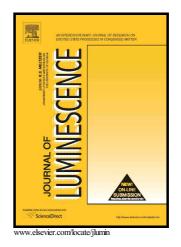
Author's Accepted Manuscript

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Leilian Cristine de Paula Oliveira, Ivanise Gaubeur, Patrícia Dantoni



 PII:
 S0022-2313(16)31003-1

 DOI:
 http://dx.doi.org/10.1016/j.jlumin.2016.11.072

 Reference:
 LUMIN14410

To appear in: Journal of Luminescence

Received date: 29 July 2016 Revised date: 24 November 2016 Accepted date: 25 November 2016

Cite this article as: Leilian Cristine de Paula Oliveira, Ivanise Gaubeur an Patrícia Dantoni, Hydrazone as a new fluorophore in the peroxyoxalat chemiluminescence reaction, *Journal of Luminescence* http://dx.doi.org/10.1016/j.jlumin.2016.11.072

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Hydrazone as a new fluorophore in the peroxyoxalate

chemiluminescence reaction

Leilian Cristine de Paula Oliveira, Ivanise Gaubeur, Patrícia Dantoni*

Centro de Ciências Naturais e Humanas, Universidade Federal do ABC - UFABC,

Avenida dos Estados, 5001, Bloco B, 09210-580, Santo André, São Paulo, Brazil

^{*}Corresponding author. Tel.: +55 11 4996 0159. patricia.dantoni@ufabc.edu.br (P. Dantoni)

Abstract

Peroxyoxalate chemiluminescence reactions involve the oxidation of oxalate ester by hydrogen peroxide (H₂O₂), forming intermediates capable of exciting fluorophores. These intermediates are known for their high sensitivity, quantum yield of chemiluminescence and wide linear range for analyte detection. This study aims at the application of complexing agents di-2-pyridyl ketone benzoylhydrazone and di-2pyridyl ketone salicyloylhydrazone, or these agents complexed with Pb(II) as fluorophores, as well as use of these reactions for metal determination. Both complexing agents have fluorescent properties, however only the former could be applied. The buffering system used was HCO_3^{-7}/CO_3^{-2} , pH 10.3 and the ester 2.4.6triclorophenyl oxalate, prepared in 1,2-dimethoxyethane. The addition of Pb(II) to the peroxyoxalate chemiluminescence reaction makes the signal decrease by 36%. Through equation, it was the Stern-Volmer possible to determine the ion within a range from 2.07 to 41.4 mg $L^{-1}(R^2 0.9894)$, with detection and quantification limits of 0.45 mg L^{-1} and 1.5 mg L^{-1} , respectively.

1. Introduction

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