



## QUALITY ASSURANCE

Indigo quality is assured at every stage of its production. During cultivation, plants are irrigated with fresh water derived from rainfall harvesting using a drip irrigation system. Ensuring best management practices, plants are kept free of chemicals or pesticides and leaves are harvested and washed.

During the extraction stage, soaking, extraction and oxidation are achieved within controlled units, using an automated submerged pump without direct interference with the surrounding environment. Extract from limes is the only addition made, if required.

The indigo powder is preserved in a clean, dry environment. A quality assurance label is added to the finished product, referencing the details of the source and extraction date.

## CONTACT US

Ghor El Safi Women's Association



Saficraftsjordan



saficrafts



saficrafts@gmail.com



Ghor El Safi, Jordan



00962 (0)3 23 02 334



00962 (0)79 6353941

00962 (0)79 6895822

00962 (0)79 7028053

The Ghor el Safi Women's Association is registered under Jordan's Ministry of Social Development



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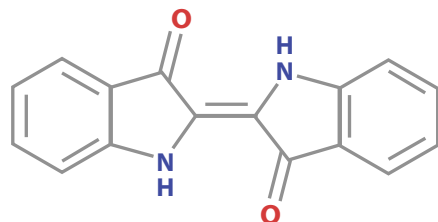
**GHOR EL SAFI  
WOMEN'S ASSOCIATION  
FOR SOCIAL  
DEVELOPMENT**

**"Pure Natural Indigo"**



## SAFI CRAFTS' SPECIAL BLUE - INDIGO

The Ghor el Safi area was famous for the production of "Indigofera Tinctoria" during the early Islamic period but, gradually, cultivation of the valuable plant was lost. The women revived the tradition and now farm indigo on 5 dunums of land. The valuable dye they extract is harvested and processed by hand, without the use of chemicals or pesticides.



"Safi Indigo" is a natural blue dye extracted from fresh indigo bearing crops that are being planted by the Ghor El Safi Women's Association for Social Development. The natural dye is an organic compound with a distinctive blue color. Chemically is known as "Indigotin" of C<sub>16</sub>H<sub>10</sub>N<sub>2</sub>O<sub>2</sub>. Its chemical definition is 2,2'-Bis(2,3-dihydro-3-oxoindol-2-ylidene) with CAS number 482-89-3, with CA Index Name: 3H-Indol-3-one, 2-(1,3-dihydro-3-oxo-2H-indol-2-ylidene)-1,2-dihydro.



## DYE SOURCE - PLANTATION

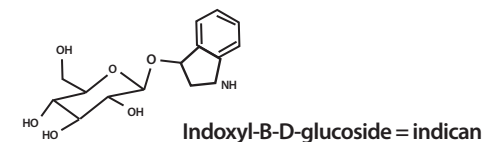
The indigo bearing crop originates from the pea family (leguminosae). Indigo plants take the form of a shrub, measuring up to 2 meters in height with a single, stiff stem, dark green, oval-shaped leaves and clusters of red flowers that resemble butterflies and develop into peapods. The cultivation process is carried out by the women of Safi Crafts, ensuring local income-generating opportunities.



## EXTRACTION PROCESS

The indigo dye is extracted from the plants using simple tools, without any chemical additions. A specialized system processes the plants in three phases: soaking, extraction and aeration.

Plants are harvested in the morning and then submerged in warm water for one day. On the second day, the green extraction is pumped to the second tank, serving as a filtration process. This extraction is then aerated, using a submerged pump for 25-30 minutes to ensure the oxidation process is complete. The green extraction color transitions to dark blue and the leachate is kept undisturbed to ensure the precipitation of the indigotine. Finally, the concentrate is filtered and then air dried.

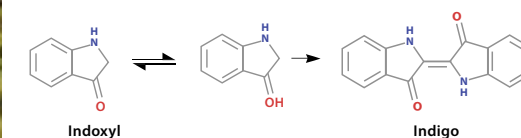


Scheme 1: The molecular formulas of the precursors of indigo.

## CHEMICAL Properties

Indigo dye is an organic compound with a distinctive blue color. It is insoluble in water and poorly soluble in most of the common solvents (e.g. alcohol, or ether).

Indigo itself doesn't exist in the leaves of indigo producing plants. Instead there are precursors. Indican, a colorless water-soluble derivative of the amino acid tryptophan, is extracted from the plant through the soaking process. In warm water, indican readily hydrolyzes to release β-D-glucose and indoxyl. Indoxyl forms leuco-indigo which is then oxidized to indigo through the exposure to air.



Scheme 2: The molecular formulas of indoxyl and indigo.

## INDIGO PURITY

Generally, for indigofera tinctoria indigo, the purity ranges from 30 - 50%. Sometimes, when the leuco-indigo is not coagulated and precipitated easily, lime (Ca(OH)<sub>2</sub>) is used to flocculate the leuco particles. However, using too much lime can destroy the indigo quality and/or purity since it will be transferred into calcium carbonate (CaCO<sub>3</sub>) when it reacts with carbon dioxide. The output quality of the final indigo produced is above optimum (color is dark and not pale) with potential high purity, based on the dyeing process (through Vat) achieved by the Ghor El Safi Women's Association.

The 14 women of the Ghor el Safi Women's Association, launched their Safi Crafts handicrafts brand in 1999. Through their range of attractive products, Safi Crafts seeks to reflect the local traditions, history and heritage of Jordan, with a modern twist that appeals to today's consumers. Refining Jordan's most original, integral ingredients into functional elements, ensures that each piece produced brings forth an exclusive fusion. The rural women have been seeking to raise awareness on the role of women in empowering the local community in Jordan through the design and production of textile-based handicrafts that recount the history, culture, and natural identity of the Dead Sea region. One of the highlights of the Safi Crafts journey has been the re-introduction of "Indigofera Tinctoria" in Jordan.

Over the years, the association has received noteworthy support. Generously supported by Drosos Foundation and implemented by the UNESCO Amman office, the "Empowering Rural Women and increasing resilience in the Jordan Valley" project began working with the women in 2013 to improve the production and promotion of their handicrafts. In addition, the Government of Jordan has provided the women with a piece of land to carry out indigo cultivation activities.