

A Note on the Occurrence of *Rubia manjith* (Rubiaceae) from Hirpora Wildlife Sanctuary, Jammu & Kashmir

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हिरपोरा वन्य जीव अभयारण्य, जम्मू एवं कश्मीर में रुबिया मन्जीथ (रुबिऐसी) के वितरण पर टिप्पणी

मो. सुलिमान डार, शगुफ़ता रासिद, अंजर ए. खुरो, रमीज अहमद, जी. एच. डार, अख्तर एच. मलिक

सारांश

प्रस्तुत पोद्य पत्र हिरपोरा वन्य जीव अभयारण्य जम्मू एवं कश्मीर से रुबिया मन्जीथ रॉक्सब. एक्स फ्लेमिंग (रुबिऐसी) के संग्रहण पर आधारित है। इस पोद्य पत्र में इसका विस्तृत वर्गिकी विवरण, सही पहचान हेतु सूक्ष्माकारिकी छायाचित्रण एवं मानचित्र में वितरण दिया गया है।

ABSTRACT

The present paper deal with the collection of *Rubia manjith* Roxb.ex Fleming (Rubiaceae) from Hirpora Wildlife Sanctuary, Jammu & Kashmir. A detailed taxonomic description, microphotographs of diagnostic characters and map being provided to facilitate its easier identification.

KEY WORDS: Rubiaceae, *Rubia manjith*, Hirpora WLS, Jammu & Kashmir, Western Himalaya.

INTRODUCTION

The genus *Rubia* L. (Rubiaceae) comprises of about 70 species worldwide (Xu & al., 2013). Hooker (1897) had reported 8 species of *Rubia* from the entire Indian Subcontinent. From the Kashmir Valley, a total of 5 species of *Rubia* (*R. cordifolia* L., *R. himalayensis* Klotzsch, *R. tinctorum* L., *R. tibetica* Hook.f., and *R. infundibularis* Hemsl. & Lace) have been reported (Stewart, 1972; Kachroo & al., 1977; Sharma & Kachroo, 1981).

While conducting the floristic studies in the Hirpora Wildlife Sanctuary, falling in the PirPanjal range of Jammu and Kashmir, the authors collected the specimens of *Rubia* species which were later identified as *Rubia manjith* a highly medicinal plant. A brief taxonomic description, photographs of diagnostic features (Fig. 1: a-p; Fig. 2: a-h3) and distribution map in India (Fig. 3) of this species are provided to facilitate its easier identification. The present study also provides a comparative morphological account of diagnostic characters of *R. manjith* and closely allied *Rubia cordifolia* (Table 1).

METHODS

The plant materials were identified using relevant taxonomic literature (Hooker, 1897; Stewart, 1972; Grierson & Long, 1999; Ghosh & Mallick, 2014) and online-efloras (www.efloras.org). The photographs of the diagnostic characteristics were taken with a hand-held field microscope (Make: DINO Lite, Model: AM4515ZT4). The map was generated using QGIS software v 2.14.20 (<https://qgis.org/en/site/forusers/visualchangelog214/>). All the studied specimens have been deposited in the Kashmir University Herbarium (KASH).

TAXONOMIC TREATMENTS

Rubia manjith Roxb.ex Fleming, Asiatic Res. 11: 177. 1810. *Rubia cordifolia* var. *munjista* (Roxb.) Miq., Ann. Mus. Bot. Lugduno-Batavi 3: 111. 1867. *Rubia cordifolia* f. *tetramera* Makino, Bot. Mag. (Tokyo) 21: 162. 1907.

