

Effect of Nitrogen Gaseous Plasma on Cotton Fabric Dyed with Reactive Yellow105

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Abstract : In this work, a bleached well cotton sample was dyed with reactive yellow105 dye and subsequently, the dyed sample was exposed to the plasma condition containing Nitrogen gas at 1 and 5 minutes of plasma exposure time, respectively. The effect of plasma on surface morphology fabric was studied by Scanning Electronic Microscope (SEM). CIELab, K/S, and %R of samples (treated and untreated samples) were measured by a reflective spectrophotometer, and consequently, the experiments show that the sample dyed with Reactive yellow 105 after being washed, with the increase in the operation time of plasma, its dye fastness decreases. In addition, the increase in plasma operation time at constant pressure would increase the destructing effect on the surface morphology of samples dyed with reactive yellow105.

Keywords : cotton fabric, nitrogen cold plasma, reflective spectrophotometer, scanning electronic microscope (SEM), reactive yellow105 dye

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