Accepted Manuscript

Title: A highly selective, sensitive and stable fluorescent chemosensor based on Schiff base and poly(azomethine-urethane) for Fe^{3+} ions

Author: Musa Kamaci İsmet Kaya

PII: S1226-086X(16)30414-2
DOI: http://dx.doi.org/doi:10.1016/j.jiec.2016.10.035
Reference: JIEC 3147

To appear in:

Received date: 29-8-2016
Revised date: 17-10-2016
Accepted date: 22-10-2016

Please cite this article as: M. Kamaci, İ. Kaya, A highly selective, sensitive and stable fluorescent chemosensor based on Schiff base and poly(azomethine-urethane) for Fe^{3+} ions, *Journal of Industrial and Engineering Chemistry* (2016), http://dx.doi.org/10.1016/j.jiec.2016.10.035

A highly selective, sensitive and stable fluorescent chemosensor based on Schiff base and poly(azomethine-urethane) for Fe^{3+} ions

Musa KAMACI[a,b] and İsmet KAYA[a*]

[a]Polymer Synthesis and Analysis Lab., Department of Chemistry, Çanakkale Onsekiz Mart University, 17020, Çanakkale, Turkey
[b] Faculty of Sciences and Letters, Department of Chemistry, Piri Reis University, 34940 Tuzla, Istanbul, Turkey

[*]To whom all correspondence should be addressed.
Phone: +90 286 218 00 18 Fax: +90 286 218 05 33 E-mail: kayaismet@hotmail.com

ABSTRACT

In this paper, Schiff base (PAH) and its poly(azomethine-urethane) derivative (P-PAH) were synthesized and high-quality film sensor of these compounds could be easily fabricated on transparent polyester surface through dip-coating technique. Then, these films were used as fluorescence probes for the detection of metal ions in aqueous solutions. Photophysical properties of fluorescent films were investigated using fluorescence and UV-vis spectrometers. Fluorescence properties of probes were investigated in the presence of a series of different metal ions and the results showed that monomer and polymer films have a highly sensitive and selective response to Fe^{3+} ion in deionized water. Moreover, fluorescence measurements showed that the prepared fluorescent films have in the range 143 to 180 nm Stokes shift value. Also, contact angles of film probes were investigated and contact angles of PAH and P-PAH probes measured as 85±1 and 95±2^{o}, respectively.

Keywords: Fluorescent probe; Fe (III) sensor; Polymer film; Chemosensor; Poly(azomethine-urethane); Contact angle's.