



## *Euphorbia hyssopifolia* L. (Euphorbiaceae): New addition to the flora of Rajasthan, India

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Article published on January 05, 2025

**Key words:** Euphorbiaceae, *Euphorbia hyssopifolia*, Nahargarh wildlife Sanctuary, Rajasthan

### Abstract

The present paper deals with botanical description and new distributional records of *Euphorbia hyssopifolia* L., which belongs to the family Euphorbiaceae. This species has been recorded from new localities in Nahargarh Sanctuary, Jaipur district of Rajasthan state. It is provided here with description, photographs, habitat ecology, phenology, conservations measures for facilitating the identification.

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## Introduction

Rajasthan, India's largest state, is well known for its dry and semi-arid biogeographic environment. It lies between 23°3' to 30°12' N latitude and 69°30' to 78°17' E longitude, covering approximately 3,42,239 km<sup>2</sup> of land area. Despite its arid climate and desert topography, the state offers a diverse range of plant species. Taxonomists are continuously drawn to these distinctive environments and climates. Several taxonomists have studied and published the unique flora of State (Puri *et al.*, 1964; Bhandari, 1978; Sharma and Tiagi, 1979; Shetty and Singh, 1987, 1991 & 1993; Singh and Singh, 2006; Singh and Srivastava, 2007). Kotiya *et al.* (2020) revised and released the Flora of Rajasthan, India. The floral composition of the state has been further elucidated by recent research by Kotiya *et al.* (2021), Sharma *et al.* (2022), Sharma and Sarsavan (2023), Kumar *et al.* (2023) and Solanki *et al.* (2023).

The present study was carried out in Jaipur district of Rajasthan. The plant specimens were collected from Nahargarh Wildlife Sanctuary. The sanctuary's geographical coordinates extend from 26°56'15.08" to 26°57'5.81" N and 75°48'55.70" to 75°46'54.65" E. The Sanctuary has a total area of 52 km<sup>2</sup>. The vegetation of the sanctuary corresponds to the Tropical Dry Deciduous and Tropical Thorne Forest as per the classification of Champion and Seth (1968). The author of this research obtained an intriguing species from Jaipur's Nahargarh Wildlife Sanctuary, which belongs to the genus *Euphorbia*. The specimen was compared to relevant data in the literature (Puri *et al.*, 1964; Bhandari, 1978; Sharma and Tiagi, 1979; Shetty and Singh, 1987, 1991, and 1993; Singh and Singh, 2006; Singh and Srivastava, 2007; Kotiya *et al.* 2020), as well as consultation of available herbarium specimens at the University of Rajasthan (RUBL), Jaipur. As a consequence of these comparisons, the obtained specimens were discovered to represent new records for Rajasthan, India. *Euphorbiaceae* is one of the largest, most

complex, and diversified angiosperm families, found mostly in the tropics, in a variety of plant types and environments. The family includes 300 genera and about 8,000 species worldwide Webster (1987). Arisdasan and Lakshminarsimhan (2017) report that India has 528 species belonging to 84 genera and Rajasthan has recorded 60 species from 19 genera (Shetty and Singh, 1991). Later, one more species of the *Euphorbia* that is *E. hypericifolia* was reported from Todgarh-Raoli wildlife sanctuary for the flora of Rajasthan by Purohit (2020).

## Materials and methods

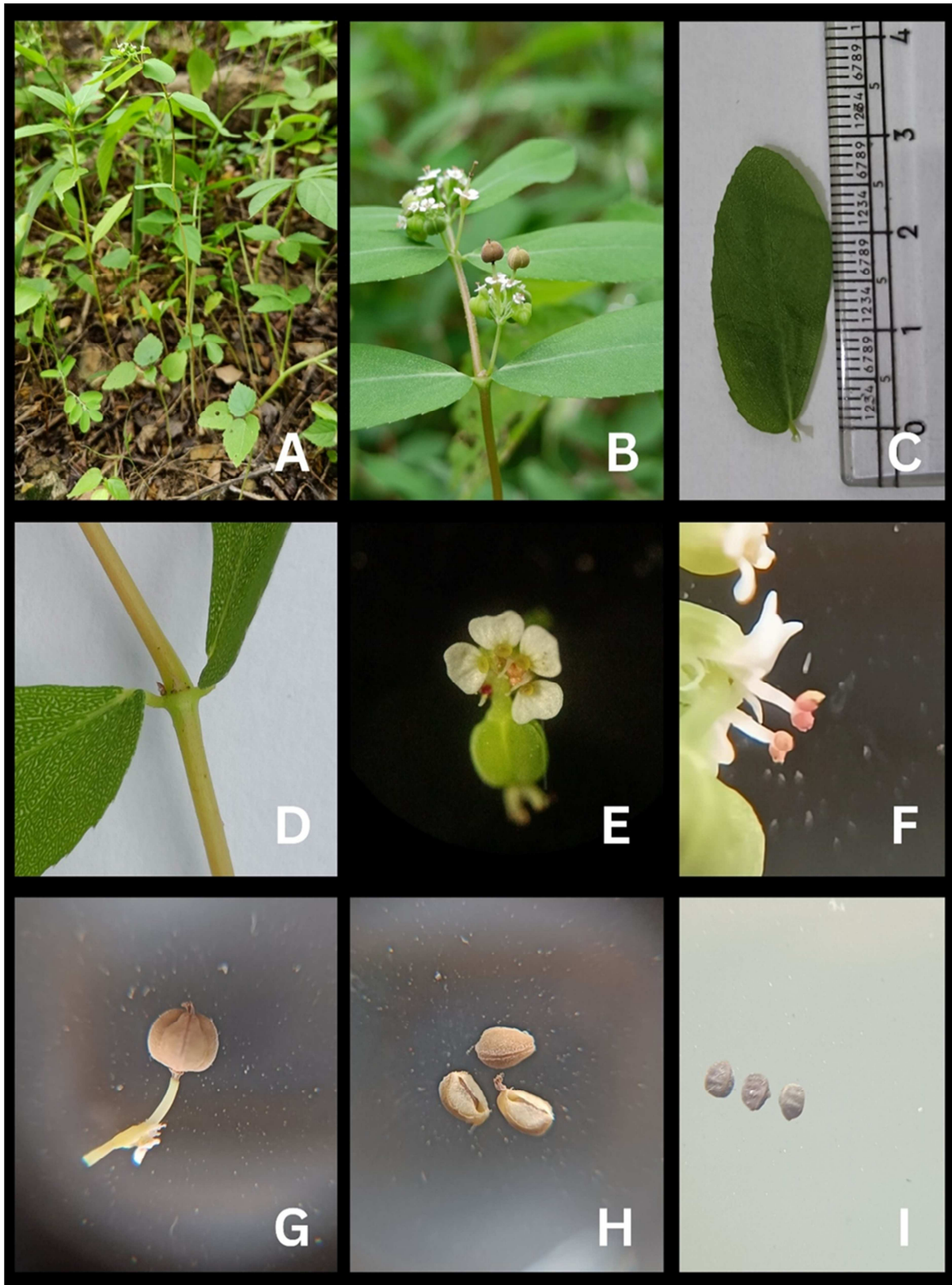
Plant specimens from Nahargarh Wildlife Sanctuary were acquired during a floristic expedition near Jaipur, Rajasthan. The location of the *Euphorbia* plant in the sanctuary was determined using both primary (field survey) and secondary data (available literature).

