



***Hibiscus hirtus* L. (Malvaceae), A New Distributional Record for Odisha, India**

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Abstract

While exploring the flora of coastal districts of Odisha, few specimens of family Malvaceae were collected and identified as *Hibiscus hirtus* L. After literature survey, the said species is hitherto not recorded from Odisha and here reported as a new distributional record for the state of Odisha. The detailed morphological description, field and microscopic photographs, distribution, ecology, threat status and a note on its variation from allied species is provided for easy identification.

Keywords: *Malvaceae*, *Hibiscus hirtus* L., taxonomy, new report, Odisha.

Introduction

The family Malvaceae is widely distributed in tropical, sub-tropical and temperate regions of the globe. The flora of India listed 93 species under 22 genera in the family Malvaceae (Paul, 1993). Of these, the genus *Hibiscus* L. comprises 32 species growing in different regions of India. The genus *Hibiscus* was first described by Linnaeus in the first edition of his *Genera Plantarum* (1737) which belongs to subfamily Malvoideae of the family Malvaceae. In the flora of Orissa, it comprises 9 species and 3 cultivated species (Saxena and Brahmam, 1994-96). The species belonging to this genus are well-known for their aesthetic, commercial and medicinal values.

Out of the species, *Hibiscus hirtus* L. is a well-represented species in Flora of India, distributed in the states of Maharashtra, Kerala, Karnataka, Tamil Nadu (Mohanan and Henry, 1994; Rakshit and Kundu, 1970). The noteworthy point is that it shows unusual variations with its type specimen in pedicel articulation, leaf size and length of sepals and petals. The present study deals with new

record of *Hibiscus hirtus* L. for the state of Odisha.

Materials and Methods

While exploring the flora of coastal districts of Odisha, the plant specimen was observed at Arilo village in Baranga Tehsil of Cuttack district, Odisha (Fig. 1). The morphotaxonomy of the specimen was carried out on field as well as in laboratory (Fig. 2). The pollen was isolated from mature flower bud and observed under microscope (Fig. 3). The specimen was mounted and assigned an accession number i.e., 3175 on herbarium sheet by following standard protocol and deposited in the Herbarium of Biosystematics laboratory, Maharaja Sriram Chandra Bhanja Deo University, Baripada. After diligent observation and reviewing available literature (Gamble and Fischer, 1915-1936; Haines, 1925; Saxena and Brahmam, 1994-96) the specimen was found to be *Hibiscus hirtus* L. The detailed taxonomy, photographs, distribution, ecology, threat status and a note on its variation from allied species is provided here.



Fig 1: Map showing distributional location of *Hibiscus hirtus* L. in the state of Odisha

Taxonomy

Hibiscus hirtus L. Sp. Pl: 694 (1753): Duthie, Fl. Upp. Gang. Plain Beng Pl I: 89, 1903; Rama Rao, Fl. Travancore 41, 1914; Bamber, Punjab Pl. 89, 1916; Haines, Bot. Bihar and Orissa 2: 67, 1921; Santapau, Rec. Bot. Surv. Ind. 16(1): 21, 1953; Dalz. & Gibs., Bombay Fl, 20, 1861; Wt. & Arn., Prodr., 1: .51. 1834; Wight, Icon. t. 41, 1840 Masters, in Hook., f., Fl. Brit. Ind. I: 335, 1874; Woodr., in Jour. Bombay Nat. Hist. Soc. I I: 127, 1897; Hochr., in Ann. cons: Jard. Bot. Geneve 4: 86, 1900; Prain, Beng. Pl. I: 266, 1903; Gamble, Fl. Madras I-; 70, 1957 (repr. ed.); Cooke, Fl. Pres. Bombay I: 113, 1958 (repr. ed.). *H. phoeniceus* Willd., (exci. syn. Linn.); Cav., Diss. 3: t. 67, 1787; Roxb., Fl. Ind. 3: 194, 1832.

Undershrub, 1.5-2m high, herbaceous. Stem green, pubescent with stiff stellate hairs, densely on branchlets. Leaves alternate, simple; stipules 2, 3-5 mm, linear; petiole 0.7-1mm, pubescent; lamina tri-lobed, central lobe 3×2 to 5×4 cm, lateral lobes 1.5×2 to 3×2 cm, ovate, acute-acuminate, serrate, cordate, stellately hairy on both surfaces, often with gland at the base of midrib, palmately 3-5 nerved. Flowers solitary, axillary to panicked at the top, white, 1 cm long, actinomorphic, hermaphrodite, hypogynous; pedicels about 3-5 cm long, longer than petiole, articulated above the middle. Epicalyx segments 6-8, linear 1-2mm. Sepals 5-lobed, 5-10 x 0.5 - 1.5

mm, narrowly campanulate, divided nearly to the base, linear-lanceolate, valvate, gamosepalous, persistent, green. Petals 5-lobed, 1-2 x 0.5-0.6 cm long, polypetalous, twisted, rounded at the apex, connate at the base with the staminal tube, white. Stamens 20-22, 1 mm long, filament white 0.5 mm, anther reniform, 0.5 mm, dorsifixed; staminal tube 4 mm long, shorter than the corolla; pollen yellow, spherical, echinate. Ovary monocarpellary, 1 mm long, 2mm wide, superior, 5-locular; axile placentation, 3-4 ovules in each locule. Style branched; stigmas 5, capitate, 2mm, white. Fruits capsular, longitudinally dehiscent, globose, puberulous, 5-7 mm diameter; calyx exceeds the capsule, persistent; seeds cottony.

