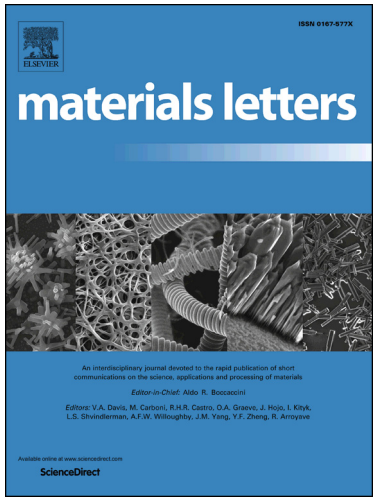

Growth, structural, linear, nonlinear optical and laser induced damage threshold studies of an organic compound: 2-Amino pyridinium-4-hydroxy benzoate

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Growth, structural, linear, nonlinear optical and laser induced damage threshold studies of an organic compound: 2-Amino pyridinium-4-hydroxy benzoate

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Abstract

Single crystals of 2-Amino pyridinium-4-hydroxy benzoate (2AP4HB) have been successfully grown by controlled slow evaporation technique. The title compound was synthesized and single crystals were harvested utilizing methanol as a solvent. The crystalline structure and crystal phase studies were carried out by single crystal and powder X-ray diffraction techniques respectively. UV-Vis transmission plot was traced and band gap value has been calculated for the title compound. Laser induced damage threshold (LIDT) analysis of 2AP4HB single crystal has been performed employing 1064 nm wavelength Nd:YAG laser. Third order nonlinear optical (NLO) efficiency of grown 2AP4HP single crystals was probed using Z-Scan technique. Optical limiting study of 2AP4HB was carried out using continuous wave (cw) Nd:YAG laser to reveal its saturable absorption behavior and self-defocusing effect.

Keywords: Organic materials, Crystal growth; X-ray techniques; Z-scan studies; Optical limiting; Laser Induced Damage threshold.