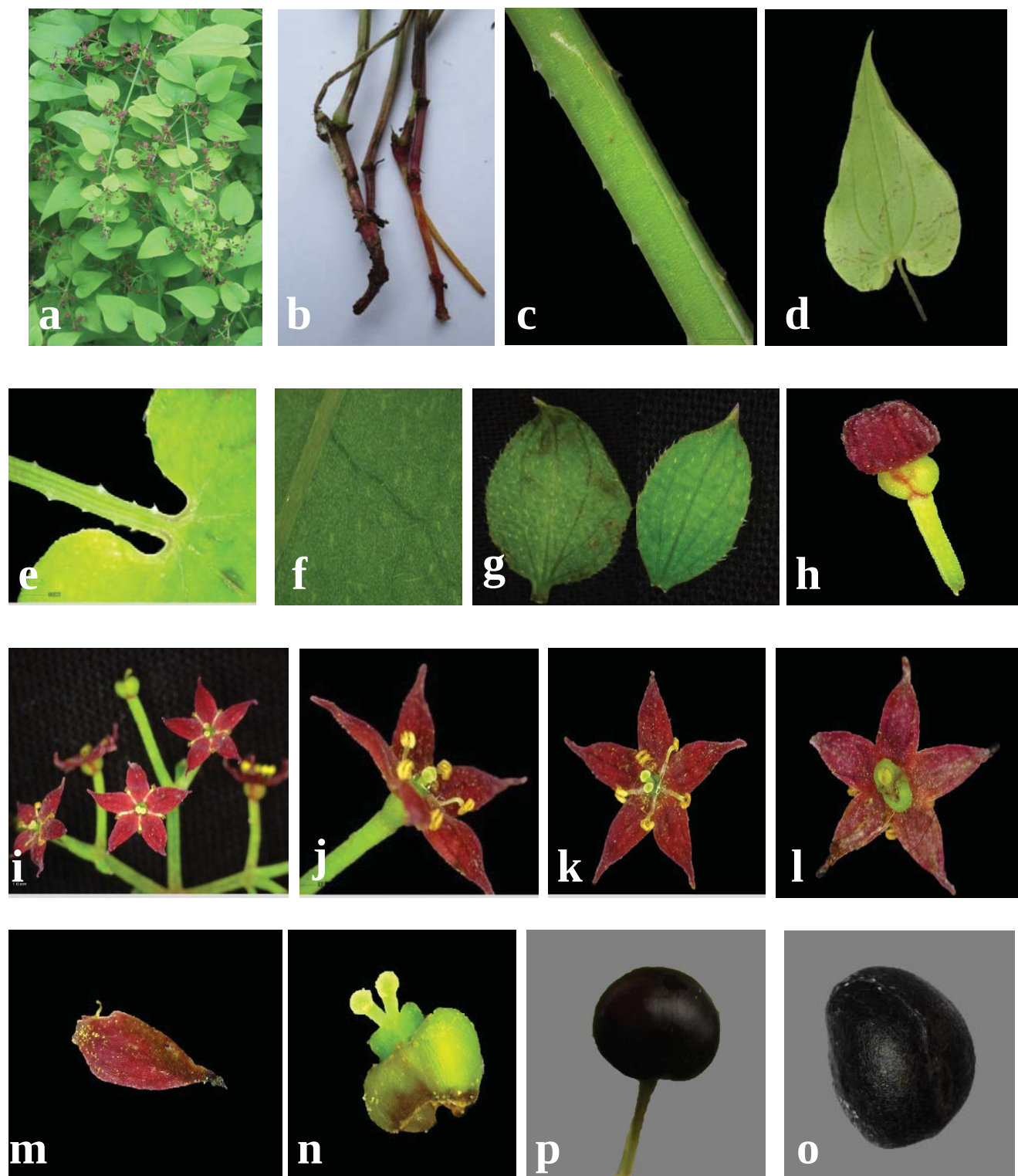


Fig. 1. a. Habit of *Rubia manjith*; b. Rootstock; c. Stem; d. Leaf; e. Deeply cordate leaf base; f. Scabrid leaf surface; g. Unequal bracts; h. Bud; i. Inflorescence; j. Lateral view of flower; k. Front view; l. Back view; m. Petal; n. Bicarpellary gynoecium showing free styles and stigma; o. Seed; p. Fruit.

