

***Nonea echioides* (Boraginaceae) : An addition to flora of India from Sikar District of Rajasthan, India**

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ABSTRACT

The genus *Nonea* belonging to the family Boraginaceae includes 44 accepted species. In the present study, *Nonea echioides* was collected from Rajasthan (India). So far only *N. pulla* is mentioned in flora. From the other regions of the world, the species *N. echioides* has been reported from Iran and Iraq. The site where the present plant species is found, is located in Sikar district of Rajasthan. A detailed description of the plant along with distribution, flowering and fruiting periods, artificial key and photographs are provided for easy identification.

Figure : 01

References : 15

Table : 00

KEY WORDS : Boraginaceae, Floristic survey, *Nonea echioides*, Rajasthan

Introduction

Geographically, the state Rajasthan is divided into arid, semi-arid and sub-humid regions. The arid region consists of North-western part of Rajasthan and some districts of the North region viz. Barmer, Jaisalmer, Bikaner, Ganganagar, Sikar, Jhunjhunu, Churu, Pali, Jodhpur and Jalore. The semi-arid region consists of Aravalli ranges i.e. South and South-eastern part viz. Jaipur, Ajmer, Alwar, Bharatpur, Tonk, Kota, Bundi, Bhilwara, Sawai Madhopur, Udaipur, Chittorgarh, Dungarpur, Sirohi and some parts of Jhalawar district. The sub-humid region contains parts of Banswara and Jhalawar districts.⁹

The Sikar district is located in the North-east part of Rajasthan. There are arid and semi-arid climatic conditions. About half the region of Sikar is desertic because of the scarcity of water and half region is covered by Aravali ranges. Mostly xerophytic plants are found due to extremely hot temperature, poor quality of soil and scanty rainfall.

The genus *Nonea* belongs to the family Boraginaceae, which has been kept under the Boraginales.³ The Family can be easily distinguished by the gynobasic style and the eremocarpic fruit.^{5,15} It is widespread in the tropical and subtropical zone⁴ and

includes 117-131 genera and 2700 species^{10,13,14}. Flora of Iranica have many genera listed as 12 species with 07 subspecies.^{2,6,7,8,11} In Iraq 26 genera and 93 species are listed.¹ In Rajasthan (India) the genus *Nonea* is represented by single species i.e. *N. pulla*. *Nonea echioides* is reported from Iran and Iraq. It is reported first time from India.

Materials and Methods

The work includes all the morphological-based information about new species, *N. echioides* along with sites of occurrence, climatic conditions, morphological details and distributional status. During the field survey fresh samples of the wild-growing plant, *N. echioides* were collected from different sites Khandela, Sikar and Lakshmarangarh tehsils of Sikar district. Field trips were made in different seasons during 2019-2022. The specimens were described with the help of relevant literature. The plant is growing in xerophytic conditions and shows hairy nature along with flowering and fruiting.

Genus *Nonea*

Style arising from the carpels (gynobasic style); anthers not connivent into a cone connective obtuse or apiculate, not twisted together; corolla 1-2 cm long, with hairy scales; 4 nutlets (Fig. 1). The details were confirmed with Flora of Rajasthan.¹²

