Biological Forum
an International Journal 17(10): 48-51(2025)

ISSN No. (Print): 0975-1130
ISSN No. (Online): 2249-3239

Hydrocotyle verticillata Thunb. (Apiaceae): A New Aquatic Weed from Nilgiri District and addition to the Flora of Tamil Nadu, India

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(Received: 26 July 2025; Revised: 25 August 2025; Accepted: 26 September 2025; Published online: 09 October 2025)
(Published by Research Trend)

DOI: https://doi.org/10.65041/BiologicalForum.2025.17.10.8

ABSTRACT: A semi aquatic weed *Hydrocotyle verticillata* Thunb. is reported from Nilgiri District for the first time along with its detailed description, phenology, photographs and relevant notes are provided here to facilitate easy identification of the taxa in the field.

Keywords: Distribution, New addition, Apiaceae, Tamil Nadu, Nilgiri District.

INTRODUCTION

During the survey and documentation of the herbal garden flora, an interesting plant specimen belonging to the family Apiaceae was collected from the CMPRH campus. Preliminary laboratory studies and critical examination revealed that the specimen belonging to the genus *Hydrocotyle*. Since it did not match any species of the genus previously reported from Tamil Nadu, a perusal of the relevant literature on the flora of Tamil Nadu (Nair and Henry 1983) and other recent literature confirmed that this species had not been recorded from the state. Further identification established the specimen as *Hydrocotyle verticillata* Thunb. The present study therefore reports its occurrence as a new addition to the flora of Nilgiri District, Tamil Nadu.

The genus *Hydrocotyle* L. belonging to the family Apiaceae, comprises about 100 species distributed across the temperate and tropical regions of the world (Airy-Shaw, 1897). From India, Karthikeyan *et al.* (2009) reported eight species, namely *H. conferta* Wight, *H. hookeri* (C.B. Clarke) Craib, *H. javanica* var. *hookeri* C.B. Clarke, *H. nepalensis* Hook., *H. podantha* Molk, *H. ramiflora* Maxim, *H. siamica* Craib, and *H. sibthorpioides* Lam. *Hydrocotyle verticillata*, native to North and South America, is widely distributed as a nearly cosmopolitan species, occurring in flowing waters and shallow lakes in Asia and Australia (Winkle & Borum 2009; Lim *et al*., 2014).

In the Indian subcontinent, Clarke (1879) reported five species of *Hydrocotyle* from British India: *H. javanica* Thunb., *H. burmanica* Kurz, *H. conferta* Wight, *H. rotundifolia* Roxb., and *H. asiatica* L. Later, Prain (1903) documented only two species, *H. rotundifolia* Roxb. and *H. asiatica* L., from West Bengal. In Tamil Nadu, the genus is represented by four species, *viz.*, *H. conferta* Wight, *H. javanica* Thunb., *H. sibthorpioides* Lam., and *H. asiatica* L. (Nair *et al*., 1983). Similarly, Sharma *et al*. (1977) reported the same four species from the flora of Nilgiri District. More recently, Mukherjee *et al*. (2020) reported nine species of *Hydrocotyle* from India, while Nagaraju Mulka and Ramesh Kandagatala (2023) reported the genus for the first time from Telangana.

Anirban Roy and Rijupalika Roy (2024) documented the occurrence of *H. verticillata* from South 24 Parganas District, West Bengal, and also recorded it from Delhi and Uttarakhand, though without specific locality details. Morphologically, *H. verticillata* can be easily distinguished from its allied species, such as *H. asiatica*, *H. javanica*, *H. conferta* Wight, and *H. sibthorpioides* Lam., by differences in leaf shape, structure, and inflorescence.

Moreover, this species has not been reported from Tamil Nadu by earlier researchers (Sharma *et al.*, 1977; Nair and Henry 1983). Therefore, the record of *Hydrocotyle verticillata* from Nilgiri District represents not only a new addition but also the first report of this species from Tamil Nadu. Hence, it is being reported here as a new record for Tamil Nadu**.** A detailed description, current nomenclature, ecological notes, and distribution, along with a photograph of the taxon are provided. The voucher specimens have been deposited in the CMPRH Herbarium (SMPGRH), CMPRH, Emerald, Nilgiri District, Tamil Nadu.

