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To Cite:

Jaya S, Mathew J, Salim PM. *Lagenandra dominicii* (Araceae), a new species from south Western Ghats, India. *Species* 2026; 27: e21s3301 doi:

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Peer-Review History

Received: 27 March 2026

Reviewed & Revised: 09/April/2026 to 21/July/2026

Accepted: 03 August 2026

Published: 18 August 2026

Peer-Review Model

External peer-review was done through double-blind method.

Species

pISSN 2319–5746; eISSN 2319–5754



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Lagenandra dominicii (Araceae), a new species from south Western Ghats, India

Saranya Jaya^{1,3}, Jose Mathew^{1,3*} & Pichan Mohammed Salim²

ABSTRACT

A new species of *Lagenandra* (Family: Araceae, Tribe: Cryptocoryneae), *L. dominicii* from Silent Valley National Park, a part of the South Western Ghats, is described. The new species is related to *L. kunkichirimuseumensis* and *L. meeboldii* by the foliar morphology and ecological preferences, but is clearly distinct from the former by the smooth spathe with a coiled upper limb portion and reduced pistillate zone, and from the latter by a tail-less spathe limb and highly reduced pistillate part. This paper presents the diagnostic morphological characters, distribution, and images of the new species.

Keywords: New species, Silent Valley National Park, Kerala

1. INTRODUCTION

The genus *Lagenandra* Dalzell (Family: Araceae) is an amphibious perennial herb. The elements of the genus are native to the Indian subcontinent, with 24 species reporting from the Indo- Sri Lankan and Bangladesh regions (Madola et al., 2025; Pushkaran et al., 2025; POWO, 2026). As pointed out by Selvakumari (2014), the genus has significant medicinal and horticultural potential. Despite the ongoing studies, the diversity and the prospects of *Lagenandra* in the South Western Ghats regions are under-documented. Recently, four new species, *Lagenandra keralensis* Sivadasan et al. (2001), *Lagenandra cherupuzhica* Biju et al. (2018), *Lagenandra kunkichirimuseumensis* J.Mathew & P.M.Salim (2023), and *Lagenandra pradeepiana* P.Pushkaran, et al. (2025). have been added to the flora from the Kerala part of the southern Western Ghats. Of the nine species, including a variety reported from India, Kerala is home to eight taxa, and *L. undulata* Sastry is the only species reported from Northern India (POWO, 2026). When we assess the species diversity, it can be inferred that the Kerala part of the southern Western Ghats is one of the major centers of diversity for the genus *Lagenandra* in India.

During a recent floristic exploration in Silent Valley National Park in Kerala, interesting specimens of *Lagenandra* with inflorescences featuring a coiled (twisted) limb and lacking a terminal tail were collected. Critical analysis of the literature and herbarium specimens revealed that the collected specimens do not match any described species, leading to the discovery of a novel species.

2. MATERIALS AND METHODS

As part of the Kerala State Biodiversity Board funded project, an intensified

exploration has been undertaken for the enumeration of wild rhizomatous plants of the south Western Ghats. During a botanical exploration conducted in the riparian forests of the Silent Valley National Park, a single population of *Lagenandra* with a suite of morphological characters different from previously reported species was found growing in a secondary tributary of River Kunthipuzha. These specimens were observed and photographed, and details of the inflorescence and flowers were noted. An in-depth analysis of the pertinent literature (Dalzell, 1852; de Wit, 1978; Ramamurthy and Rajan, 1983; Sivadasan and Babu, 1995; Sivadasan et al., 2001; Sasidharan, 2013; Biju et al., 2018; Bastmeijer, 2019; Sasikala et al., 2019; Mathew et al., 2023; Pushkaran et al., 2025), followed by the review of the digitals of the vouchers deposited in K (Kew Herbarium), NY (The New York Botanical Garden Herbarium), PE (The Herbarium of the Institute of Botany, Chinese Academy of Science), MH (Madras Herbarium), CAL (Central National Herbarium, Howrah) TBGT (Herbarium of Jawaharlal Nehru Tropical Botanical Garden, Thiruvananthapuram), and KUBH (Kerala University Botany Herbarium, Thiruvananthapuram) were carried out. The data presented were obtained through the study of live specimens in the wild, available herbarium materials, and an in-depth literature survey. Photographs of the new species and related species are provided for a better understanding of the morphological diversity.

