

Spectral characteristics and Molecular structure of (E)-1-(4-chlorophenyl)-3-(4-(dimethylamino)phenyl)prop-2-en-1-one (DAP)

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The (E)-1-(4-chlorophenyl)-3-(4-(dimethylamino)phenyl)prop-2-en-1-one (DAP) compound was synthesized using a reaction between 4-(dimethylamino)benzaldehyde and 4-chloroacetophenone in the presence of NaOH and alcohol as a laser dye material. Then, the compound was recrystallized from ethanol and washed with distilled water [1,2]. The product was confirmed by FTIR, ^1H NMR, and UV-Vis spectroscopy. The V_{max} : 1655 (C=O), 1583 cm^{-1} (C=C); ^1H (600 MHz, CDCl_3 , Me_4Si) 3.03 (6H, s, NMe_2), 6.67 (2H, d, $J=9$ Hz), 7.26 (1H, d, $J=16$ Hz), 7.43 (2H, d, $J=7$ Hz), 7.53 (2H, d, $J=9$ Hz), 7.77 (1H, d, $J=16$ Hz), 7.93 (2H, d, $J=7$ Hz) ppm; λ_{max} (Methanol 427 nm).

The crystallinity of DAP was investigated using XRD diffractometer (D8 Advance Bruker) using Cu-K α irradiation, $\lambda = 0.15406$ nm, accelerating voltage is 40 kV, 15 mA and 20–80° as scanning angle. The estimation of the average crystallite size of the DAP was characterized utilizing an X-ray Diffractometer. The findings demonstrated that the peaks at various crystal planes of DAP manufactured agree exactly with the one prepared by the standard method, see Figure S1. The diffraction peaks are noted at 2 theta values equal to 10.63, and 25.64° corresponding to (010) and (100) planes with the 35.12 nm average crystallite size as obtained from Debye Scherer's equation [3,4].

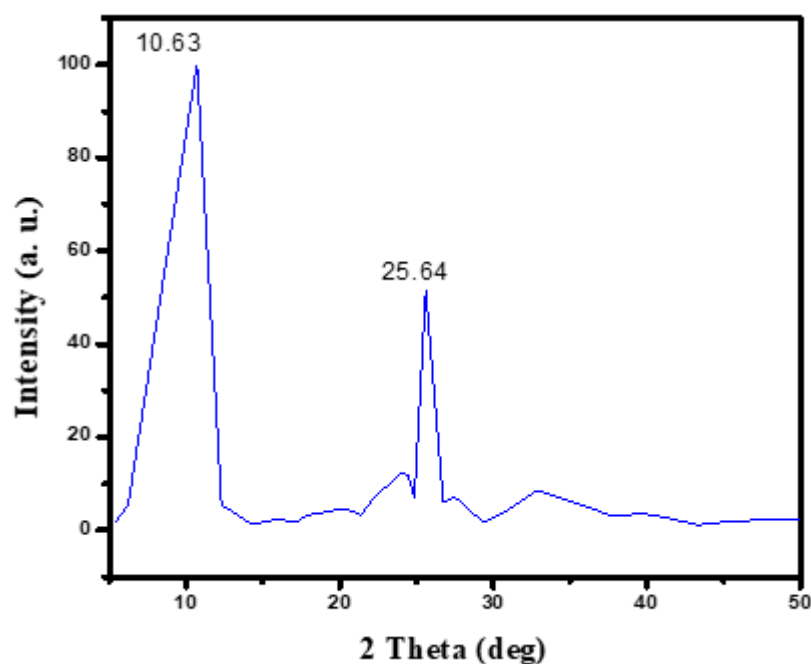


Figure S1. The XRD diffraction profile of DAP.

References

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