



***Hibiscus panduriformis* Burm. f. (Malvaceae): A new distributional record from Odisha**

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ABSTRACT

Hibiscus Linn., a quite large genus of family Malvaceae, is mainly distributed in the warm temperate, tropical and sub-tropical regions of the world. The members of the genus are popular not only as ornamental, medicinal, fibre and culinary purposes, but also for religious traditions. During the exploration mission and germplasm collection in parts of Odisha, the occurrence of *Hibiscus panduriformis* Burm.f., a wild crop relative, used as coarse fibre, was reported from Ganjam and Kalahandi districts of Odisha. After critical review on its distribution, its natural occurrence was found to be a new distributional record to the flora of the state. A detailed diagnostic description, ecology, germplasm collected and conserved and the photographs of the species were provided for easy identification and further utilization.

Key words: Fibre crop, *Hibiscus panduriformis*, new plant record, Odisha, seed germplasm

INTRODUCTION

Genus *Hibiscus* Linn. of family Malvaceae, subfamily Malvoideae is quite large and represented by about 200 species in the world of which 28 species are found in India (Sivarajan and Pradeep, 1996). The members are native to warm, temperate, tropical and subtropical regions throughout the world. The genus includes both annual and perennial herbs, woody shrubs and small trees. Various species of *Hibiscus* are popular for ornamental, fibre, medicinal, culinary purposes as well as spiritual traditions. Some of them are renowned for large and showy flowers and widely cultivated as ornamental plants. In India, most of the species are distributed in the warmer regions with a moderate to heavy annual rainfall.

Hibiscus panduriformis Burm.f., popularly called as 'Yellow Hibiscus', is widely distributed in tropical Africa, Madagascar and tropical Asia. It occurs from sea level up to 2000 m altitude in the woodland and grassland, alluvial clay flats, riverbanks, roadsides, cultivated land and fallows. It also grows as a weed on black soil, in dry sandy places, often in places of old cultivation and

disturbed areas. The plant is mainly utilised by local people as a source of fibre and as ornamental plant.

During the course of plant exploration and germplasm collection of allied fibre crops and wild okra in parts of Odisha during December 2014 and 2017 respectively, an interesting wild relative of *Hibiscus* was collected from natural habitat of two phyto-geographical zones of the state. On critical examination and reference of relevant literature (Master, 1874; Cooke, 1901; Gamble, 1915; Paul and Nayar, 1988; Sivarajan and Pradeep, 1996), the specimen was identified as *Hibiscus panduriformis* Burm.f., a plant species which has not been reported till date from the state. The present collection counts an addition of species and forms a new record for the flora of Odisha (Saxena and Brahmam, 1994).

The seed germplasm after collection was multiplied and the live plants were maintained in the field gene bank of the ICAR-National Bureau of Plant Genetic Resources (NBPGR) Base Centre, Cuttack. The morphological features on vegetative and floral parts were examined and the taxonomic characters were described. The seed germplasms bearing accession number IC-614085 (collection

number RCM/MR/14) and IC-627240 (collection number RCM/PK/10) were conserved in the National Gene Bank, ICAR-NBPGR, New Delhi for long term storage. The plant specimens having vegetative and flowering parts were deposited to the herbarium of ICAR-NBPGR Base Centre, Cuttack

and National Herbarium of Cultivated Plants, ICAR-NBPGR, New Delhi. The photographs of plants in the natural habitat along with flowering and fruiting stages, and seeds were presented for reference of easy identification (Fig. 1).

