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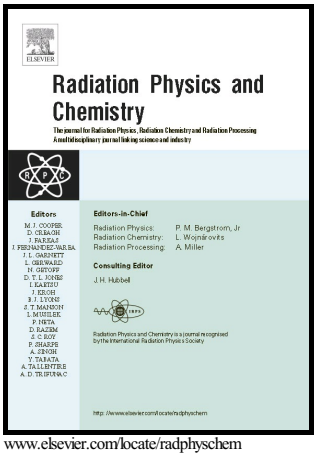

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ABSTRACT

A potentially useful nonlinear optical semi-organic single crystal of strontium L-ascorbate hexahydrate (SLAH) was grown by solution growth slow evaporation technique at room temperature. The grown crystal is semi transparent, yellowish in color with monoclinic crystal system having space group $P2_1$ and is stable up to 198 °C. Further, SLAH crystals were irradiated with gamma rays produced by ^{60}Co with different doses of 10 KGy, 30 KGy and 50 KGy at room temperature and then studied the effect of gamma-rays on dielectric properties, optical absorption, microhardness and SHG efficiency. The absorption study reveals that the absorbance of the grown crystal is appeared to be low throughout the visible region with a lower cutoff wavelength of 277 nm and these parameters are not affected upon gamma irradiation. The luminescence intensity of the crystal is also not affected by the irradiation. There is noticeable changes were observed in dielectric properties and hardness of the materials for different doses of gamma irradiation. The second harmonic generation (SHG) efficiency of the grown crystal is 0.54 times that of the KDP crystal and is decreased moderately by increasing the dosage of gamma irradiation.