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Two new species of *Utricularia* L. (Lentibulariaceae) from Peninsular India

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Abstract

Utricularia janarthanamii and *Utricularia naikii* (Lentibulariaceae) from Maharashtra, India are described here as new species with descriptions, illustrations and notes.

INTRODUCTION

The family Lentibulariaceae is represented by two genera, viz. *Pinguicula* L. and *Utricularia* L. in India. The species of *Utricularia*, popularly termed as, "Bladderworts" have attracted attention of number of botanists, naturalists and enthusiasts due to their peculiar insect eating habit and attractive flowers. It is represented by about 215 species, widely distributed mostly in tropics and subtropics and a few are temperate (Cook, 1996). In India, it is represented by about 35 species (Janarthanam & Henry, 1992) and most of them are found in Peninsular India.

During our intensive and extensive survey on Aquatic plants of Konkan, Goa, Kanara and Kolhapur region, about 21 species of *Utricularia* were collected. On critical analysis, two specimens turned out to be new species, which are described and illustrated in the present paper.

Utricularia janarthanamii Yadav, Sardesai et Gaikwad, *sp nov.* (Fig. 1).

U. uliginosa Vahl. affinis, sed bracteolis absentibus, corolla bigibba, pedicellis in fructus recurvatis differt.

Types: India, Maharashtra, Kolhapur Dist., Kolhapur, 17 Aug. 1997, Sardesai 233 (*Holo* - CAL; *Iso* - K, BSI, BLAT & SUK).

Herbs; rhizoids up to 2 cm long, glandular, branched; stolons up to 10 cm long, profusely branched. Leaves 0.5-2 cm long, 1-5 mm wide, spatulate, rounded at apex, scattered along stolons, 3-nerved, nerves branched. Traps on leaves large (1-2 mm across) and

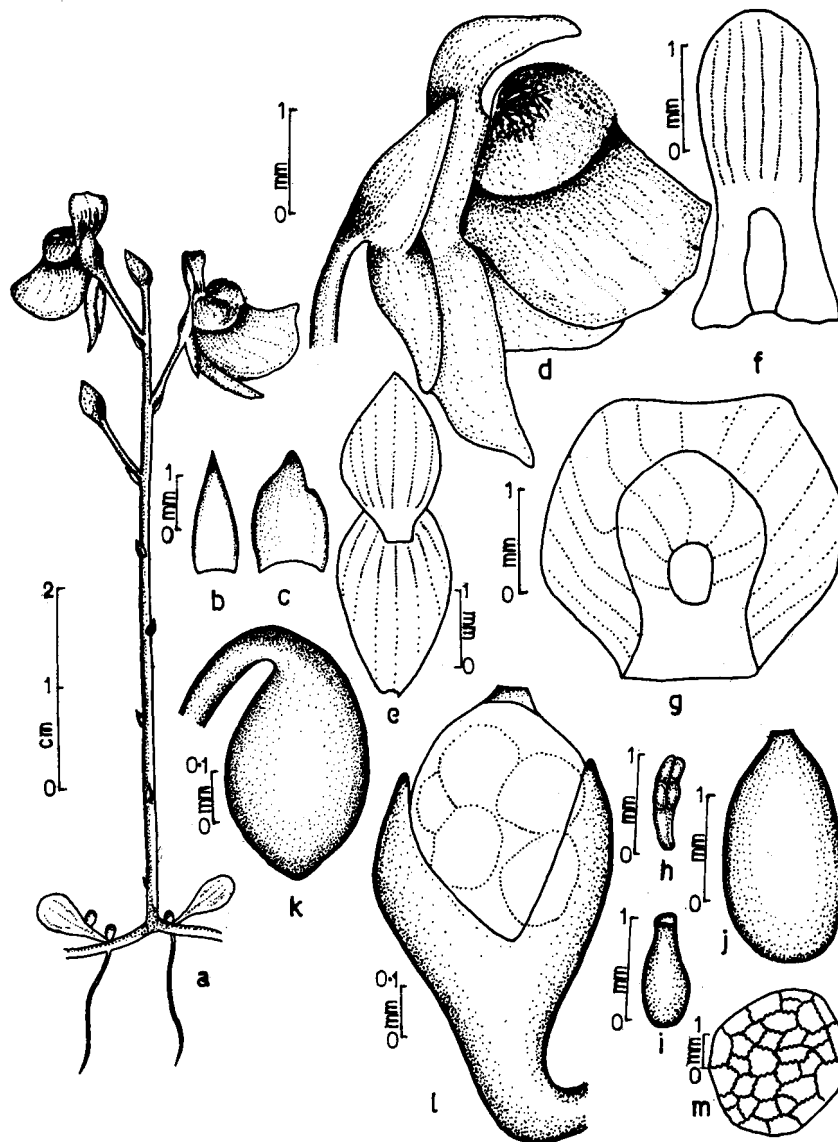
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Fig. 1. *Utricularia janarthanamii* Yadav *et al.*: a. Habit; b. Scale; c. Bract; d. Chasmogamic aerial flowers; e. Calyx; f. Upper lip of corolla; g. Lower lip of corolla; h. Stamen; i. Pistil; j. Fruit; k. Cleistogamous subterranean flower; l. Fruit; m. Seed.

