

On the taxonomy and typification of *Morinda lucida* Benth. (Rubiaceae)

Gopika GOPAN,
V. P. THOMAS &
Binoy T. THOMAS



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On the taxonomy and typification of *Morinda lucida* Benth. (Rubiaceae)

Gopika GOPAN
V. P. THOMAS*
Binoy T. THOMAS

CATH Herbarium, Postgraduate and Research Department of Botany,
Catholicate College, Pathanamthitta, Kerala, 689 645 (India)
*corresponding author (amomum@gmail.com)

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ABSTRACT

Morinda lucida Benth. (Rubiaceae) an important medicinal plant used by natives of Africa is typified here. The specimen housed at K bearing barcode number K000379504 is designated here as lectotype of *M. lucida* and digital image of lectotype is presented here. A detailed description, illustration and photographs are also provided for the easy identification of species.

RÉSUMÉ

Taxonomie et typification de Morinda lucida Benth. (Rubiaceae).

Morinda lucida Benth. (Rubiaceae), une importante plante médicinale utilisée par les natifs d'Afrique, est typifiée ici. Le spécimen de l'herbier K portant le numéro de code barres K000379504 est désigné ici comme lectotype de *M. lucida* et est illustré. Une description détaillée, une illustration et des photographies sont également fournies pour faciliter l'identification de l'espèce.

KEY WORDS
Rubiaceae,
Morinda,
lectotypification.

MOTS CLÉS
Rubiaceae,
Morinda,
lectotypification.

INTRODUCTION

The genus *Morinda* L. is a prominent genus within the Rubiaceae, and comprises 39 accepted species with distribution in tropical and subtropical regions (POWO 2024). The genus is characterized by its predominantly shrubby and arboreal habit, possession of petiolate or sessile leaves, chartaceous to coriaceous lamina, terminal or axillary leaf opposed head of flowers, bilocular ovary and syncarpous fruit (Kesonbua & Chantaranonthai 2013). *Morinda lucida* Benth. is an African native, specifically found in regions ranging from Senegal to Sudan and extending southwards to Angola and Zambia, as well as Nigeria (Vijayakumar *et al.* 2017). Recently, Vijayakumar *et al.* (2017) reported the occurrence of *M. lucida* Benth. from Nagapattinam district of Tamil Nadu. Unfortunately, field exploration and herbarium visits did not lead us to locate specimens from India.

Morinda lucida is a nutraceutical plant, exhibits a diverse array of pharmacological activities. Its historical usage by rural communities primarily stems from its perceived medicinal properties (Adeyemi *et al.* 2014). Archana *et al.* (2023) misidentified *M. lucida* in their studies of exploring antitumour potential against melanoma cancer. Furthermore, within the comprehensive examination encompassing ethnomedicinal applications, phytochemistry, pharmacological properties, clinical implications, and toxicological assessments of eleven *Morinda* species indigenous to India, it has come to light that there exists a notable occurrence of misidentification pertaining to *M. lucida* (Singh & Sharma 2019). Misidentification of medicinal plants poses significant barriers to their marketing and consumption. Consequently, it is imperative to ensure accurate identification and authentication of the respective species. The name *M. lucida* has not yet been typified properly from a nomenclatural aspect. Therefore, lectotype (K000379504!) is selected from the original material used by Bentham and designated.

MATERIAL AND METHODS

Taxonomic studies were carried out based specimens housed at various herbaria in India and on the open access foreign digital herbaria *viz.* BM, BR, CATH, COI, DR, FHI, GC, HNBU, K, NMNH and YA. Live materials of *M. lucida* cultivated in the Lalbagh Botanical Garden, Bangalore were also used for the preparation of detailed description and illustration of taxa. After a critical evaluation of type material and protologue, lectotype is designated for *M. lucida* in accordance with ICN (Turland *et al.* 2018). Distribution map was prepared using Simple Mapp, based on data accessed from IUCN Red list (IUCN SSC & BGCI 2020), GBIF (GBIF 2024) and wild collections deposited at various digital herbaria.

