Bioscience Discovery, 13(1):35-40, Jan. - 2022

Open Access, Peer Reviewed, Referred Research Journal

Print & Online available on https://jbsd.in
ISSN: 2229-3469 (Print); ISSN: 2231-024X (Online)

Research Article

Additions of two angiosperm species to the Flora of Telangana state, India

Gollamandala Ravi[1], Allam Vijaya Bhaskar Reddy[2], Banoth Sridevi[3], Dasari Veeranjaneyulu[4],

[1]Bharatiya Engineering Science and Technology Innovation University, Anantapur, Andhra Pradesh– 515731, India.
[2]ENVIS Division, EPTRI, Hyderabad, Telangana– (500032), India.
[2 &3] Applied Palynology Laboratory, Department of Botany, Nizam College, Osmania University, Hyderabad– 500001, India
Email:[1]gollamandala.ravi2@gmail.com,

Article Info

Received: 11-11-2021,
Revised: 10-12-2021,
Accepted: 26-12-2021

Keywords: Additions, Floristic diversity, *Hygrophila*, *Limnophila*

Abstract

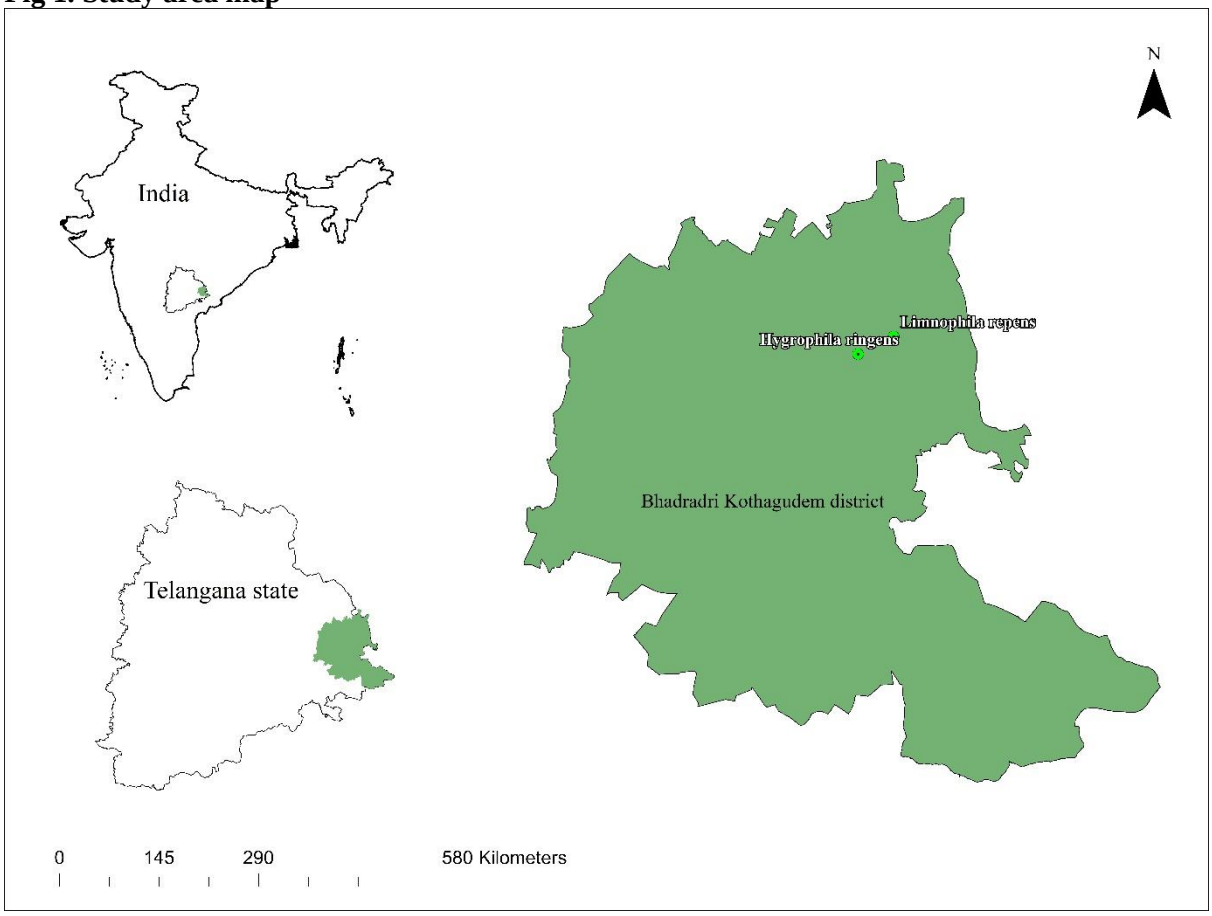
Two species, viz. *Hygrophila ringens* (L.) R.Br. ex Spreng. (Acanthaceae) and *Limnophila repens* (Benth.) Benth. (Plantaginaceae) are reported here as an addition to the Flora of Telangana state, India.