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elsewhere small (0.6-1 mm across), subglobose; stalk upto 1 mm long; mouth basal with two simple, subulate, glandular appendages; glands on appendages stalked and elsewhere sessile. Flowers in racemes on peduncle and solitary on leaves and stolons; peduncles up to 10 cm long, angular, grooved on one side, glabrous; scales basifixed, 1.5-1.8 x 0.5-0.7 mm, 1-nerved, acute at apex. Flowers bracteate, bracts basifixed, 1.4-1.5 x 0.6-0.8 mm, 1-nerved, acute at apex; bracteoles absent; pedicels 0.4-0.8 cm long, erect at anthesis and recurved in fruit. Calyx lobes unequal; upper lobe 1.8-2 x 1-1.2 mm (1.9-2.2 x 1.2-1.4 mm in fruit), ovate, acute or minutely dentate at apex; lower lobe 2-2.2 x 1.2-1.3 mm (2.5-2.7 x 1.2-1.4 mm in fruit), ovate-elliptic, obtuse or minutely dentate at apex. Corolla blue to pink; upper lip 3.2-3.3 x 1-1.1 mm, linear-oblong, crested at centre, rounded or notched at apex; lower lip 3-3.2 x 3.8-4.2 mm, obovate, hairy in throat, bigibbous at base, rounded at apex; spur 2-5 mm long; conical, descending, acute or 2-3 dentate at apex. Stamens 2, 1-1.2 mm long; filaments strap-shaped, slightly curved. Pistil 0.9-1.1 mm long, dorsally compressed; style short, distinct, flat; stigma 2-lipped, truncate at apex. Flowers on stolons and leaves: those on stolons minutely pedunculate; peduncle up to 2 mm long, those on leaves sessile; scales basifixed, 0.15-0.2 mm long, 1-nerved, acute at apex; bracts basifixed, 0.25-0.3 mm long, 1-nerved, acute at apex; bracteoles absent. Calyx lobes unequal; upper lobe 0.55-0.6 x 0.4-0.5 mm (0.8-0.9 x 0.6-0.7 mm in fruit), broadly ovate, acute or minutely dentate at apex; lower lobe 0.6-0.7 x 0.4-0.45 mm (0.9-1.1 x 0.5-0.6 mm in fruit), ovate-elliptic, obtuse or minutely dentate at apex. Corolla hyaline, cleistogamous; upper lip shortly 2-lobed, overlapping lower lip; lower lip shallowly lobed; spur almost absent. Stamens 2, 0.45-0.5 mm long; filaments strap-shaped, slightly curved at apex. Pistil 0.35-0.4 mm long, dorsally compressed; style short, distinct, flat; stigma 2-lipped, truncate at apex. Capsules 1.8-2 x 1.2-1.3 mm (those on leaves and stolons 1.25-1.5 x 0.75-0.8 mm), obliquely ovoid, wall uniformly membranous. Seeds numerous (from the capsules those on leaves and stolons 2-10), subglobose, 0.5 mm across; testa cells more or less isodiametric.

Flowering and fruiting: July - December.

