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Abstract:

Benzotriazole pyridine-2-carboxylic acid single crystal (BTPCA) was grown by slow evaporation solution growth technique. The cell parameters and crystallinity of BTPCA crystal were found by single crystal and powder X-ray diffraction studies. The presence of functional groups was studied by FT-IR analysis. UV-vis-NIR transmission studies reveal that the BTPCA crystal is transparent in the entire visible region with lower optical cut-off wavelength of 306 nm. The thermal stability, melting point and decomposition stages of BTPCA were analysed from the thermogravimetric and differential thermal analyses. The second harmonic output power of BTPCA was measured to be 2.5 times that of KDP reference crystal. Hardness studies reveal that grown crystal shows the reverse indentation size effect and breakeven point due to release of internal fatigue generated during indentation.

Keywords: A1.Powder X-ray diffraction; A2.Growth from solutions; B1.Organic compounds; B2.Nonlinear optical materials;

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