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Preparation and characterization of Merocyanine dye coated cellulose Tri acetate film using low temperature Plasma

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Abstract : Abstract :In this present work, the surfaces of Merocyanine dye film were modified by Low pressure glow discharge plasma as a function of time. The optical properties were investigated by UV-Visible absorbance method, due to the treatment of plasma the optical properties of the film also changed. Characterization by FTIR spectroscopy showed a small difference between the untreated and plasma treated film. ^{13}C NMR spectroscopic study was employed to elucidate the structure of the Merocyanine dye film. The qualitative and quantitative analysis of the elements in Merocyanine dye film had been carried out using Energy Dispersive X-ray analysis (EDAX) and Carbon, Hydrogen, Nitrogen and Sulfur (CHNS) analyzer. SEM analysis revealed the change in surface morphology when treated with plasma. The crystalline structure of the film was investigated by X-ray diffraction. From the result, it was established that the peak is more intense for the treated one. DTA/TGA measurements demonstrated the thermal stability of the plasma treated film. SHG test showed the efficiency of the plasma treated film.
Keywords: Merocyanine dye film, Glow discharge plasma, NMR,Cellulose Tri Acetate CTA.

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