Habitat & Ecology

The species is found in open dry areas. The observed associated species were *Calotropis gigantea* (L.) Aiton, *Chromolaena odorata* (L.) King & Rob., *Hyptis suaveolens* (L.) Poit., *Lantana camara* L., *Senna occidentalis* (L.) Link., *Tephrosia villosa* (L.) Pers., *Sida acuta* Burm.f. and *Ziziphus oenoplia* (L.) Mill.

Flowering & fruiting: April-December

Distribution

The native range of the species is western India. A new variety *Hibiscus hirtus* L. var. *inarticulatus* S. Dutta, H. Rodrigues & Kiran Chakral was reported from Maharastra

(Dutta, et al., 2018). The distribution of the said species is new to the flora of Odisha (Saxena and Brahmam, 1994-96).

Conservation Status

The species is listed as Not Evaluated (NE) as per IUCN (2022).

Specimen Examined

India, Odisha, Arilo village in Baranga Tehsil of Cuttack district found in open dry areas.

Diagnosis

Hibiscus hirtus is closely similar to its allied taxon *H. talbotii*. The leaves, pedicel articulation, epicalyx, flower exhibit marked differences between these two species. The key differences are summarised below in Table 1.

Table 1: Morphological differences between *Hibiscus hirtus* and *H. talbotii*

Morphological Characters	<i>H. hirtus</i> L.	<i>H. talbotii</i> (Rakshit) T.K. Paul & M.P. Nayer
Leaves	i) Slightly 3-lobed, 2.5-7 cm, lower cordate ii) Palmately 3-5 nerved. ii) Midrib often with a gland iii) Petiole 5-7 mm iv) Stipule 1.3 cm, linear.	i) Tri-lobed, oblong-lanceolate, 7-12 cm, central lobe bigger than lateral one ii) Palmately 5-7 nerved iii) Midrib without glands iv) Petiole 1-5 cm v) Stipule 1.2 cm
Flowers	i) Brick red, white or pink, ii) Pedicel articulated above the middle. iii) Stigma whitish-pinkish coloured	i) Red, white or orange ii) Pedicel articulated above the middle
Epicalyx	Epicalyx segment 6-8	Epicalyx segment 6-9

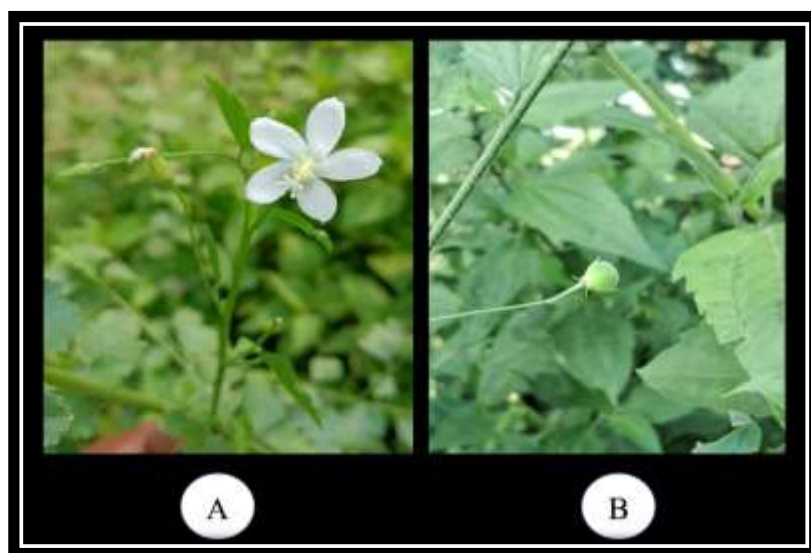


Fig 2: Photo plate -1: *Hibiscus hirtus* L. in natural habitat. A. Flowering twig B. Immature fruit