TAXONOMIC TREATMENT

Hydrocotyle verticillata Thunb., Hydrocotyle 2: t. 5. (1778). *Hydrocotyle vulgaris* Thunb., Flora of Capensis 252. (1782). Flora of the Northern united states, Canada and British possess ion 2:649 (1913)-. *Centella verticillata* (Thunb.) Fourc. in Mem. Bot. surv. South Africa 20:79. 1941.

A Perennial, glabrous, prostrate herb; stem stout, creeping, stolon 3.2-6.5 cm, each node with tufted roots. Leaves peltate, simple alternate, petiole slender long, 8.14.5 cm, smooth green, stalk attached to the middle of the leaf blade, lamina 2.8-3.3 cm in diameter. orbicular-reniform, rather broader than long, palmately lobed, margin coarsely repand-serrate, shiny, dark green above, pale beneath, smooth.

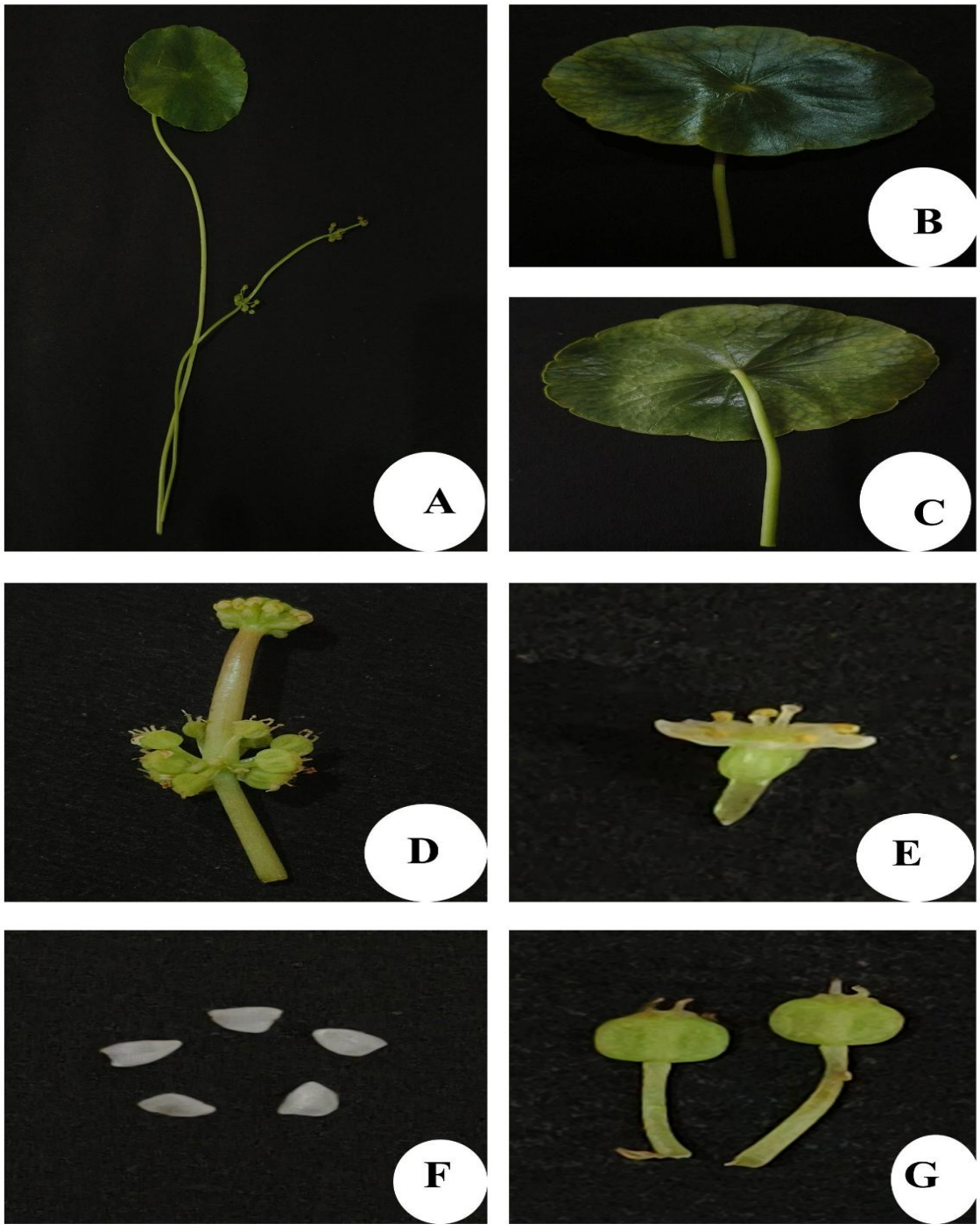


Fig. 1. A. *Hydrocotyle verticillata* Thunb. – Flowering twig; **B.** Ventral view of Lamina; **C.** Dorsal view of Lamina; **D.** Inflorescence with part of peduncle; **E.** Flower; **F.** Corolla; **G.** Schizocarp.

Inflorescence verticillate ca. 5-25 cm long, peduncles 2.2-21.5 cm long, arising from the axil of the leaves; peduncle 3-13 cm long with 10-13 flowered. Flowers greenish to creamy-white, star-shaped, small; pedicel very short, 1-3 mm long. Perianth 5, ovate, entire, acute, glabrous, recurve on maturity. Stamens 5, 1mm long almost equal length of tepals, alternate to tepals, filament cylindric, white, anthers bilobed yellow, longitudinally dehisced. ovary orbicular, glabrous, style filiform, divaricate, stigma persistent,1mm long. Fruit sub-orbicular 2 × 3 mm, broader than long laterally compressed or flattened with prominent, ribs or ridged ribs acute, mericarps ellipsoid (Fig. 1&2).

