



Indigofera pseudonigrescens (Fabaceae: Papilionoideae): A new species from Sichuan, China

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Abstract

Indigofera pseudonigrescens (Fabaceae), a new species from Sichuan, China, is described and illustrated based on morphological and molecular evidence. The new species is morphologically similar to *I. nigrescens*, but differs from the latter in having shorter bracts, smaller leaflet size, and fewer leaflets whose abaxial surfaces do not become dark or black or do not have black spots when dry. Molecular analysis based on nuclear (nrITS) and plastid (*ndhJ-trnF*, *atpF-atpH*) data indicated that *I. pseudonigrescens* is clearly distant from *I. nigrescens*. The results also revealed that *I. pseudonigrescens* is phylogenetically close to *I. delavayi* which is morphologically remarkably different from *I. pseudonigrescens*.

Key Words: Indigoferaeae, ITS, Leguminosae, new species, Sichuan

Introduction

Indigofera Linnaeus (1753: 751) is the third largest genus in Fabaceae comprising about 750 species (Schrire *et al.* 2005, 2009). The species of the genus occur mostly in tropical and subtropical regions worldwide with four major diversity centers: Africa (ca. 550 spp.), the Sino-Himalayan region (ca. 105 spp.), Australia (ca. 50 spp.), and the New World (ca. 45 spp.) (Schrire *et al.* 2009).

In China, there are 79 species and nine varieties of *Indigofera*, of which 45 species are endemic (Gao & Schrire 2010). Southwest China has the highest species diversity of *Indigofera* in China (Yin *et al.* 1992). During extensive fieldwork conducted in this region for the systematic studies of the genus *Indigofera*, a new species was discovered from Mianning County in southwestern Sichuan, China. This species was initially identified as *I. nigrescens* Kurz ex King & Prain (1898: 286) based on morphology. *Indigofera nigrescens* is widely distributed in Asia, and one of its diagnostic characters is that the abaxial surface of its leaflets can become dark or black or have black spots when dry, which is not the case in the new species. Subsequent observations of related specimens revealed a number of differences between the new species and *I. nigrescens*. In this study, we combined morphological and molecular data to test whether the relevant specimens represent a species new to science.

Materials and methods

Morphological Study:—We collected specimens of two populations including 40 individuals from Mianning, Sichuan, China. The specimens were deposited in Herbarium of Chengdu Institute of Biology, Chinese Academy of Sciences (CDBI). Comparison of morphological characters was conducted between the putative new species and its morphologically or phylogenetically close species.

Taxon Sampling for Molecular Analysis:—To assess the phylogenetic placement of the putative new species, we conducted phylogenetic analysis based on DNA sequences of nuclear ribosomal internal transcribed spacer (nrITS)