Ecological Note: It grows at an altitude of about 500-600 m on wet ground around lakes, tanks and marshy rice fields and wet grass lands. Flowering is common but fruit setting is very rare. The chasmogamic flowers are produced on scape while subterranean cleistogamous flowers are produced on leaves and in the axil of leaf on stolon. *Dopatrium junceum* (Roxb.) Buch. -Ham. ex Benth., *Eriocaulon nepalense* Prescott ex Bong., *Mnesithea granularis* (L.) Koen. & Sosef. are the common associates.

Distribution: Girgaon, Kagal, Katyayani and Kolhapur in Kolhapur district, and Saikade in Satara district of Maharashtra.

Etymology: This species is named after Dr. M.K. Janarthanam, Goa University, Goa, who has made valuable contribution to Indian bladderworts.

Closely allied to *U. uliginosa* Vahl but differs in the absence of bracteoles, bigibbous corolla and recurved fruiting pedicel, globose seeds and terminal hilum.

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Utricularia naikii Yadav, Sardesai *et* Gaikwad, *sp. nov.* (Fig. 2)

U. nayarii Janarth. *et* Henry affinis, sed bracteolis absentibus, corollis minutis et in lobos calyces inclusis et antheris ventraliter dehiscentibus remis longitudinalibus differt.

Types: India, Maharashtra, Sindhudurg Dt., Amboli, 29 Sept 1999, *Sardesai 1911* (Holo – CAL; Iso – K, BSI, BLAT & SUK).

Herbs; rhizoids up to 1.5 cm long, glandular, branched; stolons 3-5 cm long, branched. Leaves 0.4-10 mm long, 1-3.5 mm wide, spatulate, 1 or 4-5 at the base of peduncle and also scattered along stolons, 3-nerved, nerves branched further, rounded at apex. Traps 1-2 mm across, those on leaves large and elsewhere small, subglobose; stalk up to 0.5 mm long; mouth basal; appendages subulate, simple, glandular hairy. Racemes up to 6 cm long, angular, grooved on one side, glabrous, 2-6 flowered; scales basifixed, 1.5-2.8 x 0.6-0.7 mm, 1-nerved, acute or 2-3 dentate at apex; bracts basifixed, 2.2-2.5 x 0.6-0.7 mm, 1-nerved, acute or 2-3 dentate at apex; pedicels 2-3 mm long, erect at anthesis and deflexed in fruit. Calyx lobes unequal; upper lobe 1.8-2 x 1-1.2 mm (2.3-2.6 x 1.8-2.1 mm in fruit), ovate, acute or 2-3 dentate at apex; lower lobe 2.2-2.5 x 1-1.3 mm (3.3-3.5 x 2.2-2.4 mm in fruit), ovate-elliptic, acute or 2-3 dentate at apex. Corolla lilac or faint rose coloured, papillose; upper lip 0.8-1 x 0.8-0.9 mm, oblong-truncate; lower lip 1-1.3 x 0.8-1 mm, oblong, acute at apex, enrolled along margins, gibbous at base; spur 0.5-1 mm long, conical, slightly projecting upwards. Stamens 2, 0.9-1 mm long; filaments strap-shaped, slightly curved; anther-thecae distinct. Pistil 0.8-0.9 mm long, dorsally compressed; style short, distinct, flat; stigma 2-lipped, truncate at apex. Capsules c. 2.5 x 2.2 mm, obliquely ovoid, wall uniformly membranous, dehiscent by ventral longitudinal slit, puched at abaxial side. Seeds ovoid-globose, 0.4 mm across, testa cells more or less isodiametric.

Flowering and fruiting: September - November.

Ecological Note: This minute slender bladderwort grows at an altitude of about 850-1000 m in muddy places amidst grasses along small streams. *Utricularia albocaerulea* Dalzell, *U. praeterita* Taylor, *Eriocaulon sharmae* Ansari, *Cryptocoryne spiralis* Wydler var. *cognatoides* Yadav, Patil & Bogner and *Geissaspis cristata* Wt. *et* Arn. are some of the common associates. It appears that the species is cleistogamous and reproduces by selfing.

Taxonomic note: Absence of bracteoles, unequal calyx lobes, peculiar minute corolla (probably never opening) which is included in calyx lobes and obliquely ovoid fruit which dehisces by only ventral longitudinal slit distinguishes *U. naikii* from *U. nayarii* Janarth. *et* Henry.

