



Primer *on*
Natural Dyes
for School Children

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Children, Nature has enriched our Earth with innumerable and diverse colours, hues and shades that have made our living so colourable and enticing. The colours occur in all the living and non-things – plants, trees, foods, animals, birds, insects, the sky, the soil, mountains and rocks, the seas and indeed man himself...

Man, for ages, has sought to make everything he creates – useful as well as attractive, beautiful and pleasant. This he does by colouring his creations to beautify his inner as well as the outer world. To do so, he seeks the blessings of Nature to extract colours from all the things created by it, without doing any harm to them.

Children, in this booklet, I take you to the grand and vivid world of Nature's colours and tell you the ways the natural colours are extracted and used to make dyes, and how these dyes become vehicles for colouring fabrics, food delicacies, paintings and so many other things.



Introduction

The Hazardous Life with Synthetic Dyes and the Natural Dye Revival



Children, when we see around, we find that synthetic dyes are a big business. Do we know that these synthetic colours are synthesised from petrochemical sources through hazardous chemical processes? The fact is that their ever-increasing use in our lives has made the dye-producing industry one of the most polluting industries in the world.

The production of these dyes consumes a lot of water and energy and requires the application of salts and very hostile organic compounds that are not biodegradable at all. The effluents from the dye industry and its user sectors like the textile and garment industry and food industry release highly hazardous chemicals which pollute the environment and cause, among other things, skin diseases and lung problems.



Each year, India produces 64,000 tonnes of synthetic dyes, 7,040 tonnes of which are directly discharged into the environment --enough to dye the river Sabarmati.

Today – A Natural Revival

It is a pity that the production and use of synthetic dyes have undermined the grand indigenous traditions of the extraction and processing of natural dyes. But now the good news is that the interest in the use of natural dyes has been growing very rapidly! This interest is triggered by stringent environmental standards imposed by many countries due to the toxic and allergic reactions caused by synthetic dyes and their very devastating impact on the environment.

As a result, Children, natural dyes are witnessing a big revival. Due to the efforts being taken by various agencies the world over, environmentalists, natural dye practitioners and fashion designers, the demand for natural dyes is continuously increasing. Scientists are also carrying out research on these dyes. These dyes are now being hailed as a highly valuable renewable source of colouring materials. They, in fact, lend a 'tribal feel' to the city lifestyle.

Sustainability is not a luxury but a necessity in today's business environment - A prominent reason why most fashion brands are switching to sustainable fashion and incorporating natural dyes.

What are the benefits of natural dyes? You may ask. I list these benefits below:

- ✓ **Natural dyes are easily extracted from various natural sources.**
- ✓ **They are a renewable source that can be harnessed without imposing harm to the environment and reducing human dependence on harmful products.**
- ✓ **The sustainability of natural dyeing is very high.**
- ✓ **They have mild dyeing conditions and, show more depth of colour which chemical dyes lack.**
- ✓ **Natural dyes are not harmful to health. They are skin-friendly, non-allergic, biodegradable and non-carcinogenic with no toxic reactions.**
- ✓ **Natural dyes have a high ultraviolet ray absorption capacity.**
- ✓ **There is no effluent generation and their disposal does not cause pollution.**

- ✓ Many of the natural dye comes from recycling of waste (the examples we will see later), which reduce the burden on the environment.
- ✓ These colours have numerous medicinal properties which are beneficial for a healthy life.

BENEFITS TO FARMERS: Adoption of natural dyes the world over will generate big employment opportunities for crop cultivation, collection of leaves, flowers, fruits, barks and wood, including the cleaning of herbal materials! For instance, the production of 10 kg. bio-indigo colour provides employment to 20 farmers.

You may also ask: Is there no problem with natural dyes in their production and applications? Yes, there are, and these I present below:

- Natural dyes are suitable for most natural fibres (cotton, linen, wool and silk), but not for man-made fibres.
- They have less affinity to the fibres and form a weak bond with them.
- Their colour fastness properties are not good.
- There are no standard colouring recipes and methods.
- Natural dyeing is very expensive compared to synthetic dyes.
- Their production is very time-consuming.
- A steady supply of their sources may not be available throughout the textile production process and throughout the year.
- Packaging and storage are serious problems with natural pigments. This is because their structure changes as a result of either their reaction with packaging material or due to storage conditions.
- In dyeing cloths with natural dye, mordants are often used to fix the colour, which could be harmful to the environment.
- Due to mordanting, many times the dyeing shade changes.

