SALT FREE DYEING

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SALT FREE DYEING

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DEPARTMENT OF CHEMISTRY
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UNIVERSITY OF MANAGEMENT AND TECHNOLOGY,
LAHORE, PAKISTAN

In the name of

Allah,

The most Beneficent,

The most merciful.

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DEDICATION

The perfect symbol of humanity “Hazrat**Muhammad**” [Peace be Upon Him], all those who are struggling for the well being of mankind, my teachers who are a symbol of guidance in my life and induced a deep love to struggle, who are a source of strength, inspiration and proud for me

&

My Sweet Parents.

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My special thanks to my beloved Father & Mother who set for me the real ground to reach such a high altitude, whom continuous struggle and prayers are always for my best.

Babur Saleem

ABSTRACT

Colors are in constant association with man since Stone Age to modern era.This study primarily focuses on; the reduction of salts during the dyeing of cotton, investigate the effectiveness of selected pre-treatments in the reactive dyeing process, determine optimal requirement of salt when using a fabric that has been pre-treated, measure the effectiveness of rinsing when using a fabric that has been pre-treated, ascertain the dye exhaustion after per-treatment and determine the basic economics surrounding the take up of pre-treatment for industry use.The dyeing method used was Pad steam dyeing. It is suitable for dyeing the pale to medium shades. The dye strength used was 20 g/L as it is generally recognized as the upper limit in the industry while carrying out commercial production. Fabric sample were dyed by padding. After padding steaming was done in a steamer for around 60 seconds. The alkali which was used during the dyeing was sodium carbonate.After dyeing, washing off was carried out to remove any un-reacted dye.To remove any unfixed dye which might have been left after washing off, the fabric was further boiled with DMF solution to strip off any unfixed dye on it then was the stage oftesting and measurements.The current study has led to the following outcomes; Pad steam dyeing of cotton using bio-degradable salt such as Tri-sodium nitrilo triacetate has shown better dyeing results and improved effluent quality and a novel industrially applicable method of application of reactive dyes on cotton fabrics using Tri-sodium Nitrilo Triacetate a bio-degradable salt has be developed.Although the cost of dyeing with inorganic salts seems to greater than with conventionally used salts but the cost of removing them from the effluent and the penalties which are paid to government for not complying with the standards can overcome the increased cost. The study shows that the selected bio-degradable salt can be used for pad-steam dyeing of cotton with reactive dyes to take the place of conventional salt. Tri-sodium nitrilo triacetate gave better dye fixation and color fastness as compared to the conventional salts.

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