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## Research Details :

Research Title	: <u><i>Photocoloration and photobleaching of 3-(2-adamantylidene)-2-[5-(p-diethylamino)phenyl-2-methyl-3-furylethylidene]-succinic anhydride doped in PMMA polymer film</i></u> <u><i>Photocoloration and photobleaching of 3-(2-adamantylidene)-2-[5-(p-diethylamino)phenyl-2-methyl-3-furylethylidene]-succinic anhydride doped in PMMA polymer film</i></u>
Descriptipn	: The greenish fulgide 2-E doped in PMMA polymer films was heated at various annealing temperatures. Upon irradiation with UV light (366 nm), fulgide 2-E undergoes a conrotatory ring closure to the bluish colored closed form 2-C. The later color was partially switched back to the original color when the films were irradiated with white light. The percentage conversion decreases with increasing the annealing temperatures. The observed large bathochromic shifts of $\lambda_{max}$ for the opened and closed forms of 2 and the partial conversion of 2-C to 2-E were rationalized on the bases of electronic and steric effects. It was found that both isomers 2-C and 2-E absorb white light and under white light irradiation they interconvert and a photostationary state is reached. The kinetics of photocoloration and photobleaching processes were followed spectrophotometrically by monitoring the absorbance of the ring closed product 2-C at its $\lambda_{max}$ of 630 nm. The apparent first-order rate constants for both processes were determined. It was found that there was slight variation in rate constant for photocoloration reaction; which decreases with increase annealing temperature. On the other hand, the apparent rate constant of the photobleaching reaction increases with increasing the annealing temperature.
Research Type	: Article
Research Year	: 2007
Publisher	: Journal of Photochemistry and Photobiology A: Chemistry Volume 191, Issues 2-3, 2007, Pages 182-186
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Added Date	: Sunday, June 01, 2008

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