Dying of Cotton Fabric with a Natural Dye Extracted from Areca Concinna Peel

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In modern world, most of the countries tend to use the eco-friendly concept in many industries to minimize environmental pollution. Synthetic dyes that are used in the textile industry offer more unfavorable and harmful effect to human beings such as carcinogenic, health-hazardous like skin allergies, etc. Also, there is no systematic way to dispose of synthetic waste to the environment. So that it can be harmful to the ecosystem. Therefore, the world tends to use natural dyes instead of synthetic dyes. Natural dyes have many advantages than synthetic dyes such as noncarcinogenic, eco-friendly, non-allergic, non-hazardous to human beings, etc. Natural dyes are mainly extracted from three different sources such as minerals, plants, and insects. Among these, plants are the most abundantly used natural dye source to extract dyes.

The main objective of this study was to extract natural dye from For Lane areca peel (Areca concinna) peels and use extracted dye to dyeing the cotton fabrics. This is not a common natural dyestuff. It was an effort to utilize the waste material in an efficient manner which could minimize the cost of dyeing. The natural dyestuff solution obtained was applied to cotton fibers treated with 4% tannic acid. Dye absorption for fibers accompanied by a pre, simultaneous and post mordanting methods with the chemical mordants as chrome, copper sulfate, ferrous sulfate, and stannous chloride. Fastness properties of the dyed fabric were investigated including wash fastness test, perspiration test and crock fastness. These tests were helped to confirm whether the extracted dye can be used for commercial purposes. Various hues of colors were obtained from mordanted cotton and wool make significant changes in K/S values, changes in L*, a*, b* values, and brightness index value. The color strength of dyed fabric can be assessed by using a UV-visible spectrophotometer.

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