

Three noteworthy additions to the flora of Tamil Nadu from Kanyakumari Wildlife Sanctuary

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ARTICLE INFO

Keywords

Endemic species, Floristics, New records, Shola forest, *Utricularia*

Citation:

Sharma, A., Ravikumar K., Ravichandran, P. and Sharma, V., 2022. Three noteworthy additions to the flora of Tamil Nadu from Kanyakumari Wildlife Sanctuary. *Indian Journal of Forestry*, 45(4), pp.211-214. <https://doi.org/10.54207/bsmps1000-2023-2D78L1>

ABSTRACT

Rungia longifolia subsp. *keralensis*, *Smithia venkobarrowii* and *Utricularia babui* are reported here as additions to the state flora of Tamil Nadu from Kanyakumari Wildlife Sanctuary. Detailed descriptions, distribution and photographs are provided for easy identification.

INTRODUCTION

As a part of the Shola forest floristic and ecological survey to document the endemic and invasive species diversity in Kanyakumari Wildlife Sanctuary, extensive field surveys were carried out in November, 2022 in collaboration with Tamil Nadu Forest Department. After a critical examination of herbarium specimens and perusal of literature (Gamble & Fischer, 1915-1935; Nair & Henry, 1983; Henry, Kumari & Chithra, 1987; Yadav, Sardesai & Gaikwad, 2005; Nayar et al., 2006; Nayar, Rasiya Beegam & Sibi, 2014; Murthy & Nair, 2016; Balan & Predeep, 2017; Santhosh et al., 2020; Narasimhan & Irwin, 2021, Ravikumar, Tangavelou & Page, 2021) three plant species, viz. *Rungia longifolia* subsp. *keralensis* E.S.S.Kumar, R.Jagadeesan, A.Gangaprasad et S.P.Mathew, *Smithia venkobarrowii* Gamble and *Utricularia babui* S.R.Yadav, Sardesai & S.P.Gaikwad were found to be

additions to the state flora of Tamil Nadu. These three species are presented here with a detailed description, geographical distribution, associated plants, ecology and coloured photographs.

Rungia longifolia Nees subsp. *keralensis* E.S.S.Kumar, R.Jagadeesan, A.Gangaprasad et S.P.Mathew, *Abrahamia* 6(2): 108-111. 2020.

Decumbent or diffuse herbs up to 55 cm tall. Stem terete or subterete, rooting from the lower nodes, pale purple-green, strigosely hairy; young branchlets densely strigose towards the apex; internodes 1-3.5 cm long. Leaves simple, opposite, exstipulate, juvenile leaves orbicular-ovate; petioles 5-15 mm long, slightly canaliculate above, strigose; mature leaves 2-7 × 0.5-1 cm, linear-lanceolate, acute-apiculate, attenuate at base, distantly crenate at margins, green above, glaucous beneath, glabrous except on the nerves on both surfaces; lateral nerves 5-6 pairs, convergent, reticulate; tertiary nerves obscure above, prominent beneath. Inflorescences 2-4 cm long; peduncles 2-3.5 cm long, green, pubescent, ribbed. Sterile and fertile bracts similar, 3-4 × 1-1.5 mm, narrowly lanceolate, long acuminate, narrowly scarious margined, green, pilose; nerves obscure. Bracteoles 2, on either side of the calyx, 4-4.5 × 0.7-1 mm, linear-lanceolate, tapering towards the apex, margin slightly hyaline, pilose towards base. Flowers 5-9 per inflorescence, sessile or subsessile, 6-9 mm long; purple-white, pubescent. Calyx 5-partite,

Received: 21-04-2023; Revised: 12-05-2023; Accepted: 17-05-2023

Published: 31-05-2023

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DOI: <https://doi.org/10.54207/bsmps1000-2023-2D78L1>



Figure 1. A,B,C - *Utricularia babui*, D,E,F - *Smithia venkobarrowii*, and G,H,I - *Rungia longifolia* subsp. *keralensis*. (Photographs by Ashutosh Sharma)

