

## Author's Accepted Manuscript

Enhanced fluorescence of terbium with thiabendazole and application in determining trace amounts of terbium and thiabendazole

Qiang Chen, Junfeng Zuo, Xue He, Xiujuan Mo, Ping Tong, Lan Zhang



PII: S0039-9140(16)30785-8  
DOI: <http://dx.doi.org/10.1016/j.talanta.2016.10.036>  
Reference: TAL16956

To appear in: *Talanta*

Received date: 19 April 2016  
Revised date: 2 October 2016  
Accepted date: 7 October 2016

Cite this article as: Qiang Chen, Junfeng Zuo, Xue He, Xiujuan Mo, Ping Tong and Lan Zhang, Enhanced fluorescence of terbium with thiabendazole and application in determining trace amounts of terbium and thiabendazole, *Talanta*, <http://dx.doi.org/10.1016/j.talanta.2016.10.036>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

**Enhanced fluorescence of terbium with thiabendazole and application in  
determining trace amounts of terbium and thiabendazole**

Qiang Chen<sup>a,c</sup>, Junfeng Zuo<sup>a</sup>, Xue He<sup>a</sup>, Xiujuan Mo<sup>c</sup>, Ping Tong<sup>a,b\*</sup>, Lan Zhang<sup>a,b\*</sup>

<sup>a</sup>Ministry of Education Key Laboratory of Analysis and Detection for Food Safety, Fujian Provincial Key Laboratory of Analysis and Detection for Food Safety, college of chemistry, Fuzhou University, Fuzhou, Fujian, 350002, China

<sup>b</sup>Testing Center, The Sport Science Research Center, Fuzhou University, Fuzhou, Fujian, 350002, China

<sup>c</sup>Environmental monitoring center of Fujian province, Fuzhou, Fujian 350003, China

zlan@fzu.edu.cn

tping@fzu.edu.cn

\*Corresponding author. Tel: +86-591-87893206; Fax: +86-591-87893206.

**Abstract**

In this paper, a simple, rapid and sensitive fluorescence method based on the formation of terbium ( $Tb^{3+}$ ) complex has been developed for the rapid detection of  $Tb^{3+}$  in water. The fluorescence sensor has been studied by using terbium complexed with thiabendazole (TBZ) while acetonitrile (MeCN) as solvent. The complex was made up of TBZ as small-molecule ligand and  $Tb^{3+}$  as central ion. Fluorescence spectroscopy and UV spectroscopy together were used to study the behavior of the complexation of TBZ-Tb in this medium. Enhancement fluorescence was observed due to the efficient energy transfer process from TBZ to  $Tb^{3+}$ . And the affecting factors of the enhancement fluorescence were also studied in detail. Under optimal conditions, a linear relationship was obtained between the enhanced fluorescence

Download English Version:

<https://daneshyari.com/en/article/5141205>

Download Persian Version:

<https://daneshyari.com/article/5141205>

[Daneshyari.com](https://daneshyari.com)