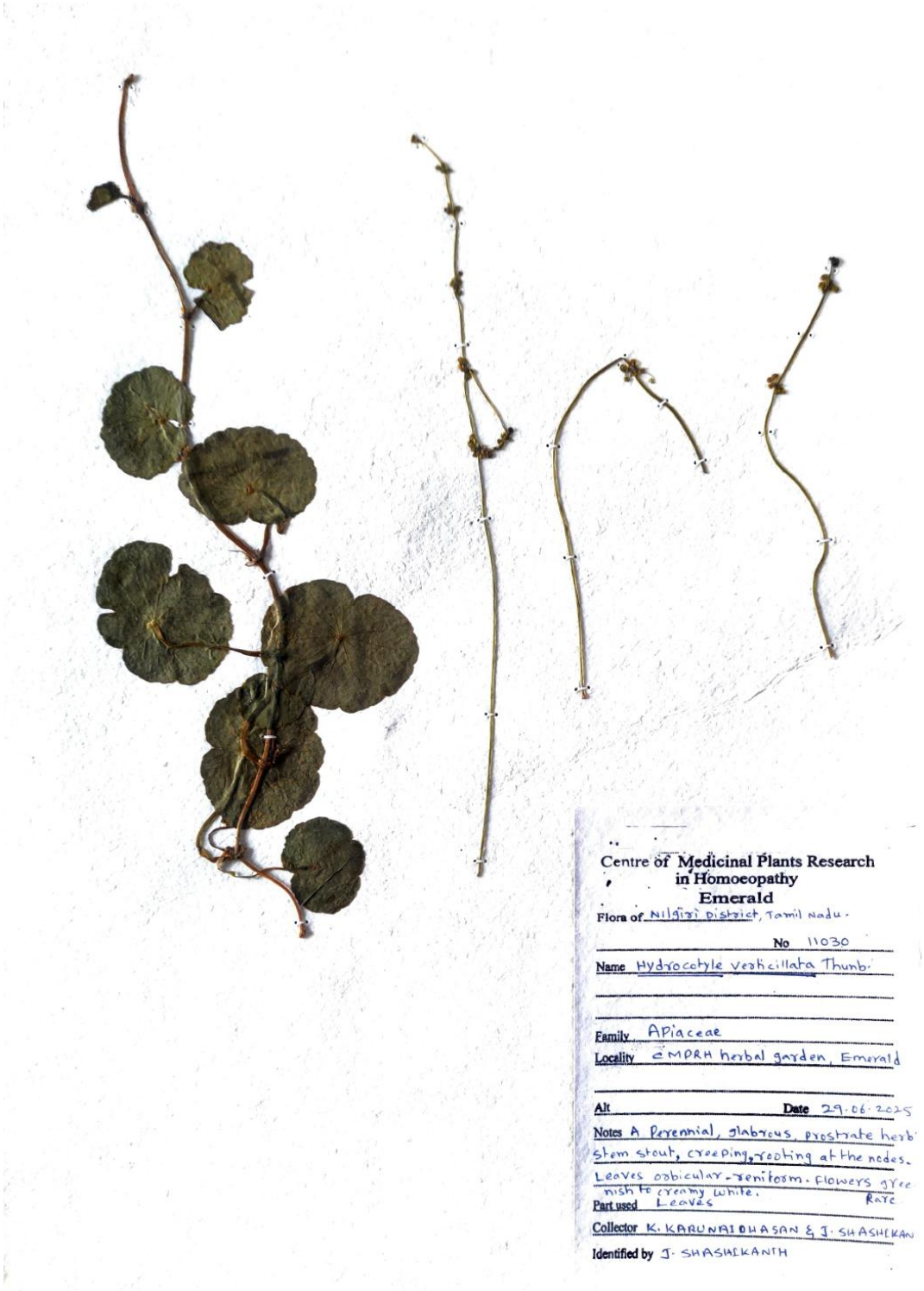


Fig. 2. Herbarium specimen of *Hydrocotyle verticillata* Thunb.

Flowering and Fruiting: November – July
Distribution: Native to North and South America, distributed in Canada Denmark, France, Puerto Rico and Hawaii. Also introduced to many countries like Bangladesh, Singapore, India: Delhi, Telangana, West Bengal, Uttara Kand, Tamil Nadu. (Present report)
Specimens Examined: INDIA: **Tamil Nadu**, Emerald, Indira Nagar, Nilgiri District, Center of Medicinal Plants Research in Homoeopathy, Herbal Garden, (11.313135º 76.629916º), 1970 m, 21.06.2025, K. Karunaidhasan & J. Shashikanth, 11030 (SMPGRH).
Habitat: Grows in moist places, along with the margins of drains and in pots of garden.

CONCLUSIONS

The findings presented in this research paper may serve as a valuable resource for researchers and students, especially within this region. The plant is commonly

sold in local markets under the name Vallarai keerei, making accurate botanical identification essential.

FUTURE SCOPE

Recognizing and promoting the economic and nutritional value of this leafy vegetable could play a significant role in enhancing public health and ensuring its benefits are passed on to future generations. Furthermore, there is ample scope for future research, particularly in the areas of its nutritional composition and pharmacological potential.

Acknowledgement. We would like to express our gratitude to Director General, CCRH for providing Facilities and encouragement. Corresponding author JS is indebted to Prof. P. Ramachandra Reddy, Department of Botany, Osmania University, Hyderabad for guidance.

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How to cite this article: K. Karunaidhasan, J. Shashikanth and P. Gopinath (2025). *Hydrocotyle verticillata* Thunb. (Apiaceae): A New Aquatic Weed from Nilgiri District and addition to the Flora of Tamil Nadu, India. *Biological Forum, 17*(10): 48-51.