

Lagenandra keralensis (Araceae), a remarkable new species from India

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Abstract. A new species, *Lagenandra keralensis* Sivadasan et Jaleel, is described, illustrated and relationships discussed. The discovery of the new species enhances the number of Indian species of the genus to six.

Keywords: Araceae; India; Kerala; *Lagenandra keralensis*; New species.

Introduction

The genus *Lagenandra* Dalzell is represented by 15 species and is confined to the Indian Subcontinent with its distribution extending from Sri Lanka to tropical north-eastern India with one species, *L. gomezii* (Schott) Bogner et Jacobsen, in Bangladesh. In India, the genus is represented by five species, *L. meeboldii* (Engl.) Fischer, *L. nairii* Ramam. et Rajan, *L. ovata* (L.) Thwaites, *L. toxicaria* Dalzell, *L. undulata* Sastry and one additional variety, *L. toxicaria* var. *barnesii* Fischer. *Lagenandra undulata* is the only species isolated from the others and confined to the northeastern India; the others are restricted to South India. *Lagenandra gomezii* was only once collected in 1828 from Sylhet, now in Bangladesh. Two species, *L. undulata* and *L. gomezii*, have a more northern distribution, while all others are found in South India and Sri Lanka, and therefore the genus *Lagenandra* has a disjunct distribution with a large gap between South India on one end and Assam and Bangladesh on the other. It is interesting to note that in the new species we report here, the female flowers are flat and clearly in a single whorl. Such a condition is very rare and hitherto seen only in the case of *L. gomezii*.

Dr. A.K. Pradeep, Curator of the Calicut University Herbarium, collected a small specimen of *Lagenandra* from the interior of Kerala, India, assuming that it was *L. meeboldii* (Engl.) Fischer. Our examination revealed it to be different. Later more fresh specimens were collected and they proved to be a hitherto undescribed species.

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Lagenandra keralensis Sivadasan et Jaleel, sp. nov.—

TYPE: India, Kerala, Ernakulam Dist., Boothathankettu near Kothamangalam, ca. 750 m, 15 Jun 1997, Bobby Thomas RIA 85 (holotype: K, with inflorescence and infructescence; isotypes: M, with inflorescence and infructescence; CAL, with inflorescence).

Figures 1 and 2

Habitu cum *Lagenandra meeboldii* (Engl.) Fischer plerumque congruens sed limbo intralevigato et limbo spathae erecto, contracto, distincte caudato, floribus femineis 6-8, uniseriatis ovoideis, lateraliter leviter compressis, alis substigmaticis parvis, in utrinque latis differt.

Rhizomatous creeping herbs; rhizome 3-5.5 cm long, 0.5-0.8 cm across, pale to dark brown in color; roots numerous, 2.7-13 cm long, 1-2 mm thick. Cataphylls 1.0-2.6 cm long, 0.4-0.8 cm broad at base, tapering towards the tip, base white, light purplish spotted on the upper half, thin membranous. Leaves 3.5-14 cm long, lamina 2.7-7 cm long, 2-4 cm broad, ovate, acute-acuminate at apex, base auricled (orbicular), usually light purplish, rarely dull green. The entire leaf surface bears unicellular hairs, more prominent and closely arranged on the midvein as well as the primary and secondary laterals. Leaf margin closely undulate; primary laterals 3-8 pairs ascending widely-arched upwards to the tip. Secondary laterals at right angles to the primaries forming a reticulate venation. Petiole 2-7 cm long, 0.3-0.5 cm across at apex, basally sheathing, sheath transparent.

Inflorescence 4.5-9 cm long, peduncle 1.6-4.5 cm long, 0.1-0.15 cm diam., basal tube slightly broader than the limb, 0.5-0.8 cm long, 0.5-0.7 cm diam., light purplish to pink in color outside with small ridges extending up to half of limb, purplish within. Limb 1-1.6 cm long, 0.4-0.6 cm across, curved towards one side with a narrow oblique opening