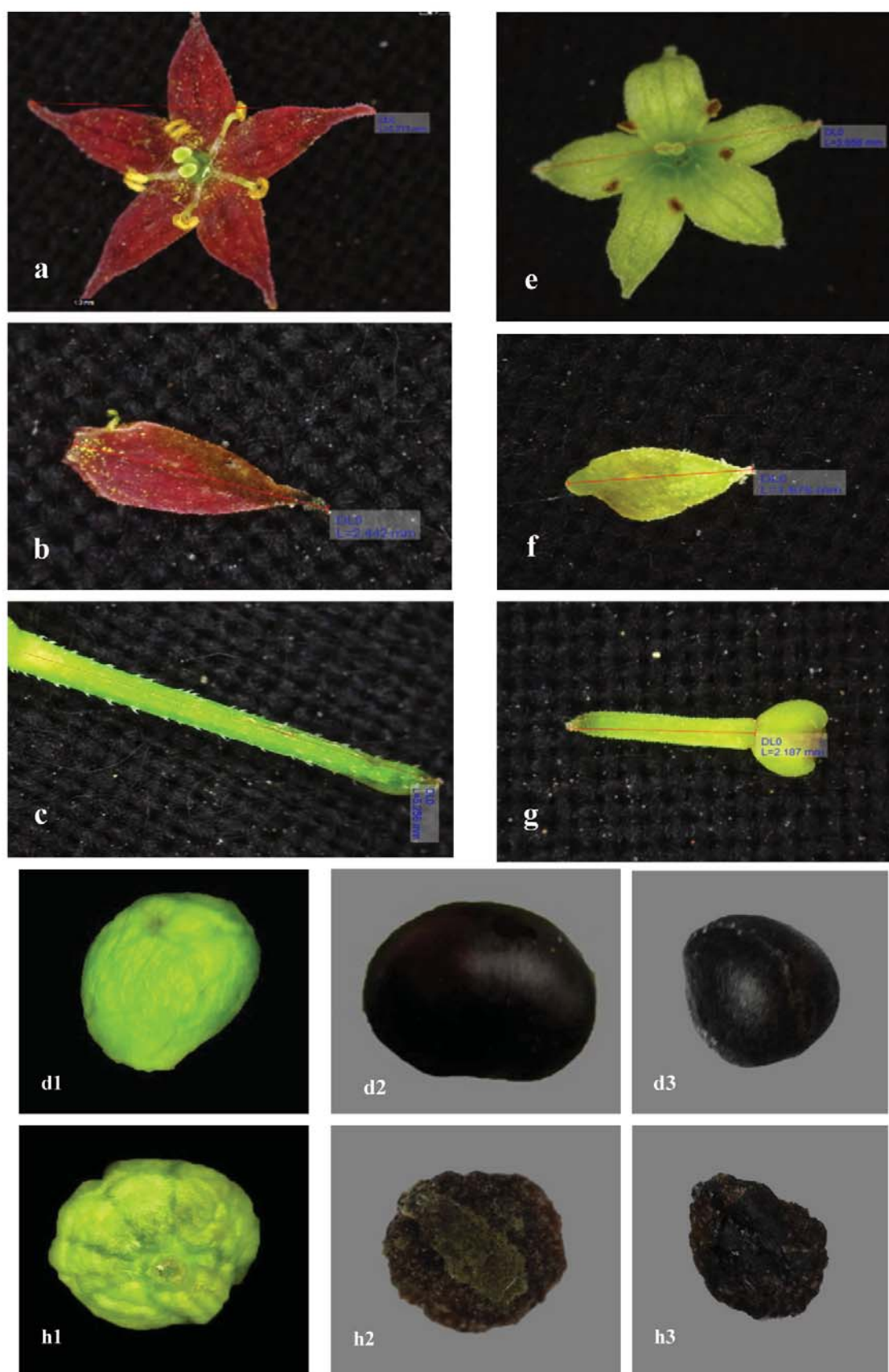


Fig. 2. *Rubia Manjith*: **a.** Flower; **b.** Petal; **c.** Pedicel; **d1.** Immature fruit; **d2.** Mature fruit; **d3.** seed. *R. Cordifolia*: **e.** Flower; **f.** Petal; **g.** Pedicel; **h1.** Immature fruit; **h2.** Mature fruit; **h3.** Seed.

Perennial climbing herb, stem and branches quadrangular; stem with hooked prickles. Leaves whorled, 4 at each node; petiole up to 6 cm long with hooked prickles. Lamina unequal in each whorl, ovate to ovate-lanceolate, 11×3.5 cm, base deeply cordate, margins entire, apex long acuminate, 5-7-nerved, hooked prickles on the veins beneath. Flower bud c. 1.3 mm long. Flowers pedicellate, 5.2 mm in diameter, dark reddish, born in terminal and axillary cymes; bracts green and unequal in size, 4-6 mm long, margin sciliate-scabrid; sepals reduced, green; petals 5, connate at base, lanceolate or triangular-lanceolate, 2.4×0.9 mm, spreading, apex acuminate, incurved. Stamens 5, free. Gynoecium bicarpellary, connate at base and stigma capitate. Fruit a berry, 2.5 mm long, rounded, fleshy, smooth, reddish-black at maturity.

