

## Electronic Supplementary Material (ESI) for New Journal of Chemistry

### **Luminescent enhancement study of 3Tb,5Ce,5Li:CaF<sub>2</sub> : effect of Li<sup>+</sup> ions concentrations and hyperthermia applications of 3Tb:CaF<sub>2</sub>/Fe<sub>3</sub>O<sub>4</sub> nanocomposite.**

Ningthoujam Premananda Singh<sup>a</sup>, Nandini Kumam<sup>a</sup>, Laishram Priyobarta Singh<sup>b</sup>,  
Nongmaithem Rajmuhon<sup>a\*</sup> and Sri Krishna Srivastava<sup>a,c\*</sup>

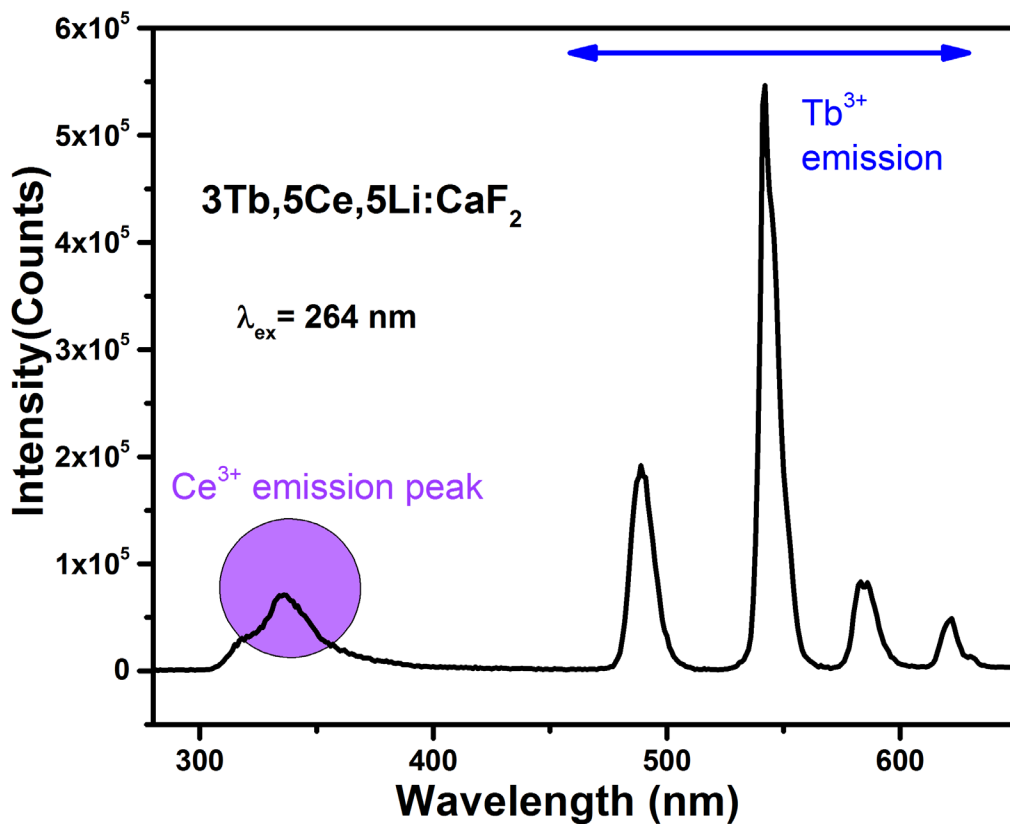
<sup>a</sup>*Department of Chemistry, Manipur University, Imphal-795003, India*

<sup>b</sup>*National Institute of Technology, Langol-795004, India*

<sup>c</sup>*Vice-Chancellor, North-Eastern Hill University, Shillong, Meghalaya-793022, India*

**Table SI 1.** Peaks related to FTIR spectra of 3Tb:CaF<sub>2</sub> nanoparticles prepared at 150 °C using ethylene glycol as capping agent and solvent medium.