3. TAXONOMIC TREATMENT

Lagenandra dominicii J.Mathew & J.Saranya, *sp. nov.* (Figure 1).

Diagnosis

Lagenandra dominicii is distinct from all south Indian elements of the genus by its spathe appendix, which has a coiled (twisted) limb and lacks a terminal tail.

Type: — INDIA, Kerala State, Palakkad District, Silent Valley National Park, Kunthippuzha River, Walakkad, 567 m asl., 21 September 2025, J.Mathew 5413 (holotype: KUBH! [Kerala University Botany Department Herbarium, Thiruvananthapuram]; isotype: MH! [Madras Herbarium]).

Description: —

Rhizomatous creeping herbs; rhizome ca. 4.5 – 7.2 cm in diameter, light green in color, roots numerous, 4.3 – 16 cm long, 0.6 – 0.9 cm across. Cataphylls 5 cm long, 2-keeled, broad at base, tapering towards the tip, brownish purple in color. Leaves with cylindrical petiole ca. 10.5 – 22.5 cm long, 1.7 cm in diameter, adaxially dark green, abaxially green, prominent midrib with transverse-reticulate venation. Lamina 10.5 – 17 cm long, 5.5 – 8.5 cm broad, ovate, unequal auriculate leaf base, margin undulate, vernation involute. Inflorescence 8.2–10 cm long, peduncle 3.5 – 5 cm long x 0.6 – 1.3 cm wide. Spathe ca. 4.8 – 5.7 cm long, outer surface smooth, basal tube (kettle) whitish to creamy, equal to the limb, 2.2– 2.8 cm long x 0.8–1.6 cm wide. Limb 2.6 – 2.9 cm long x 1 – 1.9 cm wide, whitish to creamy in color, with a wide opening and terminating in a coiled appendix. Tail absent. The inner flap of the opening is moist, pubescent, dark purple at the base, and has white hairs. The spadix differentiated into 3 zones; basal pistillate zone, middle sterile zone, and terminal staminate flower zone. Pistillate flower zone globose, 0.4 – 0.5 cm long x 0.5 – 0.6 cm wide, followed by a sterile interstice of about 0.7 cm, neuters absent, staminate flower zone 0.3 cm long x 0.4 cm wide. The pistillate flowers 36 – 40 in number, arranged in 3 – 4 whorls, closely packed; each flower is sessile, short, flattened. Olfactory bodies present above the pistillate portion, 4, conical, white in color, and with a reduced stalk (0.2 mm long). Staminate flowers 70–85, spirally arranged, yellowish-cream in color. Beyond the male zone, the spadix is extended into a short conical appendix ca. 0.2 cm, cream colored, by which the spadix remains inserted into the spathe. Fruit not seen.

Distribution: — India; known only from the type locality.

Habitat and ecology: — They grow along the shady stream bank in the undisturbed riparian patches situated c. 560 m. The population, consisting of 300–450 plants, including both mature and young individuals, is spread over about 15 meters along the streamlet.

Flowering: — September.

Etymology: — The specific epithet *dominicii* honors Dr. V.J. Dominic (Professor - Retd., Sacred Heart College, Thevara, Ernakulam, Kerala), a renowned academician and environmentalist, in recognition of his valuable contributions to research on ecology.



Figure 1. *Lagenandra dominicii* J.Mathew & J.Saranya: **A–B:** Flowering plant from type locality; **C–D:** Habit; **E:** Uprooted plant with creeping rhizome; **F:** Plant with unopened flower; **G–H:** Leaf; **I:** Flowering plant showing abaxial side of the leaf; **J–K:** Spathe cut open exposing spadix; **L–M:** Coiled limb appendage; **N:** Spadix; **O:** Pistillate flower zone with conical olfactory bodies; **P:** Pistillate flower zone.

