

# EFFECTS OF GAMMA RADIATION ON THE PHOTOLUMINESCENCE PROPERTIES OF RARE EARTH COMPLEX $Tb(ACAC)_3$ DOPED INTO POLYCARBONATE MATRIX

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Luminescent films containing complexes of rare earth  $Tb(ACac)_3 \cdot 2H_2O$  ( $Acac =$  acetylacetonate) doped into Polycarbonate (PC) matrix were irradiated at low dose gamma radiation with ratio of 0, 5 and 10 kGy were prepared. The ratio of the complex  $Tb(ACac)_3$  were 0% and 5% (w/w). The thermal behaviour was investigated by utilization of Differential scanning calorimetry (DSC) and Thermogravimetry Analysis (TGA) changes in thermal stability were observed due of the addition of doped agent of  $Tb(ACac)_3 \cdot 2H_2O$  into polycarbonate matrix. The luminescent properties behaviour was investigated by utilization of emission spectra, exhibited the characteristic sharp bands arising from the  $^5D_4 \rightarrow ^7F_J$  transitions ( $J=0-6$ ) of  $Tb^{3+}$  rare earth ion, and facility to obtain the films show the potential application on the luminescent field. Films irradiated at low dose of gamma irradiation showed a decreasing of luminescence intensity with increase of radiation dose.