Distribution: Bhattwadi, Burki, Patgaon and Rangan in Kolhapur district, and Amboli and Choukul in Sindhudurg district of Maharashtra.

Etymology: This species is named after Dr. V.N. Naik, Dr. B.A. Marathwada University, Aurangabad, who has made valuable contribution to angiosperm systematics.

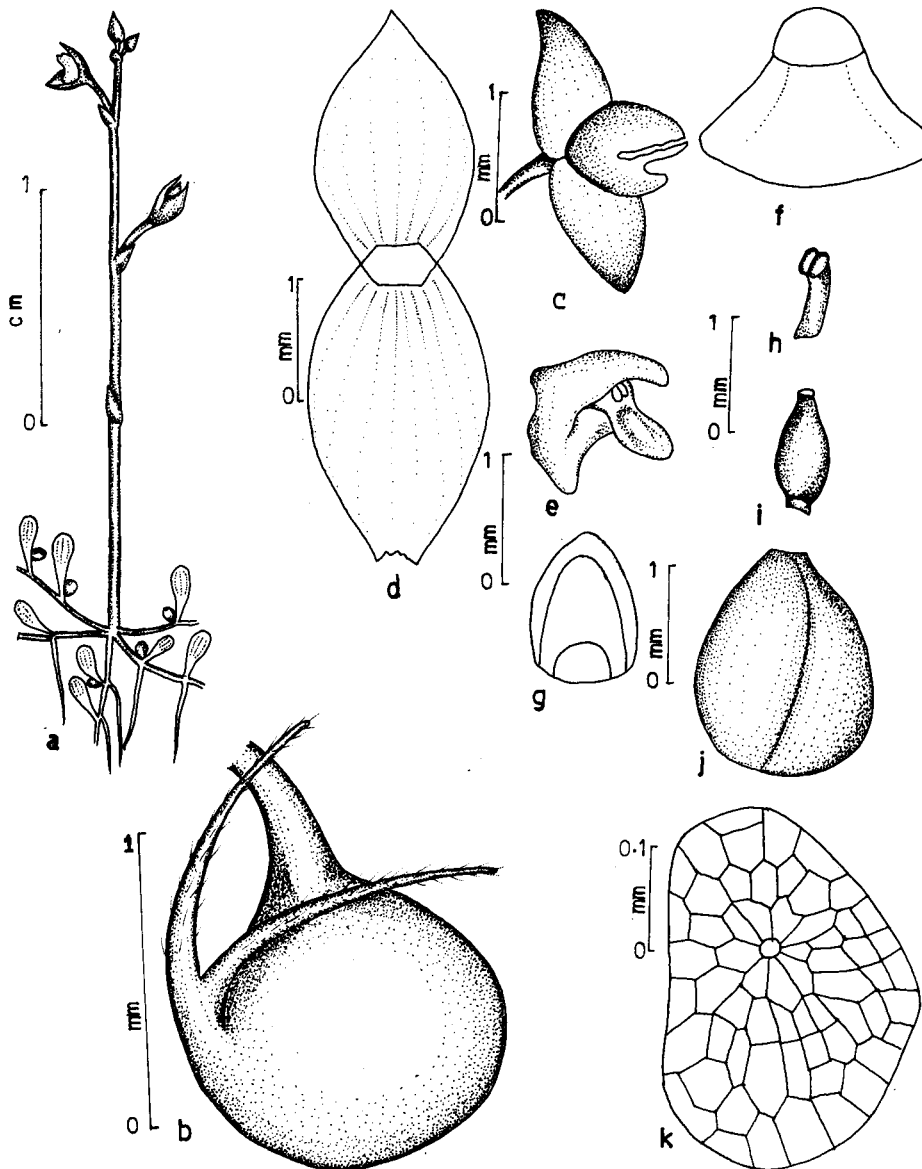
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Fig. 2. *Utricularia naikii* Yadav *et al.*: a. Habit; b. Bladder; c. Flower; d. Calyx; e. Side view of corolla; f. Upper lip of corolla; g. Lower lip of corolla; h. Stamen; i. Pistil; j. Fruit; k. Seed.

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