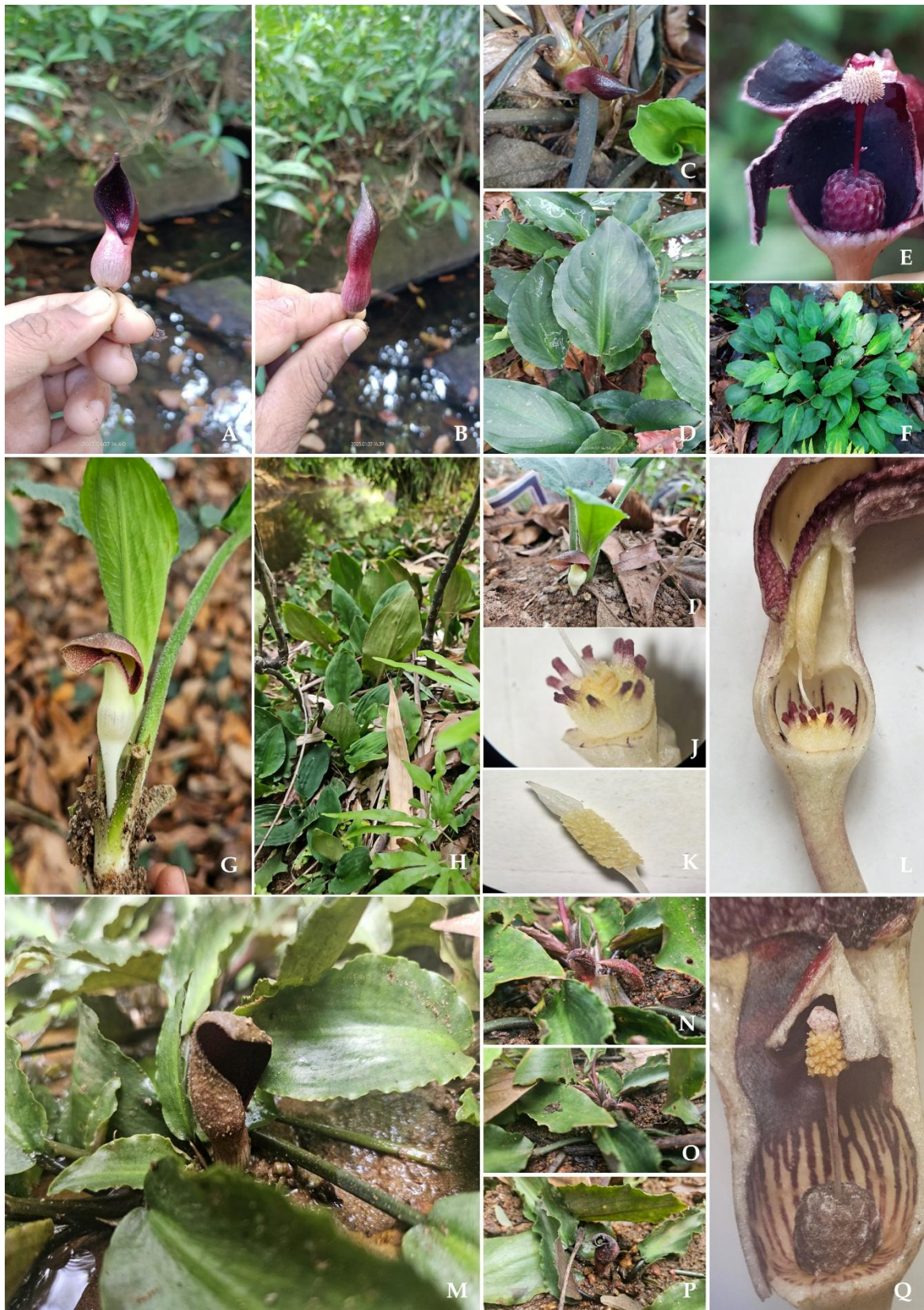


Figure 2. Diversity of *Lagenandra* species in the southern Western Ghats lacking a terminal tail on the spathe appendix limb. **A–F:** *Lagenandra kunkichirimuseumensis*; **G–L:** *L. nairii*; **M–Q:** *L. cherupuzhica*



Figure 3. A–J: *Lagenandra meeboldii*, various accessions. See the limb tail.