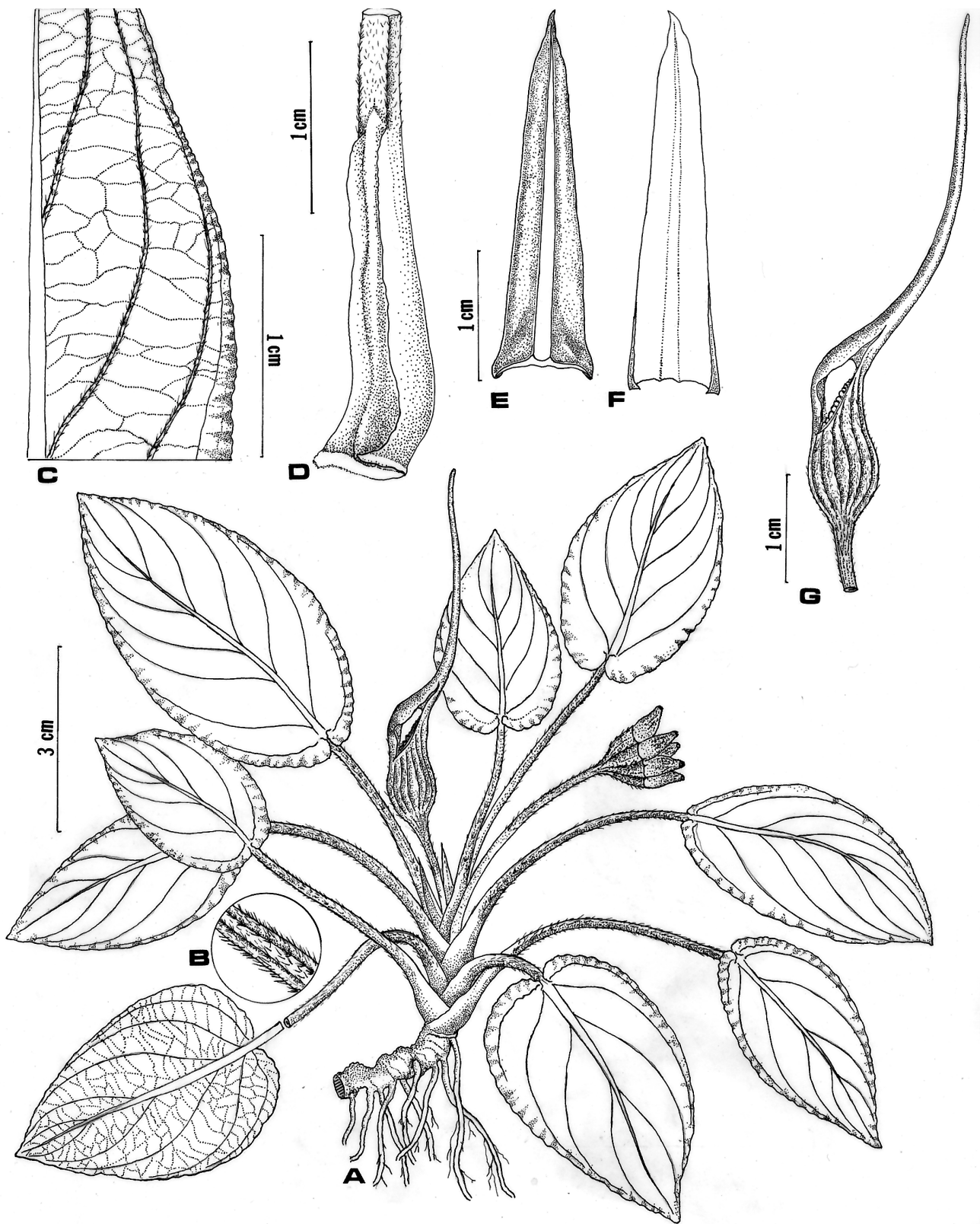


Figure 1. *Lagenandra keralensis* Sivadasan et Jaleel. A, Habit; B, A portion of petiole enlarged showing hairs; C, A portion of lower surface of leaf lamina enlarged showing closely undulate margin and hairs along the veins; D, Basal portion of petiole showing sheath; E, Cataphyll - abaxial view; F, Cataphyll - adaxial view; G, Inflorescence.