ABBREVIATIONS

Collection acronyms

BM Herbarium, Natural History Museum;
BR Herbarium, Meise Botanical Garden;

CATH Herbarium, Catholique College, Pathanamthitta;
COI Herbarium, University of Coimbra;
DR Herbarium, Technische Universität Dresden;
FHI Herbarium, Forestry Research Institute of Nigeria;
GC Herbarium, University of Ghana
HNBU Herbarium, Institut de l'Environnement et de Recherche Agricola (INERA);
K Herbarium, Royal Botanic Gardens, Kew;
NMNH National Museum of Natural History, New Delhi;
YA National Herbarium of Cameroon.

TAXONOMIC TREATMENT

Family RUBIACEAE Juss.

Genus *Morinda* L.

Morinda lucida Benth.

(Figs 1; 2; 3)

Niger Flora, London 849: 406 (Bentham in Hooker 1849). — Type: **Equatorial Guinea** • Fernando Po leg.; *De Vogel* 77; lectotype: K[K000379504!], **here designated**.

PHENOLOGY. — Flowering and fruiting is from July–December.

GLOBAL DISTRIBUTION. — Angola, Benin, Cabinda, Cameroon, Central African Republic, Congo, Gabon, Ghana, Guinea, Guinea-Bissau, Gulf of Guinea Is., Ivory Coast, Liberia, Nigeria, Senegal, Sierra Leone, Sudan, Tanzania, Togo, Uganda, Zaïre (POWO 2024) (Fig. 4).

IUCN STATUS. — *M. lucida* has wide distribution and the species is not currently affected by any major threats and assessed under the category Least concern (IUCN SSC & BGCI 2020).

SPECIMEN EXAMINED. — **India** • Karnataka, Bengaluru, Lalbagh Botanical Garden; 900 m alt.; 12°56'20.4"N, 77°35'04.9"E; 20.VI.2023; *Gopika Gopan* 21050; CATH[CATH21050].

Ghana • Greater Accra Region, Ada; 1.I.1984; *Isert s.n.*; C[C10004191] • Achimota; III.1931; *Irvine* 1602; GC[GC000007778] • Dixcove; 31.III.1954; *Morton* A478; GC[GC000007779].

Equatorial Guinea • Fernando Po leg.; *Vogel* 77; K[K000379504]. **Angola** • Cuanza Norte; VI.1935; *John* 10305; COI[COI00067774] • Cabinda, Belize P. O. Maiombe; 31.XII.1918; *John* 10170; COI[COI00067776] • Cuanza Norte, Gossweiler; VI.1935; *John* 10305; COI[COI00067775] • Uige, Quimbele, Kibokolo; 20.III.2018; Jendras leg.; DR[DR051641, DR051642].

Côte d'Ivoire • Abidjan; 21.IV.1967; *Bonzi* 908; HNBU[HNBU02209].

Liberia • Iboke, Cavalla River drainage; 24.V.1948; *Mayer* 133; NMNH[NMNH00819075].

Togo • Lome-Palime; 2.IX.1971; *Breteler* 7125; NMNH[NMNH02692471].

Cameroon • South-west province; 20.VIII.1983; *Thomas* 2484; YA[YA0053750] • *Bates* 1185; BM[BM014128248] • Municipio de Kembele; 20.II.2015; *Ditsch* BD777; DR[DR067666].

Burkina Faso • Sud-Ouest; 10.VII.1986; *Etuge et al.* 206; NMNH[NMNH02692470].

Congo • Province Orientale, Ango, Mombele Camp Chefferie; 1938; *Gilbert* 1654; NMNH[NMNH02692472] • Province Orientale, Territory Isangi, Jangambi; *Gilbert* 1147; NMNH[NMNH02692473] • *Louis* 1144; BR[BR0000006860677].

Gabon • III.1904; *Klaine* 3466; NMNH[NMNH02692475].

Nigeria • 27.IV.1977; *Ibhanesebhor et al.* GJ174; FHI[FHI0089510-0].

