Published: December 15, 2004
Last Updated: March 1, 2012

INDIGO

INDIGO (Pers. *nil)*, the common name of a broad genus, *Indigofera*, with numerous species, widely distributed throughout Asia, Africa, and the Americas. A member of the leguminous pea family, indigo is variously classified as an herb or small shrub; its stalks are long, bearing raceme flowers. It is usually perennial, but in some areas annual. Native species are known from Arabia, including the Yemen, and around the Indian Ocean.

In some sources Persia is not listed among those regions in which indigo occurs in a natural form (e.g., the website mentioned below). Hans Wulff (p. 192) mentions two local species yielding indigo, grown near Bam in Baluchistan (*Indigofera anil* and *Indigofera linifolia*); Cecil Edwards (p. 32-33) mentions Kermān and Ḵuzestān but says that all indigo used for dyeing wool for rugs was imported. Many tribal groups in Persia have relied on the use of indigo to achieve a stable blue color for the wool of carpets and kilims. The quality of color assumes particular characteristics based upon local conditions and traditions for its use. Technical and stylistic features of rugs produced by Kurds, Šāhsevan, Qašqāʾi, Afšār, and those referred to as Baluch, include differences in the qualities of blue color, all derivative of indigo. Turkmen rugs tend to have less blue than those of other peoples. Commercially produced carpets from central Persia often utilize cotton wefts dyed blue using indigo, as well as indigo-dyed yarn for blue pile colors. A very dark blue, double-dyed, characterizes the carpets of Bijār, Karaja, and Karadag; a medium blue characterizes the urban production of carpets from Heriz (also those called Serape), whereas a lighter blue is typical of rugs from Isfahan and its

surrounding region. A range of dark, medium, and light blues is documented among the classical carpets of Persia in the Safavid period. Broadloomed cotton flatweaves called *zilu* may also be dyed using indigo, including some early examples. Armenian flatweaves (from Azarbaijan, eastern Anatolia, and western India) in wool, silk, or cotton are often dyed using indigo as a ground color for warp and weft.

Hans Wulff lists the term *nil-kāri* for indigo dyeing, and cites *nil* for both the color, dark blue, and for indigo (pp. 192, 364). He quotes recipes and descriptions of indigo, related by a medieval Persian from Tabriz, who worked as a dyer in India and took with him a book of recipes. This is reported by Richard Hakluyt, who also praises the silk-dyers of Persia. He described the colors of carpets as “so dyed as neither raine, wine nor yet vinegar can staine” (Hakluyt, p. 202, apud Wulf, p. 193).

The indigo plant is dried, and crushed or ground, and then soaked to cause a fermentation that is used in dyeing to produce a range of colors, predominantly blue or bluish green, effected through a process of vat dyeing followed by oxidation during exposure to air while drying. Unlike other dyestuffs, which create a chemical bond with the fibers, the anomalous indigo dye, which is insoluble in water, resides on the surface of the fiber, so that it may become worn over time through abrasion. During the process of dyeing with indigo, the color is variable; after the conclusion of drying, the blue color is stable. Double dyeing with indigo results in a deeper blue. Indigo may also be combined with other dye processes to obtain other colors. With madder, it is used to make a virtual black (Gluck and Gluck, p. 322); a black may be also be obtained by overdyeing henna (*Lawsonia alba*, or *ḥenā-ye barg*; Wulff, p. 192). For green, a double dye process using yarns dyed yellow often results in an unstable color, as the yellow fades over time. In 1880 indigo was produced synthetically in Germany; it soon replaced the use of natural organic indigo. According to Herald Böhmer, synthetic indigo yields the same chemical compound as that derived from natural sources using traditional methods, but the dye process is simplified (Edwards, p. 33).

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The International Legume Database and Information Service (www.ildis.org/LegumeWeb/) lists more than 600 varieties with links to a searchable database, which gives information pertaining to geographic spread, sources of nomenclature, and uses (chemical, environmental, medicinal).