



## A revision of trifoliolate *Indigofera* (Tribe Indigofereae: Fabaceae) in India

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### Abstract

A revision of trifoliolate *Indigofera* in India is provided based on field studies, and examination of herbarium specimens. In India, 11 species and 4 varieties of trifoliolate *Indigofera* are recognized: *Indigofera barberi*, *I. deccanensis*, *I. glandulosa*, *I. glandulosa* var. *sykesii*, *I. karuppiana*, *I. pedicellata*, *I. prostrata*, *I. santapau*, *I. thothathrii*, *I. tirunelvelica*, *I. trifoliata*, *I. trifoliata* var. *duthiei*, *I. trita*, *I. trita* var. *maffei* and *I. trita* var. *purandharensis*. Of 11 species, seven species and three varieties are endemic. A key to the species, description and illustrations are provided along with data on flowering and fruiting, distribution, habitat, chromosome number, and ethnobotanical uses.

**Key words:** Description, morphology, systematic treatment, taxonomy

### Introduction

The genus *Indigofera* Linnaeus (1753: 751) belongs to tribe Indigofereae (Fabaceae). It includes ca. 750 species distributed throughout the tropical and (sub) tropical regions of the world. The major centers of diversity are in Africa and Madagascar (550 spp.), the Sino-Himalayan region (105 spp.), Australia (50 spp.), and the remaining 45 species occur in the New World (Schrire *et al.* 2009). In India, the genus is represented by 60 species and 10 varieties of which 16 species and seven varieties are endemic (Schrire 1992, Sanjappa 1995, Chauhan *et al.* 2013).

The distinguishing characters of the genus *Indigofera* are as follows. Plants are annual or perennial, prostrate and erect herbs, under-shrubs and robust shrubs or rarely trees. Branches are spreading or ascending with adpressed to spreading hairs. Hairs are medifixed, biramous with equally or unequal arms. Leaves are alternate, usually imparipinnate to simple. Flowers are papilionaceous, red or pink coloured and usually in axillary racemes. Stamens are diadelphous. Ovary is linear to spherical with 1-many ovuled. Style is curved upwards and stigma is capitate. Pods are linear to globose, and beaked at apex. The endocarp is septate between seeds (Sanjappa 1995, Wilson & Rowe 2004).

The genus is of considerable economic importance. Blue indigo dye is obtained from the stem and foliage of the plant. The dye contains Indigotin and Indican pigments which imparts blue colour (Siva 2007). Important dye yielding species are *I. articulata* Gouan (1773: 49), *I. suffruticosa* Miller (1768: 2) *I. tinctoria* Linnaeus (1753: 751) and *I. coerulea* Roxb. (1832: 377). Other species are used as medicine, fodder, cover crops, green manure, human food, erosion control and ornamentals.

Our study is based on critical examination of fresh and herbarium specimens. Field surveys were conducted in different parts of India viz., Andhra Pradesh, Goa, Himachal Pradesh, Karnataka, Maharashtra, Tamil Nadu, Uttar Pradesh, and Uttarakhand. In the present communication, taxonomic description of all the recognised species of trifoliolate *Indigofera* along with data on flowering and fruiting, distribution, habitat, chromosome number and ethnobotanical uses have been provided.

### Morphology

The conventional taxonomic approach in Fabaceae has commended various morphological characters as the main measure of characterization to delimit taxa at various levels. Habit, indumentum, glands, leaf, inflorescence, calyx,