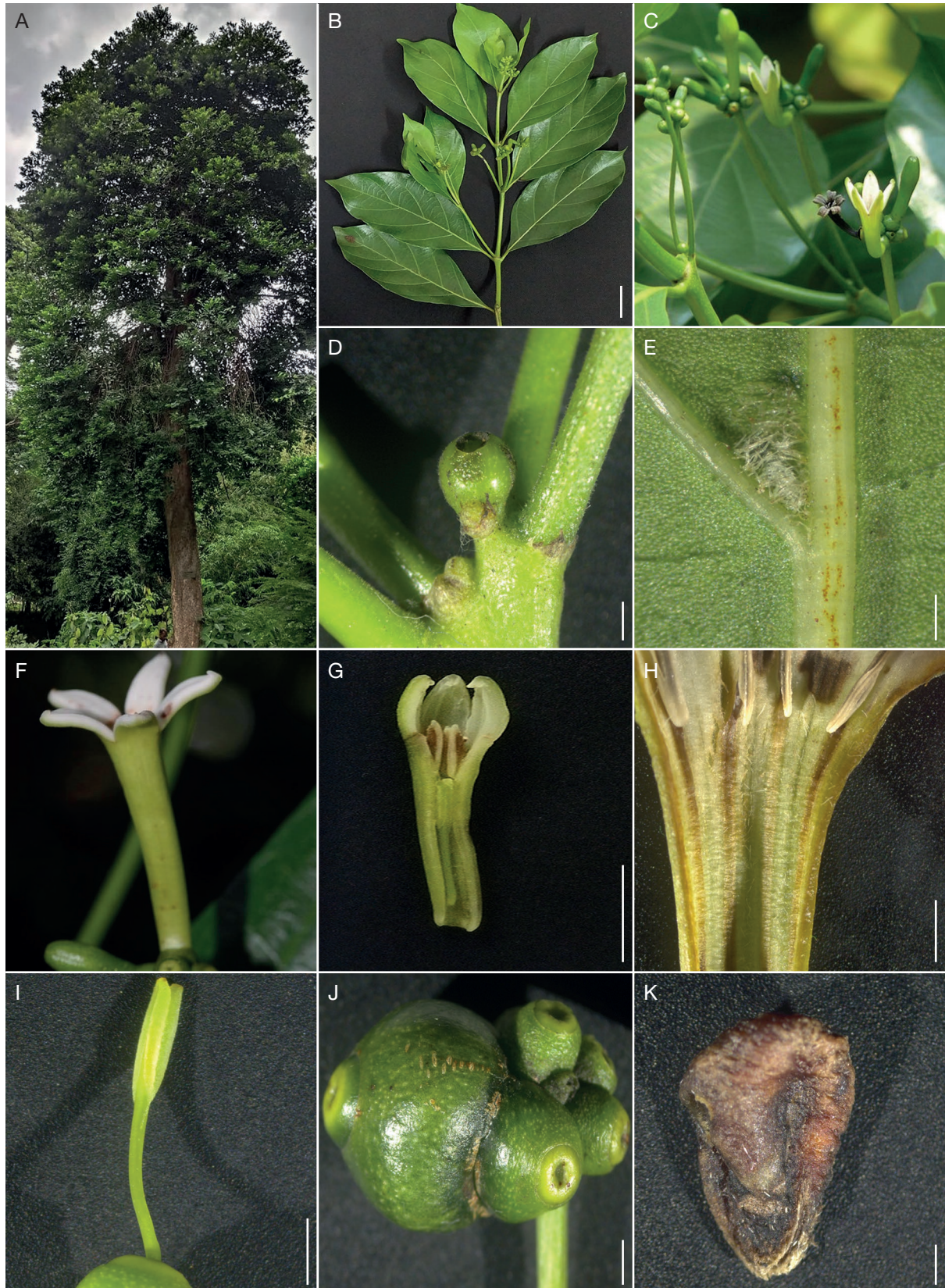


FIG. 1. — *Morinda lucida* Benth.: **A**, habit; **B**, twig; **C**, flowers; **D**, gland; **E**, domatium; **F**, single flower; **G**, corolla tube opened; **H**, corolla throat inside; **I**, style and stigma; **J**, fruit; **K**, seed. Scale bars: A, C, F, not to scale; B, 2 cm; D, K, 1 mm; E, 0.5 mm; G, 1 cm; H-J, 2 mm.

