Title : Synthesis and Chemosenser Property of Aza-borondipyrromethene for Selective Ion Detection

Author : Ms. Pornthip Onthong **Student ID :** 640510062

Major : Chemistry

Advisor : Assistant Professor Dr. Kullapa Chanawanno

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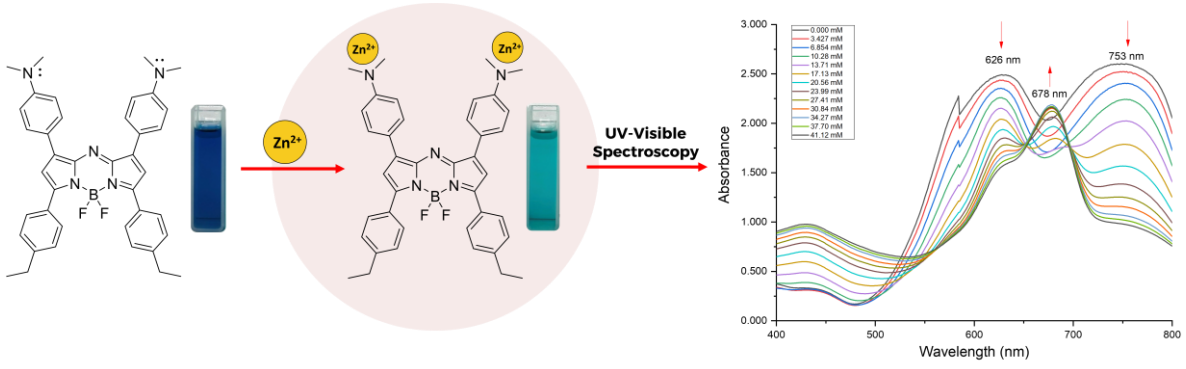
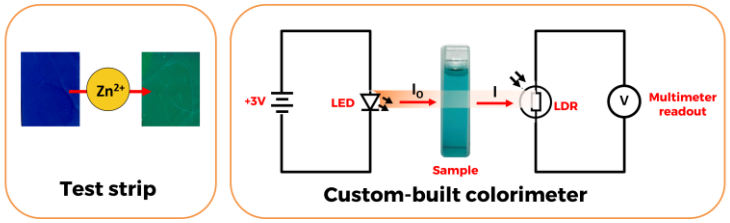
ABSTRACT

An aza-borondipyrromethene (aza-BODIPY) **PO4** was synthesized and studied for chemosensor properties for selective ion detection. The **PO4** bearing two dimethylaniline moieties selectively bind with Zn^{2+} in solution phase. Spectroscopic properties and binding abilities of **PO4** with Zn^{2+} were investigated via spectroscopic titration by gradual addition of zinc chloride into the **PO4** solution. The new absorption band appeared and the color changing of **PO4** had occurred due to the Zn^{2+} inhibited charge transfer of dimethylaniline with aza-BODIPY core. Moreover, hypothesis verification is done through ultraviolet-visible spectroscopy, ^{1}H-nuclear magnetic resonance, and Fourier transform infrared spectroscopy. In addition to chemosensor study using spectroscopic method, the custom-built colorimeter was also used and the results from two methods were compared. The limit of detection (LOD) values of spectroscopic technique and colorimeter were found to be 0.266 mM and 0.427 mM, respectively. The **PO4** as colorimetric sensor for the detection and analysis of Zn^{2+} by the custom-built colorimeter was demonstrated.





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