4-5 mm long, lobes cohering at base only, lobes 4-4.5 × 0.4-0.5 mm, linear-lanceolate, tapering towards apex, green, glandular pubescent. Corolla 2-lipped, 6-8 mm long, purple-white; tube 4.2-4.5 × 1.4-1.6 mm, white, puberulous outside, glabrous inside; upper lip bilobed; lobes 1.9-2 × 1.8-2 mm, obovate, obtuse at apex, entire, crenulate at margins; lower lip 3-lobed; lobes 3.25-3.4 × 2.2-2.3 mm, obovate, retuse at apex, crenulate at margins, white-pink, with dark pink dotted streaks on the palate. Stamens 2, inserted at the throat, 1.8-2 mm long; filaments 1.2-1.4 mm long, white, glabrous; anthers bithecous; thecae oblong, dehiscing longitudinally; upper 0.67-0.70 mm long, blunt; lower 0.95-1 mm long, spurred at base. Pistils 5-6 mm long; ovary seated on a disc, 1.2-1.4 × 0.7-0.8 mm, oblongoid-ovoid, green, glandular hairy; disc 0.5-0.7 mm across, conical, flat topped, green, glabrous; styles 3-3.25 mm long, filiform, white, pilose at base; stigma 2-lobed. Capsules green, hispid, 4-5 × 1.5-2 mm, ovoid-oblongoid, stipitate, apex mucronate, dehiscing longitudinally. Seeds 2-4 per capsule, 1.2-1.5 × 1.1-1.3 mm, obovate-orbicular, cordate at base, compressed, minutely tuberculate.

Flowering and fruiting: August to February.

Distribution: India. Kerala (Kollam) and now in Tamil Nadu (Kanyakumari). Endemic to southern Western Ghats.

Specimen examined: India, Tamil Nadu, Kanyakumari Wildlife Sanctuary, Balamore Shola II, on the way to Muthukuzhivayal, ± 830 m asl, 24.11.2022, K. Ravikumar, Ashutosh Sharma, P. Ravichandran & Vijay Sharma 125675 (FRLH)

Notes: Occasional along forest road cuttings at an altitude of 830 m asl. associated with *Anaphyllum wightii* Schott, *Emilia sonchifolia* (L.) DC., *Maesa indica* (Roxb.) Sweet, *Oplismenus compositus* (L.) P.Beauv., *Phyllanthus rheedei* Wight, *Piper umbellatum* L., *Pogostemon heyneanus* Benth., *Sarcandra glabra* subsp. *brachystachys* (Blume) Verdc., *Sonerila tinneveliense* C.E.C.Fisch., *Xanthophyllum flavescens* Roxb. and species of *Commelina*, *Impatiens*, *Jansenella*, *Justicia*, *Murdannia*, *Paspalidium* and *Selaginella*.

Smithia venkoborowii Gamble, Fl. Pres. Madras: 330 (223). 1918 & in Bull. Misc. Inform. 1919: 233. 1919; Sanjappa, Legumes India: 248. 1992; Sasidh. & Sivar., Fl. Pl. Thrissur: 153. 1996; Sasidh., Biodiv. Doc. Kerala 6. Fl. Pl.: 145. 2004; T.S. Nayar & al., Fl. Pl. Kerala: 303. 2006.

Erect to scandent subshrubs, 30-90 cm high. Stems weak, densely bristly. Stipules 6-7 × 2.5 mm, ovate-lanceolate, bristly outside; appendage c. 5 mm long. Leaves 2.5-6 cm long leaflets 3-4(-5) pairs, subsessile, 1-3 × 0.4-0.8 cm long, oblong, obtuse-retuse at apex, oblique at base, glabrous. Flowers 0.8-1.2 cm long, yellow, in axillary, sub-capitate heads; heads in pairs or threes in upper leaf axils; peduncles 2-3 cm long, bristly; pedicels c. 2 mm long; bracteoles c. 4 × 1.5 mm, obovate-elliptic, bristly along margins, persistent. Calyx membranous, anastomosingly-veined; 2 lipped; upper-lip broad, c. 4 mm long, emarginate, short-bristly along margins; lower lip 3-lobed;

lobes acute, sparsely bristly outside. Corolla : standard c. 11 × 10 mm, suborbicular, emarginate at apex, red-tinged towards claw, claw 3-4 mm long; wings c. 10 × 5 mm, obovate-oblong, claws c. 2 mm long; keels c. 8 × 4 mm, obliquely obovate, ciliolate at apex, auricles 2 mm long, claws 1.5-2 mm long. Staminal sheath c. 7 mm long; filaments c. 3 mm long; anthers ovoid. Ovary subsessile, c. 3 mm long, linear; ovules 5-7; styles c. 8 mm long; stigma pointed. Lomentum almost included, 4-6 jointed; joints folded back within the calyx, c. 2.5 × 2.5 mm, reticulate, bordered. Seeds c. 2 × 1.5 mm, sub-reniform.

Flowering and fruiting: September to December

Distribution: India. Kerala (Idukki, Palakkad and Thrissur) and now in Tamil Nadu (Kanyakumari). Endemic to southern Western Ghats.