INTRODUCTION:

Bhadradri Kothagudem, Telangana's easternmost district, is located between 18° 13' and 17° 13' north latitude and 80° 12' and 81° 18' east longitude, covering 7,483 square kilometres. The district is bounded on the north and north east by Bijapur and Sukuma districts of Chhattisgarh state, on east-by-East Godavari district, on south and south east by Khammam district and West Godavari district, on west by Mahabubabad district and on north west by Jayashanker Bhupalapally district. The forest is of Moist deciduous and tropical dry deciduous type, occupying an area of 4334.83 Sq.km, i.e., 7089.89 Sq.km of the geographical area.

The genus *Hygrophila*, commonly known as swamp weeds. There are about 100 species (Hai and Huyen, 2011) of which many are aquatic plants (Deng et al., 2011). The genus is distributed across the tropical and subtropical world. In India about 16 species are found in warmer parts of the country, among them *Hygrophila ringens* (L.) R.Br. ex Spreng, has a wide area of distribution, from India and Sri Lanka to South-East Asia. The genus *Limnophila*, consists of mostly herbs (Rahman, 2006), most of the species of the family are comparatively small aquatic or semi-aquatic herbs inhabiting in marshes, riversides, forest paths or similar wet places and also as weeds in rice-fields (Dhatchanamoorthy *et al*., 2016). *Limnophila repens (Benth.) Benth.* commonly known as 'creeping meshweed' is an herb widely distributed in South and South-East Asia, China, Pacific islands and Australia (Rahman, 2006). In Telangana state, the genus *Hygrophila* is represented by 2 species and *Limnophila* is represented by 07 species (Pullaiah, 2015; Reddy & Reddy, 2016).

Fig 1. Study area map



MATERIALS AND METHODS:

The floristic explorations were carried out in Bhadradri Kothagudem district of Telangana state during 2019 to 2021.The district is one of the most explored areas in the state since Andhra Pradesh was combined. To the richness and diversity of the vegetation of the area and its tropical climate, despite over exploitation, we owe a number of collections that were made and subsequently discovered. Yet many remain unreported since the publication of recent floral checklist by (CS Reddy, 2018), and Floras by (Reddy & Reddy, 2016) and (Pullaiah, 2015). The specimens of the newly recorded species were collected from Manuguru mandal of the district (Figure 1). The voucher specimens were studied critically and identified as *Hygrophila ringens* (L.) R.Br. ex Spreng. and *Limnophila repens* (Benth.) Benth. These 2 species were reported here as an addition to the Flora of Telangana state, India. Detailed description, photographs and occurrence map are provided to facilitate identification. The voucher herbarium sheets were prepared by standard herbarium methods (Jain and Rao 1977), and deposited at BSID.

