

*Ixora gadgiliana* sp. nov. (Rubiaceae: Ixorideae),  
a new species from Southern Western Ghats, India

Anoop PUTHUPARAMBIL BALAN &  
Robi ALOOR JOSE





DIRECTEUR DE LA PUBLICATION / *PUBLICATION DIRECTOR*: Gilles Bloch  
Président du Muséum national d'Histoire naturelle

RÉDACTEUR EN CHEF / *EDITOR-IN-CHIEF*: Thierry Deroin

RÉDACTEURS / *EDITORS*: Porter P. Lowry II; Zachary S. Rogers; Mathieu Gardère

ASSISTANT DE RÉDACTION / *ASSISTANT EDITOR*: Emmanuel Côté (adanson@mnhn.fr)

MISE EN PAGE / *PAGE LAYOUT*: Emmanuel Côté

COMITÉ SCIENTIFIQUE / *SCIENTIFIC BOARD*:

F. Blasco (CNRS, Toulouse)  
M. W. Callmänder (Conservatoire et Jardin botaniques de Genève)  
J. A. Doyle (University of California, Davis)  
P. K. Endress (Institute of Systematic Botany, Zürich)  
P. Feldmann (Cirad, Montpellier)  
L. Gautier (Conservatoire et Jardin botaniques de Genève)  
F. Ghahremaninejad (Kharazmi University, Téhéran)  
K. Iwatsuki (Museum of Nature and Human Activities, Hyogo)  
A. A. Khapugin (Tyumen State University, Russia)  
J.-Y. Lesouef (Conservatoire botanique de Brest)  
P. Morat (Muséum national d'Histoire naturelle, Paris)  
J. Munzinger (Institut de Recherche pour le Développement, Montpellier)  
S. E. Rakotoarisoa (Millenium Seed Bank, Royal Botanic Gardens Kew, Madagascar Conservation Centre, Antananarivo)  
P. H. Raven (Missouri Botanical Garden, St. Louis)  
G. Tohmé (Conseil national de la Recherche scientifique Liban, Beyrouth)  
J. G. West (Australian National Herbarium, Canberra)  
J. R. Wood (Oxford)

COUVERTURE / *COVER*:

Réalisée à partir des Figures de l'article/*Made from the Figures of the article.*

*Adansonia* est indexé dans / *Adansonia is indexed in*:

- Science Citation Index Expanded (SciSearch®)
- ISI Alerting Services®
- Current Contents® / Agriculture, Biology, and Environmental Sciences®
- Scopus®

*Adansonia* est distribué en version électronique par / *Adansonia is distributed electronically by*:

- BioOne® (<http://www.bioone.org>)

*Adansonia* est une revue en flux continu publiée par les Publications scientifiques du Muséum, Paris  
*Adansonia is a fast track journal published by the Museum Science Press, Paris*

Les Publications scientifiques du Muséum publient aussi / *The Museum Science Press also publish*: *Geodiversitas*, *Zoosystema*, *Anthropozoologica*,  
*European Journal of Taxonomy*, *Naturae*, *Cryptogamie* sous-sections *Algologie*, *Bryologie*, *Mycologie*, *Comptes Rendus Palevol*

Diffusion – Publications scientifiques Muséum national d'Histoire naturelle  
CP 41 – 57 rue Cuvier F-75231 Paris cedex 05 (France)  
Tél.: 33 (0)1 40 79 48 05 / Fax: 33 (0)1 40 79 38 40  
[diff.pub@mnhn.fr](mailto:diff.pub@mnhn.fr) / <http://sciencepress.mnhn.fr>

© Publications scientifiques du Muséum national d'Histoire naturelle, Paris, 2025  
ISSN (imprimé / *print*): 1280-8571/ ISSN (électronique / *electronic*): 1639-4798