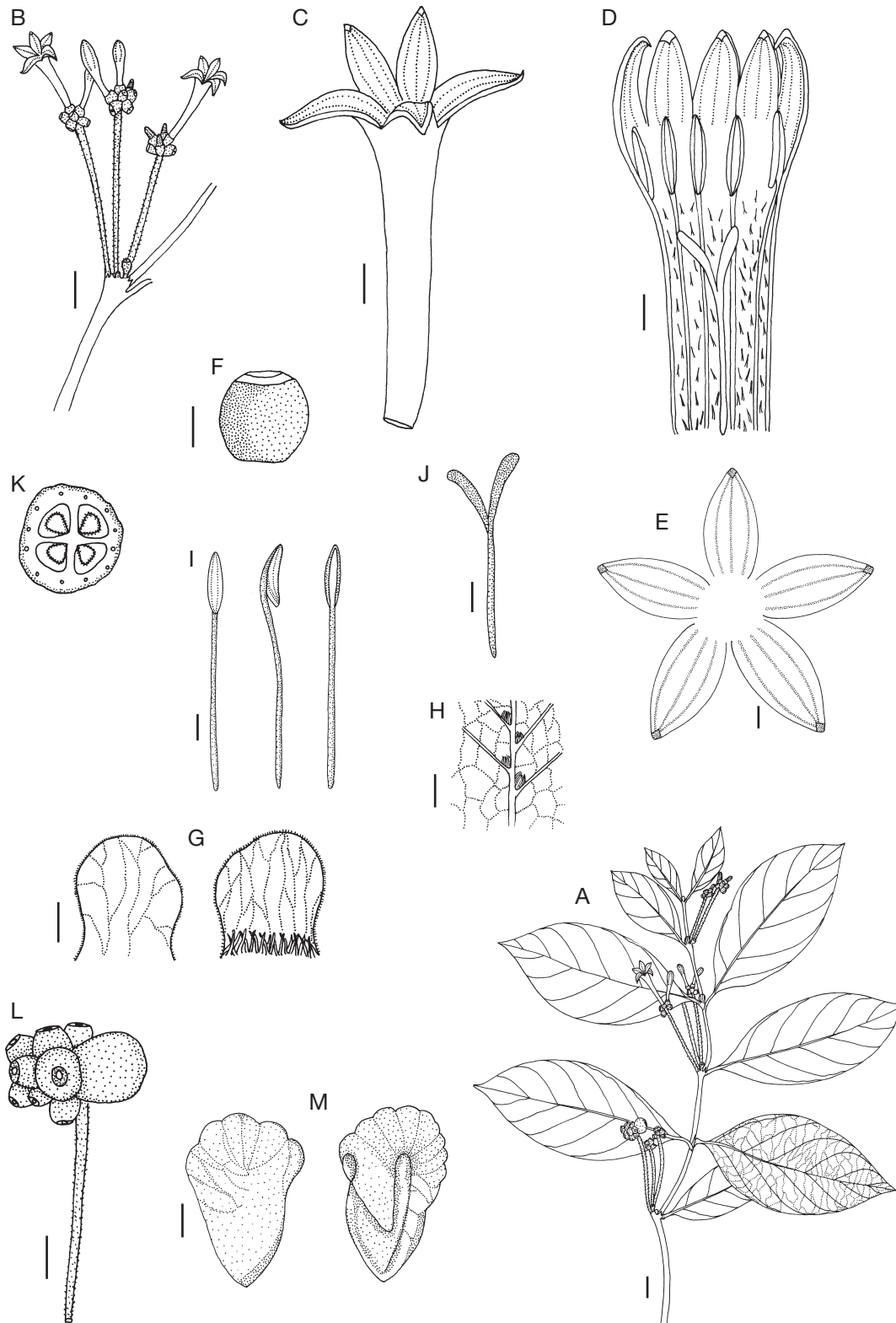


FIG. 2. — *Morinda lucida* Benth.: **A**, flowering twig; **B**, inflorescence; **C**, flower; **D**, flower split open; **E**, corolla lobes; **F**, calyx; **G**, colleters in stipule; **H**, domatia in axils of secondary veins; **I**, stamen; **J**, style and stigma; **K**, c.s. of ovary; **L**, fruit; **M**, seed. Scale bars: A, B, H, 1 cm; C, D, I, 0.2 cm; E–G, J, K, M, 0.1 cm; L, 0.3 cm.

DESCRIPTION