RESULTS:

i) ***Hygrophila ringens*** (Syn: *Ruellia ringens* L., Sp. Pl. 2: 635. 1753; *Dipteracanthus ringens* (L.) Abeywickrama; *Hygrophila angustifolia* R. Br.; H. lancea (T.) Miquel; *H. megalantha* M; *H. quadrivalvis* (Buchanan-Hamilton) Nees; *H. salicifolia* (Vahl) Nees; *H. salicifolia var. megalantha* (M.) H. S. Lo & L. D. Chou; *Justicia lancea* T.; R. quadrivalvis Buchanan-Hamilton; R. salicifoliaVahl.)

Branched herb 80 cm tall, Stems erect or decumbent at base, quadrangular, striate, slightly pubescent. Petiole 0.5 - 1 cm, glabrous, leaf blade narrowly lanceolate to oblanceolate, 3-10 × 0.5-1.5 cm, both surfaces with numerous cystoliths and glabrous or slightly pubescent, secondary veins 8-11 on each side of midvein, base attenuate and decurrent onto petiole, margin entire or slightly undulate, apex acute to obtuse.

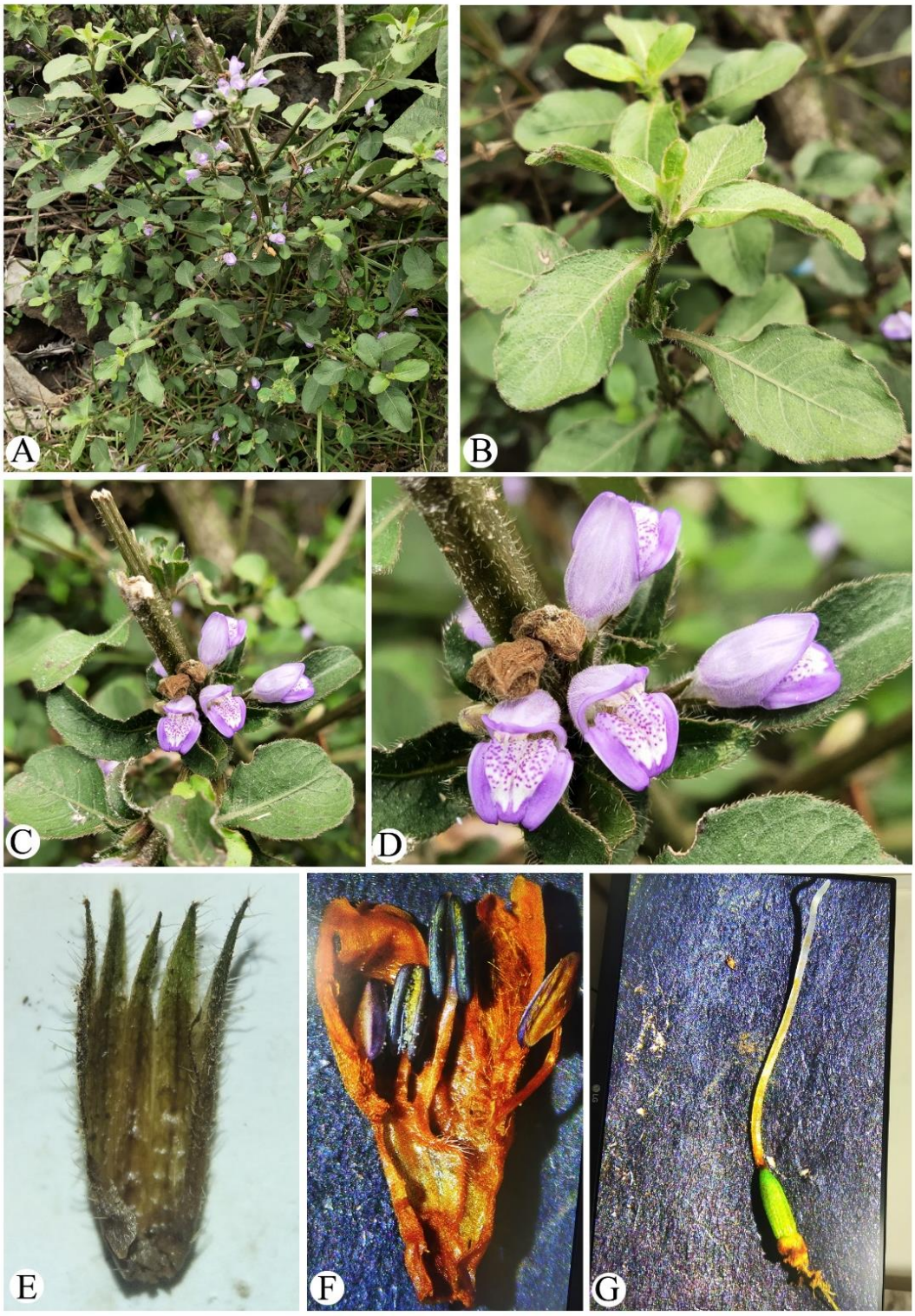


Figure 2. A. Habitat, B. Foliage, C & D. Inflorescence, E. Calyx, F. Corolla split open, G. Ovary

Fig-3. A. Habitat, B. Foliage, C, D & E, Inflorescence

Flowers, solitary or2-10 clustered in leaf axils, sessile; bracteoles narrowly ovate, 3-5 mm, margin pubescent, apex obtuse. Calyx narrowly campanulate, ca. 6 cm, 5-lobed to middle; lobes linear-lanceolate, greyish pubescent or fulvous strigose, apex acuminate. Corolla pale purple, 1-2.5 cm, tube 7 mm, and 2 mm wide, glabrous; limb 2-liped; lower lip obovate, 3 mm, 3-lobed to middle, lobes ovate with an obtuse