# *Ixora gadgiliana* sp. nov. (Rubiaceae: Ixorideae), a new species from Southern Western Ghats, India

Anoop PUTHUPARAMBIL BALAN  
Robi ALOOR JOSE

Department of Botany, Bishop Abraham Memorial College, Mallappally,  
Thuruthicad P.O., Pathanamthitta-689597, Kerala (India)  
[anooppb01@gmail.com](mailto:anooppb01@gmail.com) (corresponding author)

Submitted on 19 August 2024 | accepted on 20 October 2024 | published on 3 March 2025

Puthuparambil Balan A. & Aloor Jose R. 2025. — *Ixora gadgiliana* sp. nov. (Rubiaceae: Ixorideae), a new species from Southern Western Ghats, India. *Adansonia*, sér. 3, 47 (4): 27-30. <https://doi.org/10.5252/adansonia2025v47a4>. <http://adansonia.com/47/4>

## KEY WORDS

Rubiaceae,  
*Ixora*,  
Western Ghats,  
threatened species,  
Idukki,  
landslides,  
new species.

## ABSTRACT

*Ixora gadgiliana* Balan & Robi, sp. nov., a new species of Rubiaceae is described from the Kerala part of Southern Western Ghats, India. It is allied to *I. lawsonii* Gamble in its terminal, dense, short-peduncled corymbose inflorescence, but distinct from the latter by the arborescent habit, short, obovate-oblongate leaves with 7-9 pairs of secondary veins, comparatively small, white flowers with short, deltoid calyx lobes and beaked anthers.

## RÉSUMÉ

*Ixora gadgiliana* sp. nov. (Rubiaceae: Ixorideae), une espèce nouvelle des Ghats occidentaux méridionaux, Inde. *Ixora gadgiliana* Balan & Robi, sp. nov., une espèce nouvelle de Rubiaceae, est décrite des Ghats occidentaux méridionaux, Inde (États du Kerala). Elle est apparentée à *I. lawsonii* Gamble par son inflorescence en corymbe terminal, dense, à pédoncule court, mais se distingue de cette dernière par son port arborescent, ses feuilles courtes, obovales-oblongées avec 7-9 paires de nervures secondaires, ses fleurs blanches relativement petites avec des lobes de calice courts et deltoides et des anthères à bec.

MOTS CLÉS  
Rubiaceae,  
*Ixora*,  
Ghats occidentaux,  
espèce menacée,  
Idukki,  
glissements de terrain,  
espèce nouvelle.

## INTRODUCTION

The genus *Ixora* L., with 530-561 species, is the third largest genus of family Rubiaceae after *Psychotria* L. and *Galium* L. (Davis *et al.* 2009; POWO 2024). It is distributed chiefly in tropical and subtropical regions of the world. The genus is easily recognized by its articulate petioles, terminal, branched cymose inflorescence, narrowly-tubular, tetramerous flowers, bilobed stigma, uni-ovulate locules and seeds with a large adaxial hilar cavity (De Block 1998). In India, the genus is represented by 47 species, of which 21 species are endemic (Nayar *et al.* 2014; Kottaimuthu 2016; Murugan *et al.* 2021). About half of the Indian endemic species are confined to the Southern Western Ghats of Karnataka, Kerala and Tamil Nadu states.

While working on the floristic diversity of Idukki district, in the Kerala part of the Southern Western Ghats, the authors collected some interesting specimens of *Ixora* from the Urumbikara hills. The plant is attractive at first sight by of its short-peduncled terminal cymes and small, white flowers. Detailed taxonomic studies with the perusal of relevant literature (Hooker 1880; Gamble 1921; Husain & Paul 1989; Sasidharan 2013; Nayar *et al.* 2014; Balan & Shanmugham 2016; Kottaimuthu 2016; Gangopadhyay 2017; Murugan *et al.* 2021; Mathew & Pichan 2022) and comparison with the digital images of type specimens of *Ixora* obtained from BAM, BM, BR, CAL, E, G, K, KFRI and MH revealed that this taxon is hitherto unknown to science, and is described here as a new species as *I. gadgiliana* Balan & Robi, sp. nov.

