학술진보상

Determination of Organic Compounds by the Sensitizing Effect of Lanthanide(III) Ion

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Some of the trivalent lanthanide ion exhibit excellent emission characteristics when the native emission is enhanced by complexation of these ions with suitable organic ligands. The lanthanide complexes, especially containing Tb^{3+} and Eu^{3+} show narrow bandwidths, large Stokes shift and relatively long emission lifetimes (up to ms). In recent years, there has been considerable interest in the study on these complexes for their potential application as luminescent labelsor probes for chemical and biological molecules. A variety of methodologies in macromolecule studies or fluoroimmunoassay have been developed to take advantage of these desirable emission characteristics. Ligand sensitized luminescence spectroscopy has also been applied as an analytical technique for the analysis of lanthanide ions or organic compounds used as ligands. In this talk the theoretical background and recent application of lanthanide emission to quantitation of analytes in biological sample will be introduced. The results of the work on the determination of some clinically important compounds using this method will be also discussed. The analytical characteristics such as dynamic range and detection limit are compared with those obtained using other methods.