

Design, synthesis of nitrogen-rich triazine derivatives and its application in water sample, Vegetables and Oil Product

Ma Xuelin¹, Zhang Xiaoyong², Han Limin¹, and Hao Zhanzhong²

¹Inner Mongolia University of Technology

²Baotou Teachers College

October 20, 2020

Abstract

A triazine nitrogen-rich derivative fluorescent probe, 1,1'-(6-chloro-1,3,5-triazine-2,4-diyl)bis(1H-benzo[d][1,2,3]triazole)(L), has been synthesized and successfully achieved for the efficient detection for Fe³⁺, Cr₂O₇²⁻, nitrobenzene as a turn-off chemosensor in DMF/H₂O. The quenching constant(K_{sv}) and detection of limit for Fe³⁺, Cr₂O₇²⁻, nitrobenzene on fluorescence response of the sensor can be as low as 470.00 M⁻¹, 359.94 M⁻¹, 3.62*10³ mL⁻¹, 2.10*10⁻⁵ M, 5.73*10⁻⁵ M, 1.24*10⁻⁵ mL, respectively. On the contrary, It is applied to detected for toluene and xylene as a turn-on chemosensor in DMF. The quenching constant and detection of limit for toluene and xylene on fluorescence response of the sensor can be as low as -11.05 mL⁻¹, -6.23 mL⁻¹, 9.30*10⁻⁴ mL, 7.35*10⁻³ mL, respectively. The application of water sample and vegetables showed that the L had high sensitive detection for Fe³⁺ ions. Meanwhile the application of gasoline, diesel and engine oil showed that the L had high sensitive detection for toluene and xylene.

Hosted file

Manuscript.pdf available at <https://authorea.com/users/368602/articles/487916-design-synthesis-of-nitrogen-rich-triazine-derivatives-and-its-application-in-water-sample-vegetables-and-oil-product>

Hosted file

coverletter.pdf available at <https://authorea.com/users/368602/articles/487916-design-synthesis-of-nitrogen-rich-triazine-derivatives-and-its-application-in-water-sample-vegetables-and-oil-product>