## MATERIAL AND METHODS

Plant materials were collected from the Idukki district of Kerala state and processed following the standard procedure for botanical specimens. Photographs were taken from living as well as preserved specimens. Morphological characters were studied and microscopic dissections of material were made and detailed descriptions were prepared. The plant specimens were also matched with digital images of herbarium specimens of *Ixora* deposited at major herbaria of the world.

### ABBREVIATIONS

<b>BAM</b>	Herbarium of the Bishop Abraham Memorial College, Thuruhticad;
<b>BM</b>	Herbarium of the Natural History Museum;
<b>BR</b>	Herbarium of the Meise Botanic Garden;
<b>CAL</b>	Herbarium of the Botanical Survey of India;
<b>E</b>	Royal Botanic Garden, Living Plant Collections, Edinburgh;
<b>G</b>	Conservatoire et Jardin botaniques de la Ville de Genève;
<b>K</b>	Herbarium of the Royal Botanic Gardens, Kew;
<b>KFRI</b>	Herbarium of the Kerala Forest Research Institute;
<b>MH</b>	Herbarium of the Tamil Nadu Agricultural University Campus, Coimbatore.

## TAXONOMIC TREATMENT

Family RUBIACEAE Juss.

Genus *Ixora* L.

*Ixora gadgiliana* Balan & Robi, sp. nov.  
(Fig. 1; Table 1)

*Ixora gadgiliana* Balan & Robi, sp. nov. is allied to *Ixora lawsonii* Gamble in its general appearance, especially terminal, dense, short-peduncled corymbose inflorescence, but clearly distinct from the latter by the arborescent (vs shrubby) habit, obovate-oblongate (vs ovate or elliptic-oblong) leaves, up to 9 cm long (vs 10-16 cm long) lamina, and 7-9 (vs 10-16) pairs of secondary veins, up to 1 cm long, white (vs 1.5 cm long, pinkish white) flowers, 0.5 mm long, deltoid (vs 4 mm long, linear) calyx lobes and beaked (vs not beaked) anthers.

TYPE MATERIAL. — **India** • Kerala, Idukki, Urumbikara; ± 1200 m a.s.l.; 14.I.2022; *Balan Anoop P. & Robi A.J.* 327; holo-, KFRI; iso-, BAM!, MH!

DISTRIBUTION, HABITAT AND ECOLOGY. — *Ixora gadgiliana* sp. nov. is so far known only from few populations in the Urumbikara Hills of Idukki district, Kerala, India. It is often found in isolated evergreen forest patches in between grasslands at an altitude of ± 1200 m. *Ligustrum robustum* (Roxb.) Blume subsp. *walkeri* (Decne.) P.S. Green, *Litsea vagamonia* Robi & Vajayash., *Mussaenda hirsutissima* (Hook. f.) Hutch. ex Gamble, *Neolitsea foliosa* var. *scrobiculata* (Meisn.) Chakrab., *Eurya japonica* Thunb., *Strobilanthes pulneyensis* C.B. Clarke, *Ternstroemia gymnanthera* (Wight & Arn.) Bedd., *Zanthoxylum ovalifolium* Wight, etc. are the common associates of *I. gadgiliana* sp. nov.

PHENOLOGY. — Flowering observed from December to January; Fruiting not seen even after observing for three consecutive seasons.

ETYMOLOGY. — The epithet is named in honour of Prof. Madhav Dhananjaya Gadgil, a renowned Indian ecologist, in recognition of his contributions towards the conservation of Western Ghats, one of the biodiversity hotspots in India.

CONSERVATION STATUS. — Very rare in its known distribution range and the population is restricted to two isolated locations. The type locality of the new species is located in a landslide-prone area identified by the Kerala State Disaster Management Authority (KSDMA). Hence, the new species is under threat due to natural calamities like landslides and soil erosion. It is located far away from the surveillance of forest department and therefore facing serious threat due to human encroachments. The conservation status of this species is proposed as Data Deficient. Further survey for this taxon is suggested.

