it could be classified as Critically Endangered, but there is still much forest in the Ogooué-Lolo Province where it is found and a large part of that forest remains unexplored. Despite this, *U. gabonensis* would not be easy to overlook when fruiting owing to its yellow fruits that occur more-or-less at eye level, so it can hardly be common and widespread. Much collecting has already taken place from the same forest area where *U. gabonensis* is found, but the species has not been relocated. Because of this, a preliminary conservation status of Vulnerable is proposed for *U. gabonensis*.

Acknowledgements

The author would like to thank the reviewers for their comments, which helped to improve the manuscript.

Competing interests

The author declares that he has no financial or personal relationships that may have inappropriately influenced him in writing this article.

References

- 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*, Royal Botanic Gardens, Kew, 1023 p.
- Hiepko, P., 1985, "A revision of Opiliaceae III," *Urobotrya* Stapf. *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* 107, 137–152.
- Hiepko, P., 2008, 'Opiliaceae', *Species Plantarum: Flora of the World* 12, 1–71.
- IUCN, 2015, *IUCN red list categories and criteria: Version 3.1*, IUCN, Gland, Switzerland.
- Kuijt, J. & Hansen, B., 2014, 'Opiliaceae', *The Families and Genera of Vascular Plants* 12, 137–141. <https://doi.org/10.1007/978-3-319-09296-6>
- Sosef, M.S.M., Wieringa, J.J., Jongkind, C.C.H., Achoundong, G., Azizet Issembe, Y., Bedigian, D. et al., 2006, 'Check-list des plantes vasculaires du Gabon/Checklist of Gabonese vascular plants', *Scripta Botanica Belgica* 35, 438.
- Su, H.-J., Hu, J.-M., Anderson, F.E., Der, J.P. & Nickrent, D.L., 2015, 'Phylogenetic relationships of Santalales with insights into the origins of holoparasitic Balanophoraceae', *Taxon* 64, 491–506. <https://doi.org/10.12705/643.2>
- Thiers, B., 2017, [continuously updated]: *Index Herbariorum. A global directory of public herbaria and associated staff*, New York Botanical Garden's Virtual Herbarium, viewed 03 July 2017, from <http://sweetgum.nybg.org/science/ih/>