

Ain Shams University
Faculty of Science
Chemistry Department



New Photo analytical Methods for the assessment of some materials of industrial potential

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"Chemistry Department"

By

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B.Sc. in Zoology and Chemistry, Faculty of Science
Mansoura University
2005

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Approval Sheet

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Highly sensitive Eu^{3+} doped in sol-gel matrix optical sensor for the assessment of Ciprofloxacin in different real samples

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Abstract

The efficiency of excited-state interaction between Eu^{3+} doped in sol- gel matrix and the industrial product ciprofloxacin of (CFX) has been studied in different solvent and pHs. A high luminescence intensity peak at 617 nm of europium- ciprofloxacin complex at $\lambda_{\text{ex}}=365$ nm in acetonitrile was obtained. The photophysical properties of the red emissive Eu^{3+} complex doped in sol-gel matrix have been elucidated, the europium was used as optical sensor for the assessment of ciprofloxacin in the pharmaceutical tablets and serum samples at pH 8.0 and $\lambda_{\text{ex}} = 365$ nm with a concentration range of 5.0×10^{-9} - $1.0 \times 10^{-6} \text{ mol L}^{-1}$ for ciprofloxacin, correlation coefficient of 0.99 and detection limit of $1.65 \times 10^{-9} \text{ mol L}^{-1}$.

Keywords:

Photo probe (I) = (4Z)-4-(1H-Indol-3-ylmethylene)-2,5-diphenyl-2,4-dihydro-3H-pyrazol-3-one;Ciprofloxacin; Bis(dialkylamino)phenoxazinium;Europium(III);Enhancing; Luminescence; Optical sensor ; Sol-Gel ;

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Aim of the work

Development and introduction of modern analytical techniques with high sensitivity and selectivity with low cost for assessment of 3-Nitrotyrosine in serum and assessment of zinc in semen sample to achieve this goal it's intended to

- 1) Study and characterization of two organic photo probes in which their emission is affected by zinc and 3-nitrotyrosine
- 2) Study of the absorption and emission of the photo probes and the different factors affecting in their emission such as p^H , solvent.
- 3) Using optimum condition for assessment of zinc, Ciprofloxacin and 3-nitrotyrosine in different real samples.