ADDITIONAL SPECIMENS EXAMINED. — **India** • Kerala, Urumbikara Hills; ± 1200 m a.s.l.; 07.I. 2023; *Balan Anoop P. & Robi A.J.* 511; BAM!

### DESCRIPTION

Much branched, evergreen trees, up to 5 m tall; stem often covered with mosses and ferns; branchlets slender, glabrous; internodes short (0.8-1.5 cm). Stipules interpetiolar, ovate-truncate, 2-3 × 2-2.5 mm, glabrous, awn 2-3 mm long. Leaves opposite; petioles 4-6 mm long, thick, glabrous; lamina obovate-oblongate, 6-9

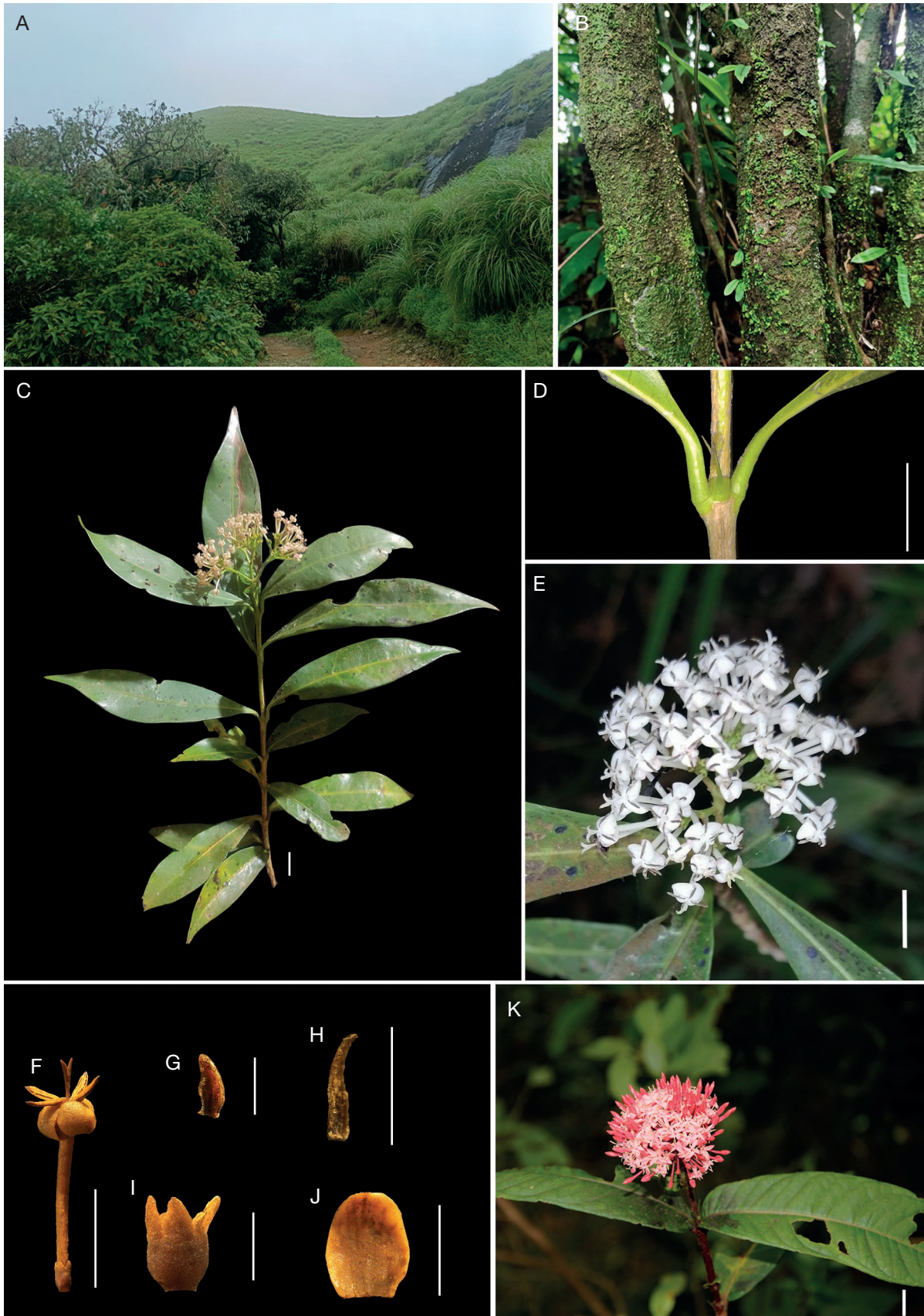


FIG. 1. — *Ixora gadgiliana* Balan & Robi, sp. nov.: **A**, habitat; **B**, stem; **C**, flowering twig; **D**, stipule; **E**, inflorescence; **F**, single flower; **G**, bract; **H**, bracteole; **I**, calyx; **J**, corolla lobe; **K**, Flowering twig of *I. lawsonii*. Scale bars: C, D, E, K, 1 cm; F, 5 mm; G, H, I, 1 mm; J, 2 mm.



TABLE 1. — Comparison of the morphological characters of *Ixora gadgiliana* Balan & Robi, sp. nov. and *Ixora lawsonii* Gamble.

Characters	<i>Ixora gadgiliana</i> Balan & Robi, sp. nov.	<i>Ixora lawsonii</i> Gamble
Habit	Trees, up to 5 m tall	Shrubs, up to 3 m tall
Leaves	Lamina obovate-oblancheolate, 6-9 × 1.5-2.5 cm, subcoriaceous	Lamina ovate or elliptic-oblong, 10-16 × 3-6 cm, chartaceous
Secondary veins	7-9 pairs	10-16 pairs
Flowers	White	Pink-white
Bract	1-1.2 mm long	6-10 mm long
Bracteole	0.6-0.7 mm long, lanceolate	4-5 mm long, linear
