

Extraction of Natural Dye from Flowers of Chenille Plant (*Acalypha Hispida*) for Fabrics

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Today many countries use the eco-friendly concept and various steps are being taken to preserve the environment and to reduce pollution. As the textile industry is becoming one of the main industries in the world, it emits various kinds of pollutants to the environment that can cause serious damages to the bio-system. Thus, industries tend to use non-toxic and eco-friendly natural dyes instead of hazardous synthetic dyes on textiles to minimize the pollution.

Natural dyes can be obtained from various parts of plants including roots, bark, leaves, flowers, and fruits. These sources are freely available, and their dyes do not harm the environment.

The aim of this research is to extract dyes from the flowers of Chenille Plant (*Acalypha hispida*), under aqueous, acidic, alkaline and alcoholic conditions. Aqueous extraction method showed best results among all extraction methods. The extraction parameters used for aqueous method i.e. temperature, time and mass to liquid ratio were 100 °C, 2hr and 1:5 respectively. Stability of dyestuff was increased by adding known amount of acetic acid. Cotton fibers were treated with 4% tannic acid before application of dyestuff. Adhesion of dye to cotton fabric accompanied by a pre-mordanting method with the mordants such as alum, chrome, copper sulfate, ferrous sulfate and stannous chloride.

Light fastness, wash fastness, variations of surface colour strength (K/S) values, L*, a*, b* color coordinates, and brightness index were obtained from mordanted cotton fabrics with different mordants. Potassium dichromate showed the highest colour value (K/S =60.366) while aluminium sulphate gave the lowest value (K/S = 17.535).

Keywords: *Acalypha hispida, Natural Dye, Mordants*