

## Sustainability and Awareness with Natural Dyes in Textile

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**Abstract :** Natural dyeing had started since pre-historical times for dyeing of textile materials. The natural dyeing had continued to beginning of 20th century. At the end of 19th century some synthetic dyes were synthesized. Although development of dyeing technologies and methods, natural dyeing was not developed in recent years. Despite rapid advances of synthetic dyestuff industries, natural dye processes have not developed. Therefore natural dyeing was not competed against synthetic dyes. At the same time, it was very difficult that large quantities of coloured textile was dyed with natural dyes and it was very difficult to get reproducible results in the natural dyeing using classical and traditional processes. However, natural dyeing has used slightly in the textile handicraft up to now. It is very important view that re-using of natural dyes to create awareness in textiles in recent years. Natural dyes have got many awareness and sustainability properties. Natural dyes are more eco-friendly than synthetic dyes. A lot of natural dyes have got antioxidant, antibacterial, antimicrobial, antifungal and anti-UV properties. It had been known that were obtained limited numbers colours with natural dyes in the past. On the contrary, colour scale is too wide with natural dyes. Except fluorescent colours, numerous colours can be obtained with natural dyes. Fastnesses of dyed textiles with natural dyes are good that there are light, washing, rubbing, etc. The fastness values can be improved depend on dyeing processes. Thanks to these properties mass production can be made with natural dyes in textiles. Therefore fabric dyeing machine was designed. This machine is too suitable for natural dyeing and mass production. Also any dyeing machine can be modified for natural dyeing. Although dye extraction and dyeing are made separately in the traditional natural dyeing processes and these procedures are become by designed this machine. Firstly, colouring compounds are extracted from natural dye resources, then dyeing is made with extracted colouring compounds. The colouring compounds are moderately dissolved in water. Less water is used in the extraction of colouring compounds from dye resources and dyeing with this new technique on the contrary much quantity water needs to use for dissolve of the colouring compounds in the traditional dyeing. This dyeing technique is very useful method for mass productions with natural dyes in traditional natural dyeing that use less energy, less dye materials, less water, etc. than traditional natural dyeing techniques. In this work, cotton, silk, linen and wool fabrics were dyed with some natural dye plants by the technique. According to the analysis very good results were obtained by this new technique. These results are shown sustainability and awareness of natural dyes for textiles.

**Keywords :** antibacterial, antimicrobial, natural dyes, sustainability

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