

A Paper Based Sensor for Mercury Ion Detection

Authors : Emine G. Cansu Ergun

Abstract : Conjugated system based sensors for selective detection of metal ions have been taking attention during last two decades. Fluorescent sensors are the promising candidates for ion detection due to their high selectivity towards metal ions, and rapid response times. Detection of mercury in an environment is important since mercury is a toxic element for human. Beyond the maximum allowable limit, mercury may cause serious problems in human health by spreading into the atmosphere, water and the food chain. In this study, a quinoxaline and 3,4-ethylenedioxy thiophene based donor-acceptor-donor type conjugated molecule used as a fluorescent sensor for detecting the mercury ion in aqueous medium. Among other various cations, existence of mercury resulted in a full quenching of the fluorescence signal. Then, a paper based sensor is constructed and used for mercury detection. As a result it is concluded that the offering sensor is a good candidate for selective mercury detection in aqueous media both in solution and paper based forms.

Keywords : Conjugated molecules , fluorescence quenching, metal ion detection , sensors

Conference Title : ICCEAC 2020 : International Conference on Chemical Engineering and Applied Chemistry

Conference Location : Rome, Italy

Conference Dates : September 17-18, 2020