

عنوان مقاله:

Growth and Characterization of 1,2,3-Benzotriazole 2-chloro 4-nitrobenzoic Acid (BCNB) Single Crystal for NLO Applications

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خلاصه مقاله:

The organic single crystal of 1,2,3-benzotriazole 2-chloro 4-nitrobenzoic acid (BCNB) was successfully grown by slow evaporation solution method using methanol as a solvent. The single crystal X-ray diffraction was used to analyse the lattice cell parameters of the grown BCNB crystal. The cell and lattice parameters of the BCNB crystal confirms the formation of monoclinic crystal structure with the  $P2_1/n$  space group. The diffraction planes (h,k,l) were determined by the powder X-ray diffraction (PXRD), which is in good agreement with the corresponding CIF file. The BCNB crystal exhibits good optical transmittance in the entire visible region, which is evident from the UV-Visible-NIR analysis. The photoconductivity analysis exposes the negative photoconductive nature of BCNB crystal. The self-defocusing and reverse saturable absorption effects of the BCNB is evident from the Z-scan experiment, (which is prescribed in closed and open apertures and these results were used to deduce the 3rd order NLO parameters like  $n_2$ ,  $\beta$  and  $\chi^{(3)}$

کلمات کلیدی:

Nonlinear optics, Single crystal, PXRD, UV-Visible-NIR, Z-scan

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