Conservation status: — *Lagenandra dominicii* is known only from the type locality. Future explorations are necessary to depict the actual distribution. Therefore, following the IUCN criteria (2025), the species is here provisionally assigned as Data Deficient (DD).

Additional specimens examined: — INDIA, Kerala State, Palakkad District, Silent Valley National Park, Kunthippuzha River, Walakkad, 567 m asl., 21 September 2025, J.Mathew 5414, 5415 (SDCH!: SD College Herbarium, Alappuzha, Kerala).

Note: — In the southern Western Ghats, three species of *Lagenandra*—*L. kunkichirimuseumensis*, *L. cherupuzhica*, and *L. nairii* (See Fig. 2)—exhibit a tailless limb in the spathe appendix. Of these, the new species is closely related to *L. kunkichirimuseumensis*. However, it can be easily distinguished by its smooth spathe with twisted limb, reduced pistillate zone, and conical olfactory bodies. *L. dominicii* is also found to be distinct from *L. meeboldii* (See Fig. 3) by its tailless limb and highly reduced pistillate zone (3-4 whorls with around 36-40 flowers).

4. CONCLUSION

An in-depth taxonomic study conducted on the diversity of rhizomatous plants of the south Western Ghats has led to the discovery of a new plant species, *Lagenandra dominicii*, from Silent Valley National Park. The species is distinguished by a spathe limb that lacks a tail and has a twisted appendix. A short pistillate zone and conical olfactory bodies are other significant features.

Acknowledgement

The authors are thankful to the Kerala Forest Department for permission to conduct research. Salim P.M is thankful to the officials of MS Swaminathan Research Foundation, viz., Chairperson (Dr. Soumya Swaminathan); Executive Directors (Mr. Srinivas Raman and Dr. Rengalakshmi R.); Director (Dr. Niraj U. Joshi); Nandakumar P.M. (Conservator- Biodiversity); C.S. Dhanya (Scientist); colleagues at the MSSRF Community Agrobiodiversity Centre for encouragement and support. The corresponding author is thankful to Dr. K.N. Gandhi, Harvard University, USA, for nomenclatural correction. JM and SJ are grateful to the Head of the Department, Botany, Principal and Management of the Sanatana Dharma College, Alappuzha, Kerala, for support; DBT Star College Scheme (Urban Category) under head no HRD-11011/8/2024-HRD-DBT dated 10/7/2024 for facilities; Kerala State Biodiversity Board (head no. 3435-03-101-99(P)-2 and Doctoral Fellowship, order no. 034/A11/2025/KSBB) for financial assistance.

Author contributions

Acquisition of data, data analysis, photographs: Saranya J.

Research concept and design: Field study, acquisition of data, data analysis, interpretation, and drafting the article: Jose Mathew

Assembly of data and comparison: Salim PM.

Funding

This research was financially supported by Kerala State Biodiversity Board (head no. 3435-03-101-99(P)-2 and Doctoral Fellowship [granted for Saranya J., order no. 034/A11/2025/KSBB dated 12-03-2026]).

Conflict of Interest

The authors declare that they have no conflicts of interest, competing financial interest or personal relationship that could have influenced the work reported in this paper.

Informed consent

Not applicable.

Ethical approval & declaration

In this article, as per the plant regulations followed in the Department of Botany, Sanatana Dharma College, Alappuzha 688003, Kerala, India; the authors observed that the diversity of *Lagenandra* species, which are endemic to Peninsular India. The ethical guidelines for plants and plant materials are followed in the study for species observation, identification, and experimentation.

Data and materials availability

All data associated with this study will be available based on the reasonable request to corresponding author.

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