Evergreen trees. Bark glabrous, rough, pale brown. Branches-quadrangular in younger and terete to older branches. Leaves

opposite-decussate, elliptical, petiolate, glossy; petiole smooth, 0.8–1.4 × 0.15–0.2 cm, slightly pubescent towards base; lamina elliptic, glossy, 7.0–13 × 3.5–5.8 cm, base attenuate, margin



Fig. 3. — Lectotype of *Morinda lucida* Benth., Vogel 77 (K000379504) © The Board of Trustees of the Royal Botanic Gardens, Kew.

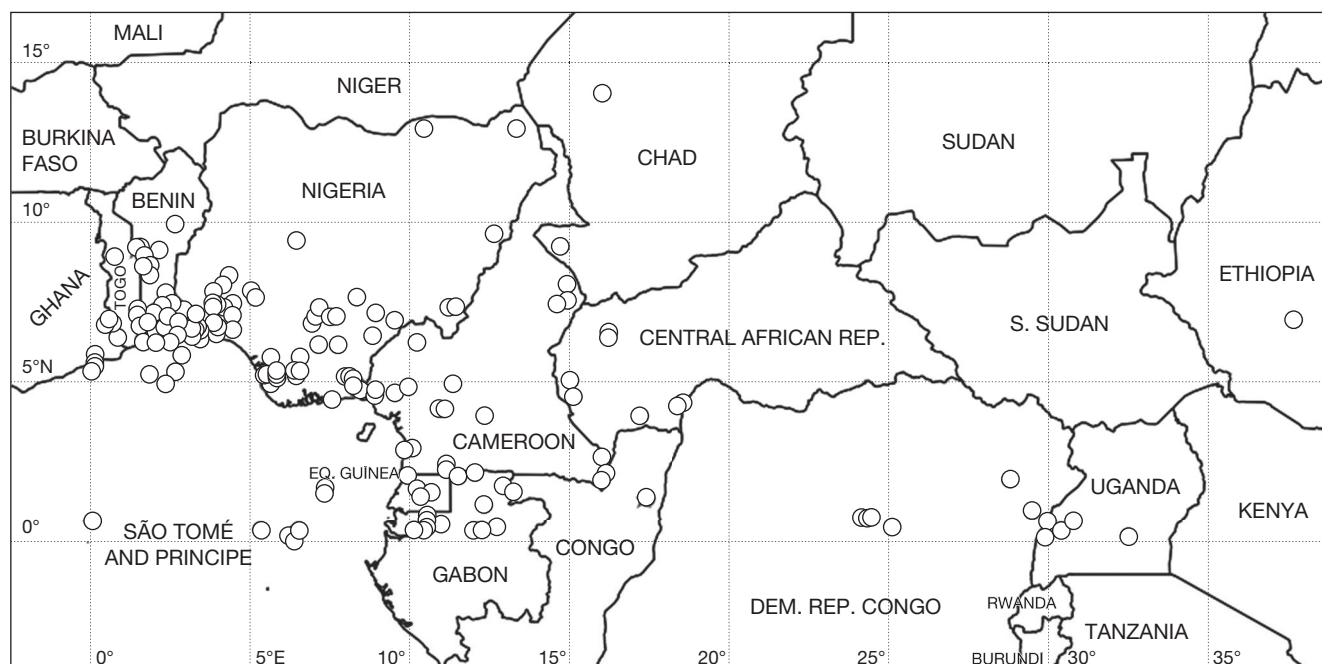


FIG. 4. — Distribution map of *M. lucida* Benth.

