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Microwave Assisted Synthesis, Optical Properties and Physicochemical Investigations on the Powerful Fluorophore: Donor (D) - π -Acceptor (A) Chalcone

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Abstract

(2E)-3-[4-(dimethylamino)phenyl]-1-(2-hydroxyphenyl)prop-2-en-1-one (DPHP) was synthesized by the reaction 4(dimethylamino) benzaldehyde with 1-(2-hydroxyphenyl) ethanone under microwave irradiation. Structure of DPHP was conformed by H-1 and C-13 NMR, FT-IR, EI-MS spectral studies and elemental analysis. The electronic absorption and fluorescence spectra of DPHP have been studied in solvents of different polarities, and the data were used to study the solvatochromic properties such as extinction coefficient, stokes shift, oscillator strength, transition dipole moment, fluorescence quantum yield and photochemical quantum yield. The absorption maximum and fluorescence emission maximum was observed red shift when increase solvent polarity n-Hexane to DMF. DPHP undergoes solubilization in different micelles and may be used as a probe and quencher to determine the critical micelle concentration (CMC) of CTAB and SDS.

Keywords

Author Keywords: DPHP; Solvatochromic; Fluorescence quantum yield; Photochemical quantum yield; CMC

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