apex; upper lip elliptic, ca. 3 mm, shallowly 2-lobed, outside puberulent. Stamens 4, included; filaments glabrous, longer pair 5 mm, shorter pair 3 mm; anther thecae 1-2 mm. Ovary glabrous; style filiform, ca. 8 mm, included; stigma unequally 2-lobed. Capsule narrowly oblong, 0.8-2.2 cm, 1.5 mm wide, glabrous, 12-18-seeded. Seeds,1 mm, pubescent.

Distribution: - Throughout the India and Sri Lanka to South-East Asia.

Habitat and Ecology: Three well established populations of the species with 5 individuals were located near Bombay colony, Koonavaram village, Manuguru mandal of Bhadradri Kothagudem district, growing along road side in association with *Acalypha indica* L., *Cyanthillium cinereum* (L.) H.Rob. and *Pilea microphylla* (L.) Liebm.

Flowering and fruiting: November to December

Specimens examined: – INDIA. Telangana state. Bhadradri Kothagudem district, Manuguru mandal, Bombay colony, Koonavaram village, 07 November 2021, G. Ravi 638 (BSID)

ii) ***Limnophila repens*** (*Benth.*) *Benth.*in DC. Prodr. 10: 387. 1846; Philcox, Kew Bull. 24: 154. 1970; Matthew, FTNC 3: 1081. 1983 & FPH t. 1066. 1998, 890. 1999; COL 2018. *Stemodia repens* Benth. Edward's Bot. Reg. 17: sub t. 1470. 1832 &Scroph. Ind. 24. 1835. *Limnophila conferta* Benth. in DC. Prodr. 10: 387. 1846; Hook.f. FBI 4: 266. 1884; Gamble, FPM 2: 951 (667). 1923; Matthew, FTNC 1:283. 1981. L. sessilis (Benth.) C.E.C. Fisch. Bull. Misc. Inform. Kew 1932: 62. 1932.