Flowering and fruiting : July-September.

Specimen examined: INDIA: Kashmir: Hirpora Wildlife Sanctuary, 2700 m (asl), $33^{\circ}35' N - 74^{\circ}37' E$, 10-08-2017, Suliman, Khuroo & Shugufta 365a, 365b.

Habitat : It grows under shady conditions along the mountain slopes of Himalayan dry temperate forest dominated by the conifer trees of *Abies pindrow* Royle and in association with the shrubs of *Skimmia anquetilia* N. P. Taylor & Airy Shaw, *Sambucus wightiana* Wall ex Wight & Arnand *Viburnum grandiflorum* Wall. ex DC.

Distribution: Jammu & Kashmir (Hirpora WLS-present report), West Bengal (Darjeeling district)

Table 1. Comparison of diagnostic characters between *R. manjith* and *R. cordifolia* growing in Jammu & Kashmir

Diagnostic characters	<i>R. manjith</i>	<i>R. cordifolia</i>
Flower diameter	5.2 mm	3.7 mm
Flower colour	Dark Reddish	Greenish yellow
Petal length	2.4 mm	1.7 mm
Pedice length	2.2 cm	5.3 cm
Leaf length	Ranges upto 12 cm	Ranges upto 10 cm
Leaf shape	Ovate with cordate base	Oblong-lanceolate to ovate-lanceolate with rounded to deeply cordate base
Bracts	Two unequal, 6 mm and 4 mm in length	Two equal, 3 mm in length
Fruit surface	Smooth	Rough
Fruit length	2.5 mm	1.8 mm
Seed length	2.0 mm	1.3 mm

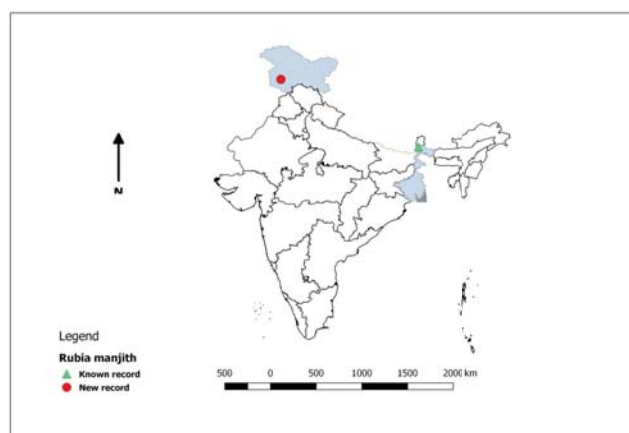


Fig. 3. Map showing the distribution of *Rubia manjith*

DISCUSSION

Deb & Malick (1968) treated *R. manjith* as a synonym of *R. cordifolia* and recognized it as *R. cordifolia* var. *khasiana* G. Watt. At that time, they delimited *R. cordifolia* var. *khasiana* from *R. cordifolia* only on the basis of phenoplastic leaf characters (number of veins and leaf surface). Later on, Grierson & Long (1999) delimited *R. manjith* as a separate species from *R. cordifolia* on the basis of its red cast, both alive and dried, and considered *Rubia cordifolia* var. *khasiana* as a synonym for this species. Similarly, Lo (1999) treated *R. cordifolia* f. *rubra* as a synonym of *R. manjith*. Recently, Ghosh & Mallick (2014), while reporting 5 species of *Rubia* from Darjeeling, India also recognized *R. manjith*. Based on our own observations, we opine that *R. manjith* and *R. cordifolia* are two distinct species and the diagnostic characters are included here. *R. manjith* differs from *R. cordifolia* in having flower colour dark reddish and fruit surface smooth while as in *R. cordifolia* flowers are greenish yellow while as fruit surface rough. In *R. manjith*, mature fruit is dark red in colour while as *R. cordifolia*, mature fruit is orange in colour.

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