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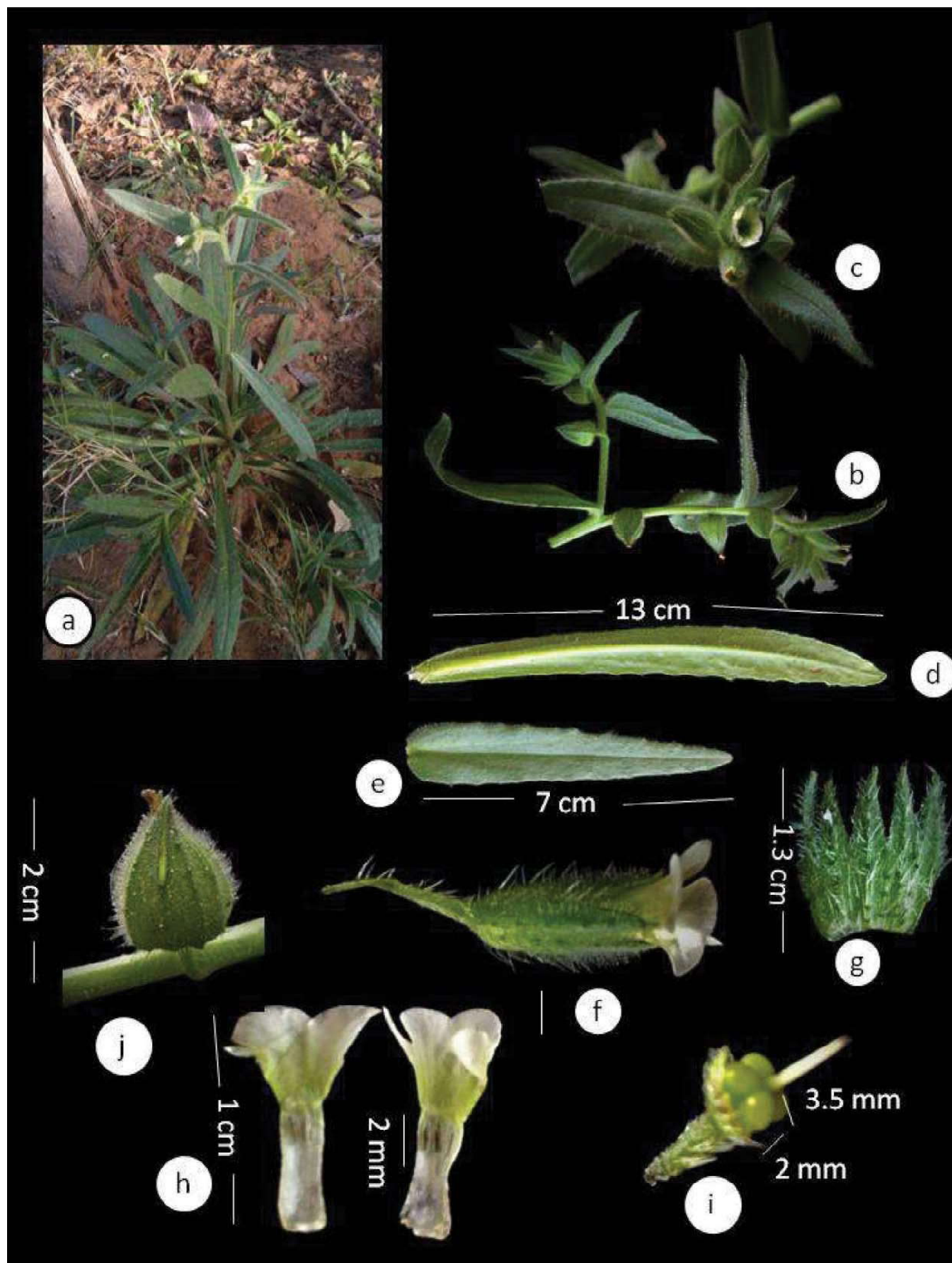


Fig. 1 : *Nonea echioides* a. Habit; b. Twig; c. flower view (upper); d. lower leaf (lower side); e. upper leaf (upper side); f. flower; g. calyx; h. corolla with attached anthers i. ovule; j. fruit.

Taxonomic description

Nonea echioides

Plant annual, herbaceous and hairy. Tap root system. Stem prostrate and ascending in nature, 10-40 cm long above the surface, branches rise from the base, solid, cylindrical, hispid-setose. Leaves 6-13 × 1.2-1.5 cm long, cauline and ramal, simple, spirally arranged; exstipulate; lower leaves sub-sessile, spatulate gradually tapering at base; median and upper leaves sessile, lanceolate; spiny with dentate margin, obtuse or acute apex, unicostate reticulate venation, covered with dense trichomes. Racemose inflorescence. Flowers pedicellate, pedicels very short and drooping, 4-5 mm long; ebracteate, complete, bisexual, actinomorphic, regular, hypogynous, pentamerous. Calyx five, 1.3 cm long, valvate, gamosepalous, persistent, balloon shaped in fruits upto 2 cm long, broadly subspherical-ovoid, triangular-lanceolate, acuminate apex. Corolla five, 1 cm long, imbricate, gamopetalous, white, throat hairy, limb 4-5 mm in diameter, erect-patent. Stamens five, epipetalous; anther 2 mm long, dark brown coloured;

inserted regularly at the same level. Gynoecium tetracarpellary, ovary apocarpous due to style position, gynobasic style, stigma bifid. Nutlets 4, transversely reniform, 3.0-3.5 mm long, 1.5-2.0 mm high, blackish to dark brown (Fig. 1).

Flowering & fruiting period: February to March.

Specimens collected: INDIA, Rajasthan, Bidoli, Dharamshala beri, Khandela sites of Sikar district, 18 February 2022, *Sushila* 125. Specimen collected from Bidoli (Latitude. 27.44849 f & Longitude 75.144114 f) East, Dharamshala beri (Latitude 27.765043 f & Longitude 75.259755 f) North-east and Khatipura (Latitude 27.741215 f & Longitude 75.02518 f) North parts of Sikar. Specimen has been deposited to the RUBL with accession number 21345.

Ecological note: Usually growing in agricultural fields as a weed in scattered population.

Taxonomic key: Plant annual; lower leaves spatulate; corolla white, seeds reniform shaped.....*N. echioides*
Plant perennial; lower leaves lanceolate; corolla blackish or purplish, seeds ovate shaped.....*N. pulla*

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