Sl. No.	Peaks (cm-1)	Vibrational
1	3408	O-H stretching
2	1641	O-H bending
3	1350-1450	C-O
4	700-1200	CH <sub>2</sub> bending
5	2900	Asymmetric CH <sub>2</sub>
6	2860	symmetric CH <sub>2</sub>



**Fig. SI 2.** Emission peak of Ce<sup>3+</sup> and Tb<sup>3+</sup> ions in 3Tb,5Ce,5Li:CaF<sub>2</sub> at excitation wavelength 264 nm. Purple Circle indicates the emission peak originated from Ce<sup>3+</sup> ions and four other peaks within blue double headed arrow are from the Tb<sup>3+</sup> ions.

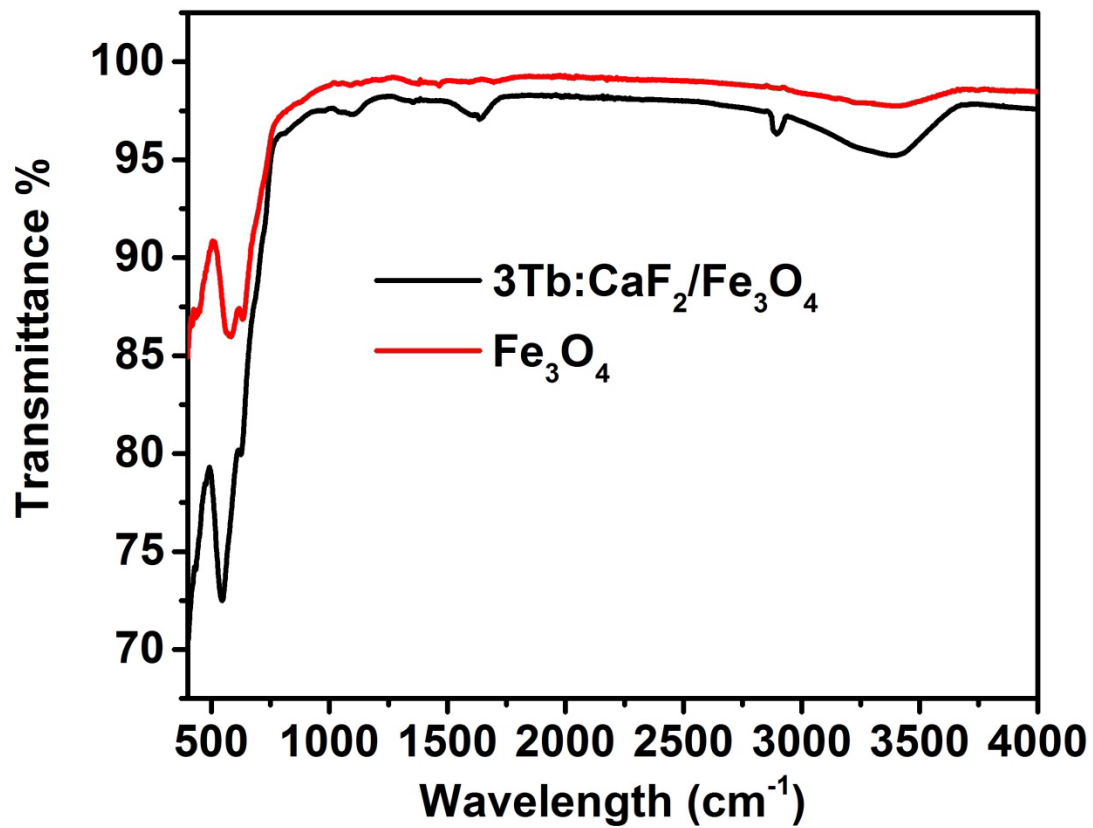


Fig. SI 3. FTIR spectra of pure Fe<sub>3</sub>O<sub>4</sub> and PEG coated 3Tb:CaF<sub>2</sub>/Fe<sub>3</sub>O<sub>4</sub> nanocomposite.