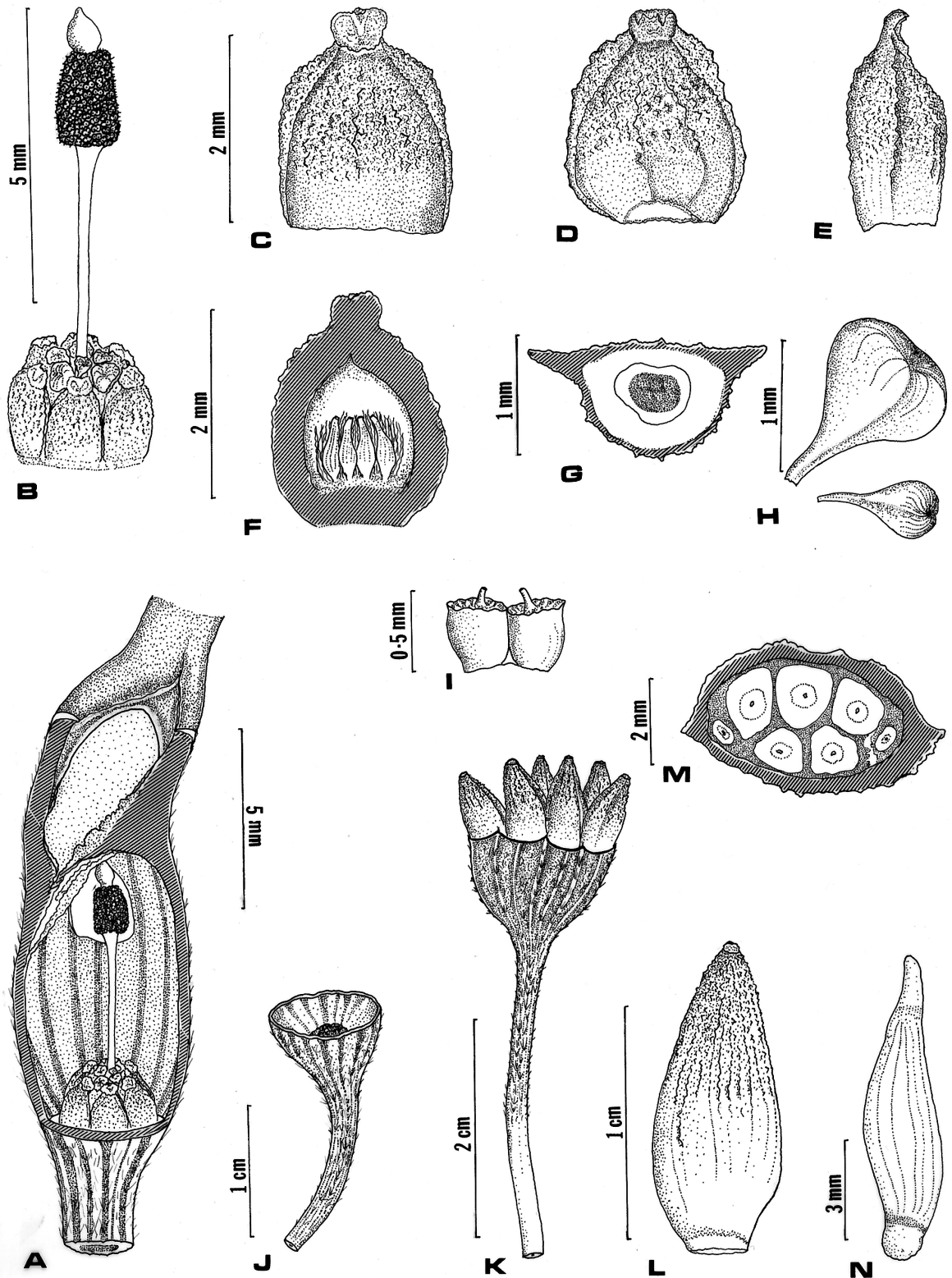


Figure 2. *Lagenandra keralensis* Sivadasan et Jaleel. A, Inflorescence with part of basal tube and limb of spadix; B, Spadix; C, Single pistillate flower - abaxial view; D, Pistillate flower - adaxial view; E, Pistillate flower - side view; F, L.S. of pistillate flower; G, C.S. of pistillate flower; H, Olfactory bodies; I, Single staminate flower; J, Young infructescence with persistent basal portion of the tube of spathe; K, Mature infructescence; L, Single fruit; M, C.S. of fruit; N, Seed.