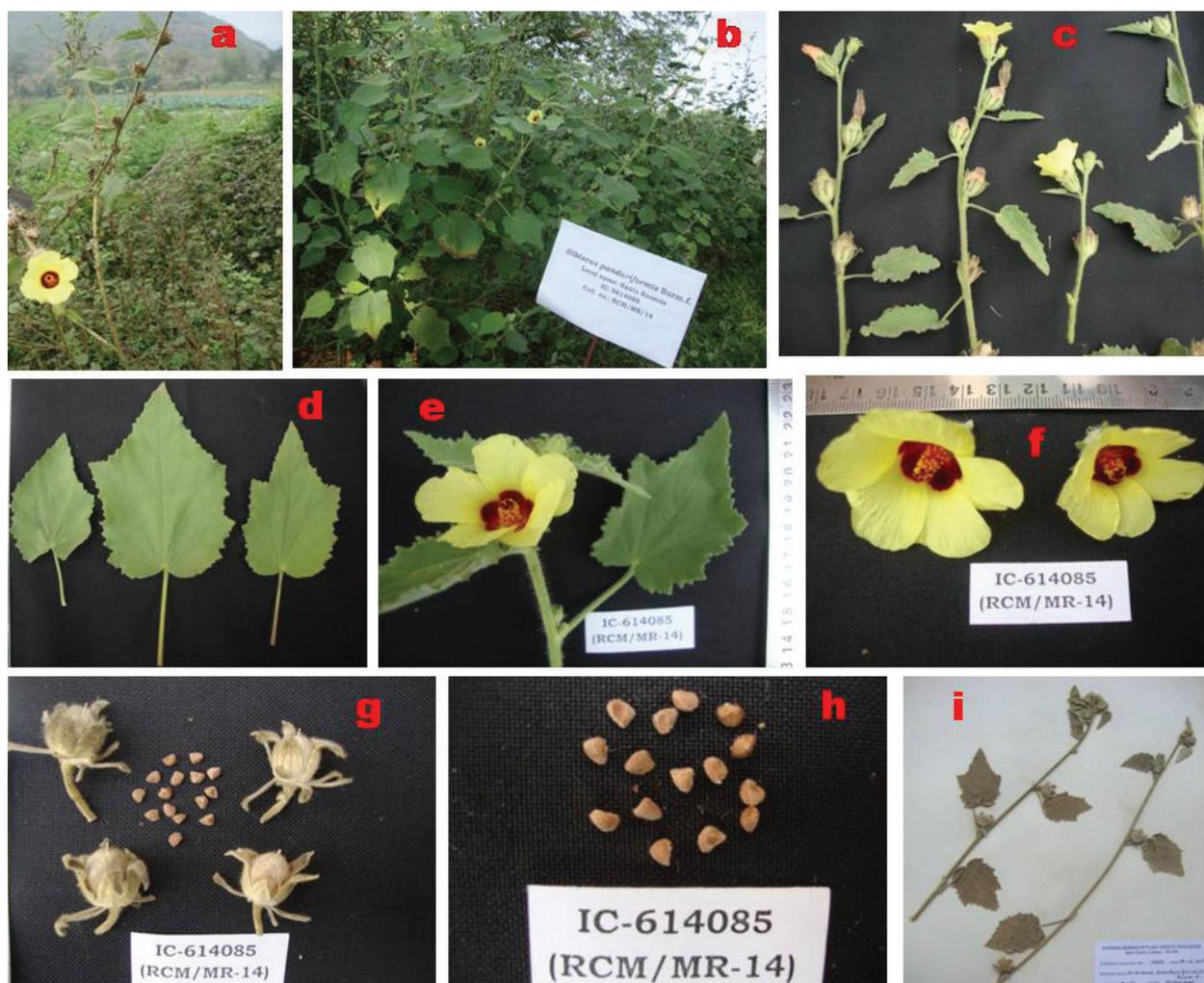


Fig. 1. *Hibiscus panduriformis*: a. Occurrence in natural habitat, b. Maintained in field gene bank, NBPGR regional station, Cuttack, c. Branch morphology, d. Structure of leaves, e. Apical twig, f. Flowers, g. Capsules, h. Seeds, i. Herbarium preserved at regional station, Cuttack

Habitat/ Ecology

The plant specimens were growing naturally in two different landforms in the disturbed habitats among the weeds on roadside wastelands and along the field bunds interspersed with herbs and grasses. The live specimens were recorded on the roadside near cultivated crop lands in Ganjam district in East coastal zone and the other was collected from a field

bund in Kalahandi district in the Eastern Ghat zone of Odisha. The plant prefers tropical climate with open sunny areas and well-drained soils. The plants are readily propagated from seeds and sufficient seedlings were raised and further transplanted in the field gene bank of the centre for morphological observation and record.