Specimen examined: India, Tamil Nadu, Kanyakumari Wildlife Sanctuary, Balamore grassland, on the way to Muthukuzhivayal, ± 830 m asl, 23.11.2022, K. Ravikumar, Ashutosh Sharma, P. Ravichandran & Vijay Sharma 125671 (FRLH)

Notes: It was found along forest road cuttings and on moss clad dripping rocks of grassland slopes. Around 6 mature plants were noticed on two road cuttings of grasslands. Nayar et al. (2006) state that no specimen of this species is available in MH, Coimbatore. It was found associated with *Buchnera hispida* Buch.-Ham. ex D.Don, *Crotalaria nana* var. *umbellata* (Wight & Arn.) A.A.Ansari, *Elephantopus scaber* L., *Emilia sonchifolia* (L.) DC., *Leucas ciliata* Benth., *Lycopodiella cernua* (L.) Pic.Serm., *Oplismenus compositus* (L.) P.Beauv., *Phyllanthus rheedei* Wight, *Phyllanthus virgatus* G.Forst. and species of *Commelina*, *Eriocaulon*, *Impatiens*, *Murdannia*, *Neanotis*, *Selaginella*, *Smithia*, *Themeda* and *Utricularia*.

Utricularia babui S.R.Yadav, Sardesai & S.P.Gaikwad, *Rheedea* 15(1): 71. 2005.

Perennial herb; rhizoids numerous, 3-5.5 cm long, glandular, branched; stolons 3-15 cm long, profusely branched, mat-forming. Leaves 0.4-6 × 0.1-0.2 cm, linear-filiform, single or 4-5 at the base of peduncle and scattered along stolons, acute or acuminate at apex, 1-nerved; traps subglobose, 1-2 mm across, those on leaves large, elsewhere small; stalks up to 0.5 mm long; mouth basal; appendages subulate, simple, glandular-hairy. Racemes erect, rarely twining, 6-20 cm long, angular, grooved on one side, glabrous, 2-5 flowered; scales basifixed, 1.5-2.8 × 0.6-0.7 mm, 1-nerved, acute or bidentate at apex; bracts basifixed, 2.2-2.5 × 0.6-1.2 mm, acute at apex, 3-nerved; bracteoles 2, 0.5-2 × 0.2 mm, basifixed, subulate, acute, 1-nerved; pedicels ascending, slender, 2-8 mm long, erect at anthesis as well as in fruit. Calyx lobes unequal; upper lobes 2-5 × 2-3 mm (2-6 × 2-4 mm in fruit), ovate, acute or bidentate at apex; lower lobes 2-5 × 2-3 mm (3-6 × 3-4 mm in fruit), ovate-elliptic, acute or bidentate at apex. Corolla blue, purple and pink; upper lip 4-6 × 2.5-3.5 mm, oblong, truncate, rounded

or emarginate, slightly narrowed below; lower lip 3.5-7 × 2.5-7 mm, obovate, broadly circular, bigibbous at base, rounded or retuse at apex; spur 4-6.5 mm long, conical, slightly projecting upwards. Stamens 2, 1.5-2 mm long; filaments strap shaped, slightly curved; anther thecae distinct. Pistil 2-2.5 mm long, dorsally compressed; styles short, distinct, flat; stigma 2-lipped, truncate at apex. Capsules 4-5 × 2-2.5 mm, ellipsoid, pouched on the abaxial side, dehiscent margins thickened, dehiscent by the ventral longitudinal slit. Seeds ovoid-globose, 0.3-0.4 mm in diameter; testa reticulate, testa cells compact and narrowly elongated.

Flowering and fruiting: October to February.

Distribution: India (Maharashtra, Karnataka and now in Tamil Nadu) and Thailand.

Specimen examined: India, Tamil Nadu, Kalakkadu-Mundanthurai Tiger Reserve, Kalakkadu division and range, Sengaltheri, close to Engineer's Bungalow, Karumaandi Amman Kovil, ± 920 m asl, 20.6.2022, K. Ravikumar, P. Ravichandran, S.R. Yadav & Vijay Sharma 2206 (M.S. University Herbarium), Tirunelveli.

Notes: This species was found growing along with *Bothriochloa insculpta* (Hochst. ex A.Rich.) A.Camus, *Burmanna coelestis* D.Don, *Chrysopogon zeylanicus* (Nees ex Steud.) Thw., *Cyrtococcum deccanense* Bor, *Isachne globosa* (Thunb.) Kuntze, *Ischaemum rugosum* Salisb., *Panicum repens* L. and *Zenkeria elegans* Trin. It was seen growing on a single rock adjacent to a waterfall. Three different flower colour forms of this species were observed, i.e., purple, pink and blue, thus, confirming a wide range of colour variation in this *Utricularia* species.

ACKNOWLEDGEMENT

Authors are thankful to Dr E.S. Santhosh Kumar (JNTBGRI), Dr M. Sanjappa and Prof. S.R. Yadav for confirming identity of the plants. Thanks are also due to the authorities of KMTR

and KWLS, Tamil Nadu Forest Department for granting permission to conduct field survey in a protected area and for logistic support.

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