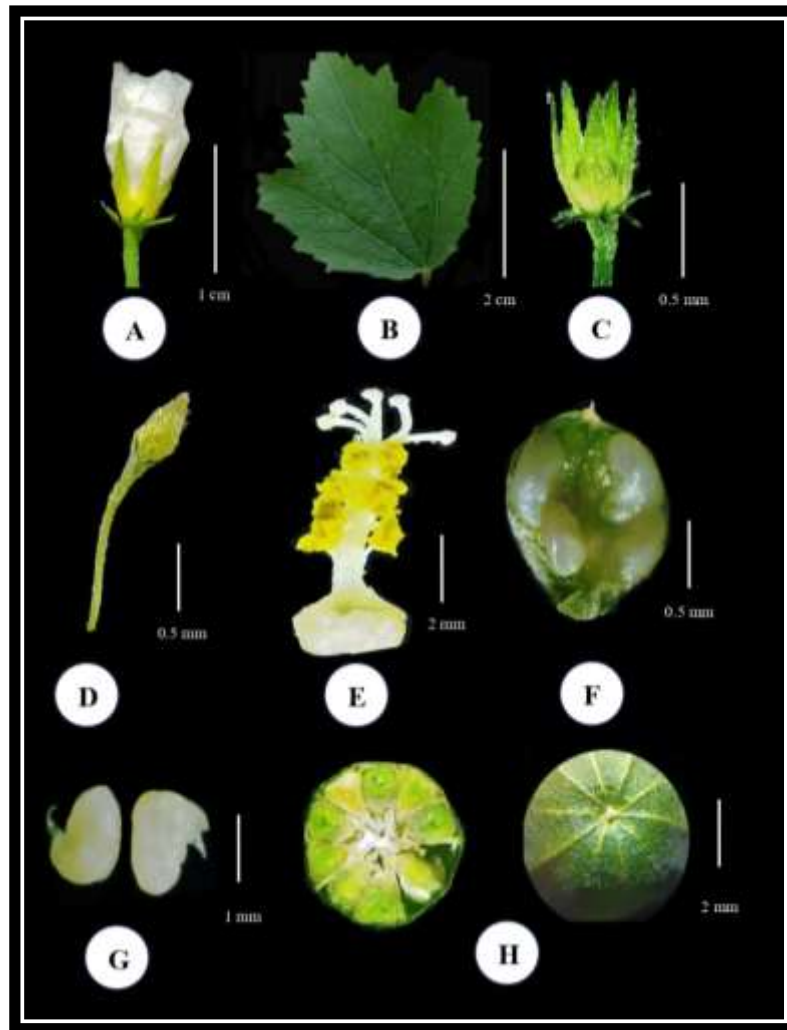


Fig 2: Photo plate -2: *Hibiscus hirtus* L. **A.** Flower **B.** Leaf **C.** Persistent calyx **D.** Flower Bud showing articulated pedicel **E.** Staminal column showing projection of stamens and branching of style **F.** L.S. of ovary showing axile placentation **G.** Ovule **H.** T.S. of immature fruit

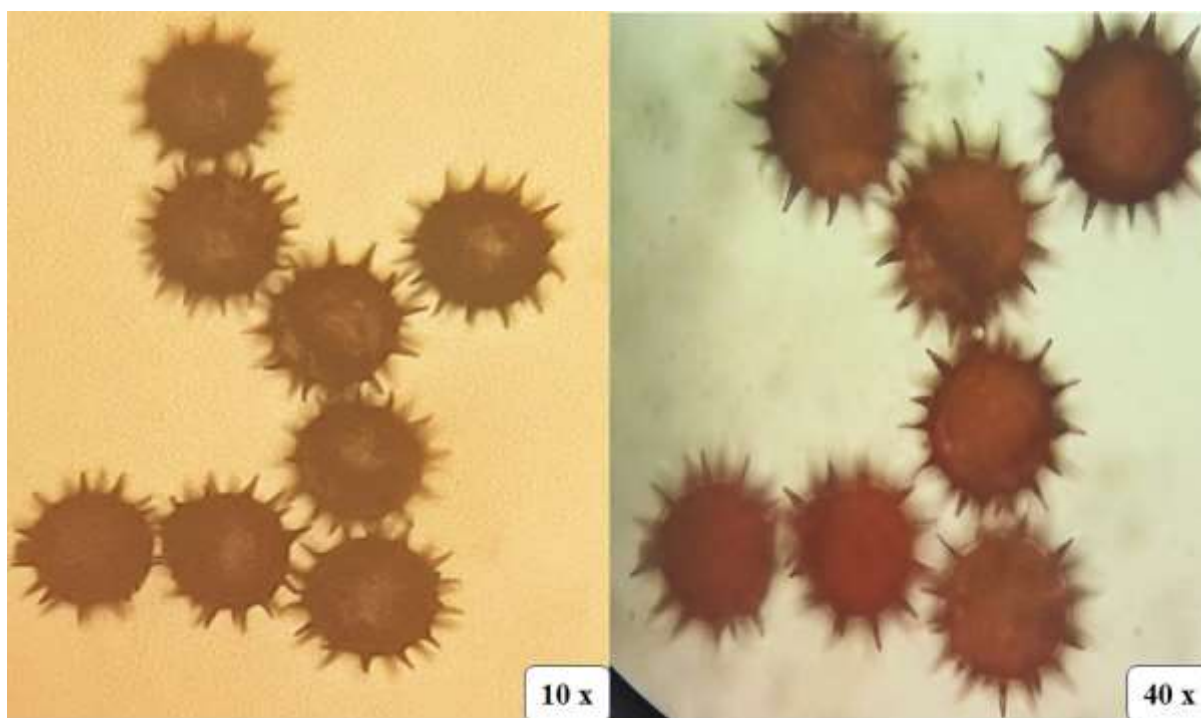


Fig 3: Microscopic image showing morphological view of Pollen of *Hibiscus hirtus* L.

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