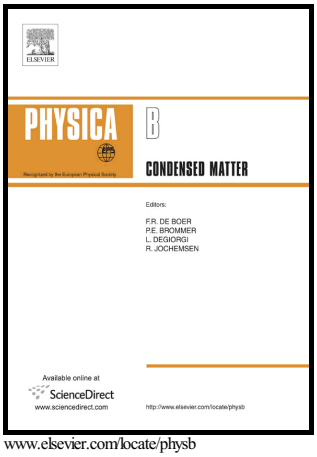

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Abstract

A nonlinear optical bulk single crystal of L-methionine admixtured D-mandelic acid (LMDMA) has been grown by slow solvent evaporation technique using water as solvent at ambient temperature. The crystallized LMDMA single crystal subjected to single crystal X-ray diffraction study confirmed monoclinic system with the acentric space group $P2_1$. The FTIR analysis gives information about the modes of vibration in the various functional groups present in LMDMA. The UV-visible spectral analysis assessed the optical quality and linear optical properties such as extinction coefficient, reflectance, refractive index and from which optical conductivity and electric susceptibility were also evaluated. The frequency doubling efficiency was observed using Kurtz Perry powder technique. A multiple shot laser was utilized to evaluate the laser damage threshold energy of the crystal. Discrete thermodynamic properties were carried out by TG-DTA studies. The hardness, Meyer's index, yield strength, elastic stiffness constant, Knoop hardness, fracture toughness and brittleness index were analysed using Vickers