

The effect of using natural dyes on physical and mechanical properties of eco-friendly fabrics

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Abstract:

Recently, the world has turned towards the manufacture of green clothes that are environmentally friendly to preserve human health. Among these trends is the use of natural dyes that are safe for the environment, extracted from natural sources, in order to avoid environmental dangers that have become a disaster that threatens human life and exposes him to many health problems. The textile industry is also considered one of the important industries, so those in charge of this industry were interested in replacing harmful chemicals with natural materials that are not harmful to human health and are environmentally friendly, and are often dependent on plant sources that are grown under controlled conditions such as the use of organic fertilizers. So, the aim of the research was to identify different types of natural dyes, their advantages and damages resulting from their use, and how to obtain multiple shades of color, in addition to using natural, environmentally friendly fabrics such as organic cotton, bamboo and soybeans, dyeing them with these natural dyes, and studying the extent of their impact in terms of natural and mechanical properties on the fabrics replaced. the study.

The researchers conducted tests on environmentally friendly fabrics such as thickness, weight and friction, as well as tests on natural dyes in terms of color fastness on fabrics in relation to sweat, washing, friction and light. The fabrics show that the best of them are soybean cloth, followed by organic cotton when using dyes (turmeric - henna - hibiscus), When conducting a color fastness test for sweat on fabrics, it was found that the best of them were organic cotton, followed by bamboo and then soybeans when using hibiscus and spinach dyes. This confirms the possibility of using dyes on environmentally friendly fabrics and is completely safe for human health

Keywords:

Natural dyes, eco-friendly fabrics, soybean fabric, organic cotton fabric, bamboo fabric