0.7-1.2 cm long, 0.3 cm wide, and with a basal, thin, arch-like collar; the upper portion of the limb caudate. Inner flap of the opening with a few warty projections on its margin. Caudate tip tapering, erect or sub-erect, 1.5-4 cm long, light purple in colour. Spadix ca. 1 cm long, with pistillate portion at base to ca. 2 mm, followed by a sterile naked interstice of about 3-4 mm, a staminate portion of 2-2.2 mm long and a terminal sterile appendix of ca. 1 mm long. The pistillate portion comprises 6-8 female flowers in a single whorl; each flower sessile, short, flattened and conical or slightly laterally compressed, ca. 2 mm long and ca. 1.5 mm broad, white in colour, warty at apical portion a wing-like extension on either sides below the stigmatic portion. Stigma obcordate, with two obconic basal lobes recurved to the adaxial side of the flower. Ovary unilocular with 4-8 orthotropous ovules surrounded by numerous placental trichomes. Olfactory bodies 5-8, clavate, or stalked, thick, discoid, closely placed and situated just above the pistillate portion, each ca. 1 mm long, white in colour. Staminate portion 2-2.2 mm long and 1.5 mm across, cream coloured. Male flowers 80-100, spirally arranged, each with two tubular projections at apex through which pollen grains are liberated. Beyond the male zone, spadix is produced into a short fleshy sterile conical appendix, ca. 1 mm long and 0.5 mm diam. at base. Peduncle elongating during seed setting, and reaching to ca. 6 cm long. Inflorescence with persistent basal tubular portion of the spathe, 1-1.3 cm long, 0.8-1 cm diam. Berries fleshy with irregular rough surface; dehiscent by longitudinal splits from base upwards with recurved lobes. Seeds 4-8, each ellipsoid, 6-8 mm long, 1-2 mm across with few longitudinal ridges.

Additional Specimens examined. India, 8 Jun 1997, Pradeep RIA 82 (with infructescence, CALI); India, 21 Jun 1997, Bobby Thomas RIA 91a (with inflorescence, CALI); India, RIA 91b (with inflorescence and infructescence, CALI); India, 21 Mar 1999, Abdul Jaleel RIA 329 (with inflorescence, CALI).

Habitat. Shady stream banks, in undisturbed evergreen forest patches. Unlike other species of the genus, this species has a scattered distribution of individuals in contrast to the usual clumped distribution.

Distribution. So far known only from the type locality.

Etymology. The specific epithet is indicative of the name of the state of India, Kerala, from where the species was collected.

Relationships. In gross morphological features *Lagenandra keralensis* resembles *L. meeboldii*, but is smaller in size. The presence of a distinct collar at the throat of the basal tube of spathe distinguishes it from the latter. The inner surface of spathe of the latter has dense fimbriations. The presence of a collar at the throat of the tube of the spathe is also a characteristic feature of *L. nairii*. But there are many other characters which distinguish *L. keralensis* from *L. nairii*. The spathe is not produced into an erect slender caudate tip as in the case of *L. nairii*. The number of pistillate flowers in *L. nairii*

is 12-15 arranged in 2-3 whorls, whereas in *L. keralensis* the number has been reduced to 6-8 which are longitudinally compressed and arranged in a single whorl. The inner surface of the limb of spathe of *L. nairii* has horizontal groups of murications, whereas in the new species the spathe limb is smooth.

Lagenandra gomezii is a peculiar species and for a long time considered as a species of the genus *Cryptocoryne* (Schott, 1860; Engler, 1920; De Wit, 1990), but Bogner and Jacobson (1989) showed, after re-examination of the type material, that it is a true *Lagenandra*. Unfortunately no infructescence of this species is known. Distinctive characters of the two genera were given by Mayo et al. (1997). In *Cryptocoryne* the female flowers are in a single whorl and connate; and the leaf ptyxis is convolute. But in the case of *Lagenandra* the female flowers are usually spirally arranged forming a globose mass except in the case of *L. nairii* and *L. gomezii*. In *L. nairii* they are in a pseudo-whorl whereas in *L. gomezii* they are in a single whorl. Until recently *L. nairii* and *L. gomezii* have been treated as the most advanced among the species of the genus *Lagenandra*. The characteristic features of *L. keralensis* show much more advanced characters in comparison with the former ones and it could be treated as the most highly advanced species and the connecting link between the genera *Lagenandra* and *Cryptocoryne*.

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印度產天南星科一新種植物：*Lagenandra keralensis*

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本文報導天南星科一新種，*Lagenandra keralensis* Sivadasan et Jaleel，除提供線繪圖外，並討論其親緣關係。本新種之發現使印度產本屬植物種數提高為 6 種。

關鍵詞：天南星科；印度；Kerala；*Lagenandra keralensis*；新種。