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**A STUDY OF SYNTHESIS OF SOME TERNARY LANTHANIDE  
COMPLEXES WITH PICOLINIC ACID**

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**ABSTRACT**

Four new solid ternary complexes of lanthanide with 2,6-pyridine dicarboxylic acid and  $\alpha$ -picolinic acid  $[\text{Ln}(\text{DPA})(\text{L}\alpha)(\text{H}_2\text{O})] \cdot 2\text{H}_2\text{O}$  ( $\text{Ln} = \text{La}^{3+}$ ,  $\text{Ce}^{3+}$ ,  $\text{Eu}^{3+}$ , or  $\text{Gd}^{3+}$ ;  $\text{DPA} = 2,6\text{-pyridine dicarboxylic acid}$ ;  $\text{HL}\alpha = \alpha\text{-picolinic acid}$ ) have been synthesized and characterized by elemental analysis, molar conductance, FT-IR, UV-Vis, and TG-DTA. The antibacterial activities indicate that all the complexes exhibit antibacterial ability against *Escherichia coli* and *Staphylococcus aureus* with broad antimicrobial spectra. The anticancer activity of the La complex against K562 tumor cell in vitro is measured using methyl thiazolyl tetrazolium (MTT) colorimetry and flow cytometry. The La complex can induce K562 tumor cell apoptosis, presenting the best apoptosis effect by acting on the S period after inducing K562 tumor cell for 72 h.

**Keywords:** *Ternary Lanthanide Complexes, Dicarboxylic Acid, Picolinic Acid*