Journal of Basic and Applied Engineering Research
p-ISSN: 2350-0077; e-ISSN: 2350-0255; Volume 5, Issue 4; April-June, 2018, pp. 346-346

http://www.krishisanskriti.org/Publication.html

Optical Features of Europium(III) Complex with Aromatic Carboxylic Acid Ligand and Biquinoline as Ancillary Ligand

Priyanka, S.P. Khatkar and Priti Boora*

Department of Chemistry, Maharshi Dayanand University,
Rohtak – 124001, India
*E-mail: *pritiboora@gmail.com*

Abstract—*An aromatic carboxylic acid, 2-[4-(dibutylamino)-2-hydroxybenzoyl]benzoic acid (DAHB) and 2,2'-biquinoline ligands were used to prepare europium(III) complex $Eu(DAHB)_3.biq$. The $Eu(DAHB)_3.biq$ (biq = 2,2'-biquinoline) complex was synthesized by ecofriendly solution precipitation method. The complex was characterized by various techniques including IR, 1H-NMR, elemental analysis, thermogravimetric analysis (TG–DTG), UV–visible and photoluminescence spectroscopy (PL). The emission spectra of europium(III) complex shows narrow characteristics emission peaks at 580, 592, 615 and 652 nm corresponding to the $^5D_0 \rightarrow {}^7F_J$ (where J = 0, 1, 2, 3) transition of europium (III) ion and the intense and hypersensitive $^5D_0 \rightarrow {}^7F_2$ transition is responsible for pure red color of complex (1). The CIE color coordinates of complex are close to National Television committee system (NTCS 1987) primary color (0.63, 0.34). The TG-DTG curve of complex exhibits high thermal stability which is required for fabrication of photoluminescent devices (2).*

Reference

1. *Jiang X, Jen AK-Y, Huang D, Phelan GD, Londergan TM, Dalton LR. Synth Met 2002,125, 331-336.*
2. *Tang C.W., Vanslyke S.A., Appl. Phys. Lett. 1987, 51, 913.*