Erect or procumbent herb with strong aromatic smell. Leaves 1-2 x 0.4-0.9 cm, oblong to elliptic-oblong, base acute, margin crenate-serrate, apex acute, punctate on both surfaces, glabrous, penninerved, chartaceous, subsessile. Flowers axillary, solitary or in short racemes. Calyx c. 4 mm long, lobes lanceolate, hirsute, striate at maturity. Corolla violet-pink, rarely yellow, 5 mm across; tube 6-8 mm long, pubescent without and at throat within, longitudinally purple striped. Stamens 4. Stigma spathulate. Capsule 3-4 mm long, ellipsoid. Seeds angular, brown.

Distribution: Assam, Andhra Pradesh, Maharashtra, Karnataka, Kerala, Tamil Nadu and the present report from Telangana state.

Habitat and Ecology: It is growing in marshy places, rice fields particularly in low lying areas (Cook 1996). It is a very variable aquatic herb growing in wet places (Henry and Chitra 1987) and moist sandy soils, in association with *Mitrasacme pygmaea* R.Br., *Ludwigia perennis* L. *Fuirena ciliaris* (L.) Roxb. and *Oldenlandia umbellata* L.

Flowering and fruiting: July to December

Specimens examined: – INDIA. Telangana state. Bhadradri Kothagudem district, Manuguru mandal, Kamalapuram village, 18 November 2021, G. Ravi 642 (BSID)

ACKNOWLEDGEMENTS: The authors are thankful to P.T. Arunraj (Alumnus, Department of Botany, University College, Thiruvananthapuram, Kerala) for academic and technical support, and thanks also extended to P. Bharat Simha Yadav and Y.V.B. Charan (AINPVPM, Rajendra Nagar, Hyderabad, Telangana state, India) for endless support.

REFERENCES:

Cook CDK, 1996. Aquatic and Wetland Plants of India. Oxford University Press, New. York. 385.

Deng YF, Hu CC, Daniel TF, Wood J and Wood JRI, 2011. Flora of China. Science Press, Beijing, and Missouri Botanical Garden Press, St.Louis, 19: 430-432.

Dhatchanamoorthy N, Balachandran N and Ayyanar M, 2016. Notes on some rare plant collections from the southern Coromandel Coast, India. South Indian *J. Biol. Sci*. 2 (2): 256-263.

Do Van Hai and Duong Duc Huyen, 2012. New record of species *Hygrophila episcopalis* R. Ben. (R. Ben.) (Acanthaceae) For the flora of Vietnam. TAP CHÍ SINH HAC, 34 (2): 187-189.

Gamble JS. 1915-1936. Flora of Presidency of Madras. vols. I-III. Adlard & Son, London. (repr. ed., 2011).

Henry AN, Kumari GR and Chitra V, 1987. Flora of Tamil Nadu, India, Series I: Analysis, Volume 2, Botanical Survey of India, Southern circle, Coimbatore.

Jain SK and Rao RR, 1977. Field and herbarium methods. Today and Tomorrow's printers and Publishers.

John Britto S, 2019. The Flora of Central and North Tamil Nadu, Department of Science and Technology (DST), New Delhi, pp. 1965, 2041.
Pullaiah T, 2015. Flora of Telangana, the 29th State of India. Regency publications.
Rahman MO, 2006. Scrophulariaceous taxa in Bangladesh. *Bangladesh J. Plant. Taxon*. 13 (2): 139-154.
Reddy CS, 2018. Exploration and conservation of the flora of Telangana State, India:
An update, *Phyto taxonomy*, 18, 2018. pp. 00-00.
Reddy KN and Reddy CS. 2016. Flora of Telangana State, India. Bishen Singh Mahendra Pal Singh

How to cite this article

Gollamandala Ravi, Allam Vijaya Bhaskar Reddy, Banoth Sridevi, Dasari Veeranjaneyulu, 2022. Additions of two angiosperm species to the Flora of Telangana state, India. *Bioscience Discovery*, **13**(1):35-40.
Google Scholar: https://scholar.google.co.in/citations?user=vPzEyC8AAAAJ&hl=en