

Author's Accepted Manuscript

Iodophenol blue-enhanced luminol chemiluminescence and its application to Hydrogen peroxide and glucose detection

Dalong Yu, Ping Wang, Yanjun Zhao, Aiping Fan



PII: S0039-9140(15)30100-4
DOI: <http://dx.doi.org/10.1016/j.talanta.2015.06.059>
Reference: TAL15736

To appear in: *Talanta*

Received date: 15 April 2015
Revised date: 16 June 2015
Accepted date: 20 June 2015

Cite this article as: Dalong Yu, Ping Wang, Yanjun Zhao and Aiping Fan, Iodophenol blue-enhanced luminol chemiluminescence and its application to Hydrogen peroxide and glucose detection, *Talanta*, <http://dx.doi.org/10.1016/j.talanta.2015.06.059>

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.

Iodophenol blue-enhanced luminol chemiluminescence and its application to hydrogen peroxide and glucose detection

Dalong Yu, Ping Wang, Yanjun Zhao, Aiping Fan*

Tianjin Key Laboratory for Modern Drug Delivery & High-Efficiency, School of Pharmaceutical Science and Technology, Tianjin University, Tianjin 300072, People's Republic of China

*Corresponding author. Tel.: +86-22-27401191; Fax: +86-22-27409967.

E-mail address: aipingfan1980@163.com

Abstract

In this study, we found that iodophenol blue can enhance the weak chemiluminescence (CL) of luminol-H₂O₂ system. With the aid of CL spectral, electron spin resonance (ESR) spectral measurements and studies on the effects of various free radical scavengers on the iodophenol blue-enhanced luminol-H₂O₂ system, we speculated that iodophenol blue may react with H₂O₂ and oxygen to produce oxidizing radical species such as OH[•] and O₂^{•-} resulting the formation of ¹O₂. The generated ¹O₂ may react with luminol anion generating an unstable endoperoxide and subsequent 3-aminophthalate* (3-APA*). When the excited-state 3-APA returned to the ground-state, an enhanced CL was observed. Based on the H₂O₂ concentration dependence of the catalytic activity of iodophenol blue, a cheap, simple, sensitive CL assay

Download English Version:

<https://daneshyari.com/en/article/7678708>

Download Persian Version:

<https://daneshyari.com/article/7678708>

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