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Surface Modification of Cotton Using Slaughterhouse Wastes

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Abstract : Cotton dyeing using reactive dyes is one of the major water polluter; this is due to large amount of dye and salt remaining in effluent. Recent adverse climate change and its associated effect to human life have lead to search for more sustainable industrial production. Cationization of cotton to improve its affinity for reactive dye has been earmarked as a major solution for dyeing of cotton with no or less salt. Synthetic cationizing agents of ammonium salt have already been commercialized. However, in nature there are proteinous products which are rich in amino and ammonium salts which can be carefully harnessed to be used as cationizing agent for cotton. The hoofs and horns have successfully been used to cationize cotton so as to improve cotton affinity to the dye. The cationization action of the hoof and horn extract on cotton was confirmed by dyeing the pretreated fabric without salt and comparing it with conventionally dyed and untreated salt free dyed fabric. UV-VIS absorption results showed better dye absorption (62.5% and 50% dye bath exhaustion percentage for cationized and untreated respectively) while K/S values of treated samples were similar to conventional sample.

Keywords : cationization, cotton, proteinous products, reactive dyes
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