Taxonomic description

Hibiscus panduriformis Burm.f. Fl.Ind.151.t.47.fig.2.1768; Master in Hook. f. Fl. Brit. Ind. 1:338.1874; Dunn in Gamble Fl. Presid. Madras 1:98.1915; Borss.Blumea 14:79.1966; Saldanha and Ramesh in Sald. Fl.Karnataka 1:251.1984; Paul and Nayar in Nayar et al. (eds.) Fasc. Fl.India 19:142.1988; Paul in Sharma and Sanjappa (eds.) Fl.India 3:339.1993 ('*panduraeformis*').

A tall erect undershrub up to 3 m height. Stem and branches pubescent with pungent rigid hairs, often with bristles. Leaves cordate-ovate, obscurely five-angled or five-lobed, 5-12 × 3-8 cm, 7-nerved at base, coarsely irregularly toothed, hoary-tomentose both sides, apexacute; petioles 3-8 cm, hairy; stipules and bracts filiform, hairy, caducous. Flowers are solitary, axillary and sub-terminal, 4-5 cm diameter; pedicel short, stout, axillary, solitary or in pairs, articulated near the middle. Involucellar bracts 8, free, linear-spathulate, densely ciliate, united into a cup at base, more than half as long as calyx. Sepals 5, lobes lanceolate, 3-angled, acute, prominently 3-nerved, hairy, 1.0-1.5 cm long. Petals 5, yellow with deep purple centre, hairy outside, ca 3.0 cm length and 2.5 cm width, adnate to staminal tube at the base. Staminal tube truncate, yellow, 10-15 mm long, filaments few. Ovary 5-celled, styles 5-fid above, stigma capitate or spatulate. Capsules ovoid, 1.5 × 1.0 cm included the calyx, densely hairy. Seeds angular, wedge shaped, 3 × 2 mm, densely velvety, brown. Flowering and fruiting: November to January.

Specimens examined and germplasms collected and conserved

i) Site 1: Odisha state, Ganjam district, Hinjilikatu block, nearby village: Burupada; 19° 29' 57.1 N latitude and 84° 41' 30.3"E longitude; R.C. Misra, HS number 1085 and 1086 (Herbarium of ICAR-NBPGR Base Centre, Cuttack), dated 13.12.2014; seed germplasm accession no. IC-614085 (collection no. RCM/MR/14); source: natural wild, disturbed, roadside wasteland; frequency: rare; Local name: *Kantakaunria*.

ii) Site 2: Odisha state, Kalahandi district,

Bhawanipatana block, nearby village: Udayapur; 19° 57' 41.3" N latitude and 83° 14' 30.0" E longitude; R.C. Misra, HS number 1087 and 1088 (Herbarium of ICAR-NBPGR Base Centre, Cuttack), dated 20.12.2017; seed germplasm accession no. IC-627240 (collection no. RCM/PK/10); source: natural wild, disturbed, field bunds; frequency: rare; Local name: *Jangli nalita*.

Etymology

The genus name *Hibiscus* is an old Greek name for mallow and the species '*panduriformis*' is derived from fiddle-shaped or pandurate form of leaves.

Economic uses

The local people of Kalahandi district use the stem bark as coarse fibre after drying and dipping in water for making twines and ropes for thatching of huts and for fishing-lines. The flowers are consumed and the bastfibre is used for cordage in DR Congo and Tanzania. In Kenya, the stem bark is used for weaving bags.

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