Calyx	Tube 0.8-1 mm long; lobes shorter than the tube (0.5 mm), deltoid, glabrous	Tube 1 mm long; lobes longer than the tube (4 mm), linear, ciliate
Corolla	Tube 8 mm long; lobes ovate-oblong, 2-2.2 mm long, glabrous, obtuse at apex	Tube 10-13 mm long; lobes lanceolate, 4 mm long, pubescent, acute at apex
Anther	Beaked	Not beaked
Style	10 mm long	12-15 mm long
Stigma	Lobes 1 mm long	Lobes 2 mm long

× 1.5-2.5 cm, acute-shortly acuminate at apex, cuneate at base, subcoriaceous, margins flat, glabrous on both sides; secondary veins 7-9 pairs, prominent beneath. Bracts supporting inflorescence foliaceous, 1.5-2.5 × 0.8-1.0 cm, ovate, shortly-acuminate at apex, obtuse at base, persistent. Inflorescence terminal, 4-5 cm long, 4 cm across, trichotomously branched corymbose cymes; peduncle branched at 1.5-2 cm from the base; branches 1.5-2 cm long, glabrous; bracts supporting flowers linear-lanceolate, 1-1.2 mm long, puberulous. Flowers subsessile, bracteolate; bracteoles 0.6-0.7 mm long, lanceolate, puberulous. Calyx tube 0.8-1 mm long, glabrous; lobes 4, 0.5 mm long, deltoid. Corolla white, glabrous; tube 8 mm long, slightly broadened towards apex; lobes 4, 2.2 × 2 mm, ovate-oblong, obtuse at apex, reflexed. Stamens 4, attached at mouth, alternating with corolla lobes; filaments 0.5 mm long; anthers sub-basifixed, beaked, 2 mm long, tip pointed, sagittate at base. Ovary 2-celled, ovule 1 in each cell; style slender, 1 cm long, tip fusiform, longitudinally cleft forming two stigmatic lobes of *c.* 1 mm long. Fruits unknown.