entire and wavy, apex acute to acuminate; lateral veins 5-7 pairs, raised abaxially; domatium present on the axils of lateral veins in abaxial surface. Stipules entire, green, glabrous, $0.2-0.7 \times 0.3-0.6$ cm, forming sheath enclosing basal parts of the internode, not persistent, colleters on adaxial base. Inflorescence terminal and axillary heads; ovaries connate into pedunculate capitula, each capitulum composes of 5-7 flowers fused by its ovaries. Flowers tubular, 2.1-2.5 cm long, white, fragrant, sessile, glabrous. Peduncle 3-4 per node, $1.8-4.5 \times 0.15$ cm, green, glossy, slightly hairy, one larger and smaller knob-like gland between peduncle and stem. Calyx truncate, 0.25-0.35 cm long, adnate to the ovary, green and glabrous. Corolla valvate, white; tube greenish-white, 1.6-2 cm long, glossy, glabrous outside and slightly hairy inside; throat glabrous; lobes 5, salver shaped, $0.5-0.6 \times 0.25-0.3$ cm, entire margin, apex acute and hooded at tip, glossy. Stamens 5, epipetalous, introrse; filaments white, 1.5-2 cm long, glabrous; anther 2-celled, $0.4-0.5 \times 0.05-0.1$ cm, dorsifixed, whitish yellow, glabrous, dehiscent longitudinally; pollen numerous. Ovary 0.2-0.3 cm in diameter, 2 locules, 1 ovule per locule; style greenish, 0.7-1.2 cm long, smooth, glossy; stigma greenish white, inserted in corolla tube, bifid. Infructescence syncarpous, $1-1.5 \times 1.2-1.5$ cm, greenish color turning blackish brown on ripening, smooth, calyx persistent and glabrous. Seeds 4-5, triangular, $0.6-0.75 \times 0.4-0.5$ cm, blackish brown, not winged, wrinkled, numerous.

TIPIFICATION REMARKS

George Benthham described *M. lucida* in Hooker's *Niger Flora* (Benthham in Hooker 1849). In the protologue, Benthham gave a brief diagnosis based on the collections made by De Vogel from two regions in Equatorial Guinea: Quorra & Fernando Po (Bioko). While searching for the original materials, the specimen from Quorra has not been traced from any herbaria

and material collected by De Vogel from Bioko is located at herbarium of Royal Botanic Gardens, Kew (barcode number: K000379504). Daniel Oliver discussed about two *Morinda* species in the *Flora of Tropical Africa* (Oliver 1877: 191), *Morinda citrifolia* L. and *Morinda longiflora* G. Don. He mentioned *M. lucida* as a variety of *M. citrifolia* and labelled the specimen of De Vogel as *M. citrifolia* L.

DESCRIPTION AND ILLUSTRATIONS OF AFRICAN MORINDA
M. longiflora, *M. confusa*, *M. lucida* and *M. geminata* has been described and illustrated in *Bulletin of Miscellaneous Information* (Hutchinson 1916). Hutchinson & Dalziel (1963) identified De Vogel's material as *M. lucida* and published in the *Flora of West Tropical Africa*. Davis & Figueiredo (2007) published a detailed checklist of the Rubiaceae on the islands of Bioko and Annobon based on herbarium collections from K and BMNH. In this, De Vogel material of *M. lucida* was described as a syntype and Barter 2039 (K) as a representative specimen. We consider the most appropriate choice of lectotype to be the De Vogel specimen in K with barcode K000379504. This specimen clearly shows the main morphological features identifying it as *M. lucida*, i.e. oval shaped leaf with brief petiole, 1-3 peduncles per node and globose capitulum.

