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## *Lindernia tamilnadensis* M.G. Prasad & Sunojk. (Linderniaceae): A new record to the flora of Gujarat state, India

Suresh Patel<sup>1\*</sup>, Tarun Nayi<sup>2</sup>, Bhasker Punjani<sup>2</sup>, Yagnesh Chaudhary<sup>3</sup>, Vinod Pandey<sup>2</sup>, Prashant Desai<sup>2</sup>

<sup>1</sup>Department of Biology, Gujarat Arts and Science College, Ellis bridge, Ahmedabad, Gujarat, India

<sup>2</sup>Department of Botany, Smt. S. M. Panchal Science College, Talod, Sabarkantha, Gujarat, India

<sup>3</sup>Department of Biology, Government Science College, Gandhinagar, Gujarat, India

### Abstract

*Lindernia tamilnadensis* M.G. Prasad & Sunojk. (Linderniaceae) is reported as a new record to the flora of Gujarat state and new distributional record for India from Vijaynagar forest area in Sabarkantha District. A brief description, field notes, field photographs and distribution of the species are provided to facilitate for easy identification.

**Keywords:** *Lindernia tamilnadensis*, Linderniaceae, New record, Gujarat state

### Introduction

The genus *Lindernia* comprises of about 100 species <sup>[1]</sup> distributed almost throughout the tropical and temperate regions of both the old and new world <sup>[2]</sup>. The centers of diversity of *Lindernia* are situated in Africa <sup>[3]</sup> and South East Asia. They fall in 3 main geographical groups, the largest in Asia followed by Africa and the Americas <sup>[4]</sup>. This genus was originally placed in the Scrophulariaceae; however, based on molecular studies; <sup>[5]</sup> segregated *Lindernia* along with 12 other genera from the rest of Scrophulariaceae to a new family Linderniaceae. According to him, the new family forms a monophyletic group characterized by a unique abaxial staminal filament with a club shaped appendage. A preliminary study on the genus *Lindernia* shows that there are 31 taxa reported from India, among them 25 are known from South India <sup>[6, 7, 8, 9, 10, 11, 12]</sup>

The district Sabarkantha is one of the tribal districts and it is situated in the North-Eastern part of Gujarat State between 23.05000000-24.50000000 N & 72.71666667-73.65000000 E. This district is known for rich in floristic diversity and well explored by various plant taxonomists <sup>[13, 14, 15, 16, 17, 18, 19, 20, 21]</sup>. Present study was aimed to find out the occurrence of endemic and noteworthy threatened species of North Gujarat Region. During this study, we came across good population of an interesting semi aquatic species found growing on wet soils along with grasses and many herbs from Vijaynagar forest area in Sabarkantha district. Specimens were collected and properly processed for herbarium specimen preparation by using the standard herbarium methods <sup>[22]</sup>. After critical examination with dissected floral parts and other morphological features and perusal of relevant literature available, the specimens were confirmed as *Lindernia tamilnadensis* M.G. Prasad & Sunojk. It is one such an endemic species known to occur only in Tamilnadu <sup>[12]</sup> and Maharashtra <sup>[23]</sup> states of India. There are 11 species of *Lindernia* those have been reported from the Gujarat state while, *Lindernia tamilnadensis* M.G. Prasad & Sunojk. has not been reported from the Gujarat state <sup>[24, 25, 26, 27, 28, 29, 30, 31, 32, 33]</sup>. Thus, it constitutes as a new addition to the flora of Gujarat state as well as new

distributional record to the flora of India. In addition to this the relevant citation, a brief description, phenological data, field notes and photographs are provided for easy identification of the species in the wild. The current localities of *Lindernia tamilnadensis* M.G. Prasad & Sunojk. in Gujarat is depicted in Fig. 1. A voucher specimen (SKP-99, Date-29/11/2020) has been deposited at the Gujarat Arts and Science College, Ellis Bridge, Ahmedabad, Gujarat.



**Fig 1:** Location of *Lindernia tamilnadensis* M. Prasad & Sunojk. In Gujarat

### Taxonomy

*Lindernia tamilnadensis* M.G. Prasad & Sunojk. Fig. 2; a-d  
Type:-INDIA. Tamil Nadu: Tirunelveli district, Vijayanarayanam, 40 m, 18 March 2012, M.G. Prasad & P. Sunojkumar CU117880 (Holotype: CALI; Isotypes: CALI, MH).

Erect or procumbent tufted herb, up to 15 cm high, rooting from the basal nodes. Stem slender, weak, 4-angled, glabrous, highly branched from the base; internodes about 2.5 cm long. Leaves sessile, 0.5–1.5×0.4–1.2 cm, ovate, base sub-cordate, apex acute or sometimes rounded, margins entire towards the older parts, 2–4 dentate towards the apex, glabrous, basally 3–5 nerved, veins distinct, lamina glandular punctate. Flowers pedicellate, axillary, solitary, alternately on leaf axils, one per node; pedicel slender, ca. 5–12 mm long, 4-angled, glandular hairy; fruiting pedicel glabrous, erect. Calyx 2–2.5 mm long, deeply 5-lobed, glandular hairy outside, glabrous within; lobes lanceolate, 1.5–2×0.3–0.5 mm, apex acute. Corolla 4–5 mm long, 2-lipped, white with pale blue blotches on lower lip; corolla tube cylindrical, 3–4 mm long, glabrous; upper lip 1×1 mm, slightly emarginated at apex, glabrous; lower lip distinctly 3-lobed, lobes 1×1 mm, rounded, glabrous. Perfect stamens 2, coherent below the upper lip, filaments ca. 1 mm long, glabrous, anthers 2-lobed, lobes ovate, acute. Staminodes 2, linear, ca. 1 mm long, glandular hairy throughout, dense yellow glandular hairs at the base of filaments and corolla tube below, bluish towards apex, hairs 2–3-celled, a distinct spur present just below the staminodal apex. Gynoecium 3–3.2 mm long; ovary 1.0×0.5 mm, bicarpellary, syncarpous ovary, ovate–acute, subglobose, glabrous; style 2 mm long, glabrous; stigma simple, bilobed. Capsule globose, 2.5×2 mm, glabrous, shiny, slightly exceeding the length of persistent calyx. Seeds numerous, minute, 0.3×0.15 mm, bended, golden yellowish, distinctly 5-ridged.



**Fig 2:** *Lindernia tamilnadensis* M. Prasad & Sunojk.; a. Habit; b. Flower; c. Flower closeup (Front view); d. Capsule

### Flowering and fruiting

October–January.

### Specimen examined

Gujarat: Sabarkantha Dist., Vijaynagar Polo forest, SKP-52,

Dt.29.xi.2020 (24.23333333 N & 73.47416667 E, 351 m), collector S. K. Patel

### Distribution

Endemic to India; Tamilnadu, Maharashtra, now in Gujarat.

### Habitat

It is found in semi aquatic habitat in dry deciduous forests of Northern part of the Gujarat state. It is also found growing on wet soils around the ditches/pools soon after the rainy season.

### Notes

*L. tamilnadensis* is closely related to *L. rotundifolia*, but differs mainly in comparatively smaller floral parts, in the absence of trichomes at the base of the anterior corolla lobes, the presence of staminodal appendages, undeflexed fruiting pedicels and globose capsules.

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