#### Acknowledgements

The authors are grateful to the Principal and Management of Bishop Abraham Memorial College, Mallappally, Thuruthicad, Pathanamthitta, Kerala, for all the support and facilities, to Dr P. Sujanalal, KFRI, Peechi, Kerala for plant images and to Dr K. N. Gandhi, Harvard University, United States for nomenclatural suggestions. Drs Thierry Derooin, Arnaud Mouly and an anonymous referee are also thanked for their recommendations on a previous version of the manuscript.

#### REFERENCES

- BALAN A. P. & SHANMUGHAM H. 2016. — *Ixora pradeepii*, a new species of Rubiaceae from southern Western Ghats, India. *Bangladesh Journal of Plant Taxonomy* 23 (1): 65-69. <https://doi.org/10.3329/bjpt.v23i1.28346>
- DAVIS A. P., GOVAERTS R., BRIDSON D. M., RUHSAM M., MOAT J., BRUMMITT N. A. 2009. — Global assessment of distribution, diversity, endemism, and taxonomic effort in the Rubiaceae. *Annals of the Missouri Botanical Garden* 96: 68-78. <https://doi.org/10.3417/2006205>
- DE BLOCK P. 1998. — The African species of *Ixora* (Rubiaceae-Pavetteae). *Opera Botanica Belgica* 9: 1-218. <https://doi.org/10.2307/2666558>
- GAMBLE J. S. 1921. — *The Flora of the Presidency of Madras*. Vol. 2. Adlard and Son Ltd., London: 442-446.
- GANGOPADHYAY M. 2017. — Notes on Rubiaceae from India. *Nelumbo* 59 (1): 23-24. <https://doi.org/10.20324/nelumbo/v59/2017/115988>
- HOOKE J. D. 1880. — *The Flora of British India*. Vol. 3. Reeve and Co., London: 137-149. <https://doi.org/10.5962/bhl.title.678>
- HUSAIN T. & PAUL S. R. 1989. — Taxonomic studies on Indian species of genus *Ixora* L. (Rubiaceae). *Journal of Economic and Taxonomic Botany Additional Series* 6: 1-205.
- KOTTAIMUTHU R. 2016. — *Ixora ravikumarii*, a new name for *Ixora monticola* Gamble (Rubiaceae: Ixoroideae). *Phytotaxa* 263 (1): 79-80. <https://doi.org/10.11646/phytotaxa.263.1.11>
- MATHEW J. & PICHAN S. 2022. — *Ixora lavanya* (Rubiaceae), a new species from south Western Ghats, India. *Species* 23 (72): 528-534.
- MURUGAN P., MURUGAN C. & KARTHIGEYAN K. 2021. — Notes on the identity and taxonomy of *Ixora cuneifolia* and *I. notoniana* and typification of three names in *Ixora*. *Gardens' Bulletin Singapore* 73 (2): 481-487. [https://doi.org/10.26492/gbs73\(2\).2021-18](https://doi.org/10.26492/gbs73(2).2021-18)
- NAYAR T. S., RAZIYA BEEGAM A. & SIBI M. 2014. — *Flowering Plants of the Western Ghats India*. Vol. 1. *Dicots*. Jawaharlal Nehru Tropical Botanic Garden and Research Institute, Thiruvananthapuram, Kerala: 282-287.
- POWO 2024. — *Plants of the World Online*. Facilitated by the Royal Botanic Gardens, Kew. <https://powo.science.kew.org/>
- SASIDHARAN N. 2013. — *Flowering plants of Kerala*. CD-ROM V. 2.0. Kerala Forest Research Institute, Peechi.

Submitted on 19 August 2024;  
accepted on 20 October 2024;  
published on 3 March 2025.