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REFERENCES

- ADEYEMI T. O. A., OGBORUR O., IDOWU R. O., OWOYE E. A. & ISESE M. O. 2014. — Phytochemical screening and health potentials of *Morinda lucida* Benth. *International Journal of Innovation and Scientific Research* 11 (2): 515-551.
- ARCHANA D. B., CHADHA M., SANGHAVI S. J., MAZHA M., MUZ-TABA M., SAROJ B. K. & SHARMA K. 2023. — *Morinda lucida* extract composition for treatment of melanoma cancer and anti-malarial activity and its preparation. *European Chemical Bulletin* 12: 2962-2972. <https://doi.org/10.31838/ecb/2023.12.sa1.184>
- DAVIS A. P. & FIGUEIREDO E. 2007. — A checklist of the Rubiaceae on the islands of Bioko and Annobon (Equatorial Guinea, Gulf of Guinea). *Systematics and Biodiversity* 5 (2): 159-186. <https://doi.org/10.1017/S1477200006002143>
- GBIF 2024. — Global Biodiversity Information Facility. <https://www.gbif.org/search?q=Morinda%20lucida> (accessed 5 October 2024).
- HOOKE W. J. 1849. — *Niger Flora: Or, an Enumeration of the Plants of Western Tropical Africa*. Baillière, London, 406 p. <https://doi.org/10.5962/bhl.title.594>
- HUTCHINSON J. 1916. — *African Morinda*, in *Bulletin of Miscellaneous Information*. Royal Botanic Garden, Kew, London: 8-16. <https://www.biodiversitylibrary.org/page/11628015>
- HUTCHISON J. & DALZIEL J. M. 1963. — *Flora of West Tropical Africa*. Crown Agents for Overseas Government and Administration, London: 104-223. <https://archive.org/details/FloraOfWestTropi00hutc>
- IUCN SSC GLOBAL TREE SPECIALIST GROUP & BGCI 2020. — *M. lucida*. The IUCN Red List of Threatened Species. <https://doi.org/10.2305/IUCN.UK.2020-3.RLTS.T156109487A156109489.en> (accessed on 7 October 2024).
- KESONBUA W. & CHANTARANOTHAI P. 2013. — The genus *Morinda* (Rubiaceae) in Thailand. *Science Asia* 39: 331-339. <https://doi.org/10.2306/scienceasia1513-1874.2013.39.331>
- LINNAEUS C. 1753. — *Species plantarum*. Laurentii Salvii, Holmiae, Stockholm, 176 p. <https://doi.org/10.5962/bhl.title.37656>
- OLIVER D. 1877. — *Flora of Tropical Africa*. L. Reeve & Co., London, 191 p. <https://doi.org/10.5962/bhl.title.42>
- POWO 2024. — *Plants of the World Online*. The Royal Botanical Gardens, Kew. <https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:4941-1> (accessed 12 July 2024).
- SINGH B. & SHARMA A. R. 2019. — Indian *Morinda* species: a review. *Phytotherapy Research* 34: 924-1007. <https://doi.org/10.1002/ptr.6579>
- TURLAND N. J., WIERSEMA J. H., BARRIE F. R., GREUTER W., HAWKSWORTH D. L., HERENDEEN P. S., KNAPP S., KUSBER W.-H., LI D.-Z., MARHOLD K., MAY T. W., MCNEILL J., MONRO A. M., PRADO J., PRICE M. J. & SMITH G. F. (eds) 2018. — International Code of Nomenclature for algae, fungi, and plants (Shenzhen Code) adopted by the Nineteenth International Botanical Congress, Shenzhen, China, July 2017. *Regnum Vegetabile* 159. Glashütten: Koeltz Botanical Books. <https://doi.org/10.12705/Code.2018>
- VIJAYAKUMAR D., CHINNASAMY P. & ARIYAN S. 2017. — *Morinda lucida* Benth. S (Rubiaceae) – new record from India. *Jordan Journal of Biological Science* 10: 37-38.

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