Because the *Euphorbia* plant has a limited range, a reconnaissance study was conducted using existing literature, a questionnaire survey, and field trips to hills in the Nahargarh Sanctuary in 2022 to 2024, and potential distribution regions were determined. The specimens were taken from the sanctuary's wet, shaded rocky environment. The obtained voucher specimen was rigorously examined in comparison to the literature and recognized as *E. hyssopifolia* L.

After researching the literature, it was discovered that none of the state's flora contain *E. hyssopifolia* L. As a result, this species is a new record for the Rajasthan flora. Detailed information about this species is provided, including photographs, habitat characteristics, phenology, and distribution, to facilitate accurate identification (Fig. 1).

## Key to the species

1. Capsule pubescent..... *E. indica*
1. Capsule glabrous..... 2
2. Stipules 0.7-0.9 mm; capsule 2-2.5 mm..... *E. hyssopifolia*
3. Stipules 1.3-1.5 mm; capsule 1-1.5 mm..... *E. hypericifolia*



**Fig. 1.** A. Habit, B. Plant twig with inflorescence, C. Leaf, D. Stipules E. Flower, F. Stamen, G. Capsule, H. Cocci, I. Seed

**Taxonomic description**

*Euphorbia hyssopifolia* L. Syst. Nat. ed. 10. 2: 1048. 1759.

Annual, herbs, decumbent, up to 10-30 cm in height with milky latex. Stems branched, erect or suberect, pale green, glabrous, cylindrical and articulated. Leaves simple opposite, glabrous, glaucous, sessile to subsessile, leaf blade oblong to ovate-elliptical, 10-30×5-12 mm, slightly oblique base, margin sparsely crenate, apex obtuse; stipules interpetiolar, widely triangular with bifid lobes lacinate, ciliate, 0.7-1 mm; petiole glabrous, 1-1.5 mm. Cyathia axillary and terminal cyme, peduncle 4 mm; leafy bracts; involucre narrowly campanulate, ca. 0.8-1×0.4-0.5 mm, glabrous, marginal lobes 5, triangular; glands 4. Male flowers 5-10 in each cyathium, exerted, anthers red. Female flower pedicellate, exerted from involucre; ovary green, smooth and glabrous; styles free; stigma slightly 2-lobed and capitate. Capsule trilocular-ovoid, cocci 1 seeded, 2-2.5 mm, smooth, and glabrous. Seeds blackish ovoid-tetragonal, ca. 1-1.1×0.8-1 mm, each side with 2 or 3 transverse furrows on either side of a vertical ridge.

Flowering and fruiting: July to October.

**Distribution***Global*

Native to the America; spread to portions of North-western Africa, Japan, Australia, Taiwan and Europe. India: Kerala, Karnataka, Andhra Pradesh, Tamil Nadu, Maharashtra, and West Bengal. In Rajasthan, it is recorded in Jaipur (Nahargarh Wildlife Sanctuary).

**Habitat and ecology**

The species is found on moist and hilly slopes in shaded areas.

**Specimens examined**

Specimens examined by Dr. Amit Kotiya (RUBL 21740; Date: 05 December 2024), collected by Naveen Kumar from Nahargarh Wildlife Sanctuary, Jaipur, Rajasthan, India.

**Acknowledgements**

Authors are grateful to the Council of Scientific and Industrial Research (CSIR) for funding.

Naveen Kumar - Ref.no: 17/12/2017 (ii) EU-V. We thank University of Rajasthan for providing research and Development Grant. We are also grateful to the forest officials of different areas for allowing and providing facilities to pursue the study and also, to the forest staff of Nahargarh Wildlife Sanctuary, especially Gaurav Kumar, Range Forest Officer and Rajaram Meena (Asst. Forester) for their support and cooperation.

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