# Fluorescence properties of microcomposites europium triethylene glycol picrate complex doped in polymer

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Abstrak

The aim of this study was to synthesize high luminescence materials containing the optimal combination of ternary europiumpicrate complex and matrices. The ternary europium-picrate-triethylene glycol (Eu-EO3-Pic) complex was doped in poly(methyl methacrylate), PMMA. The composites were impregnated in several matrices to form thin filmsvia spin coating technique. The microparticles of Eu-EO3-Piccomplex were prepared by reprecipitation-evaporation, then they were compared to analogous complex or microcomposite prepared by in-situ method. The Eu-EO3-Pic/PMMA microcomposites were characterized by fluorescence spectroscopy in acetone solution. The particle sizes distribution of microcomposites synthesized by reprecipitation-evaporation method (110.3 to 426.8 nm) were smaller compared to the microcomposites by in-situ method (641.7 nm). The PMMA was able to significantly enhance the fluorescence intensity of Eu-EO3-Pic microparticles. The fluorescence intensity of microcomposite by in situ-preparation was lower than that found in the microcomposites by reprecipitation-evaporation method. We also investigated the effect of different matrices on the photophysical properties. The effective intermolecular energy transfer from PMMA to the Eu-EO3-Pic complex would produce high sensitization efficiency. These microcomposites are very potential used as the emission material for organic light emitting devices.