



**New Analytical Technique for Determination of Trace Amount of Fe (III)
by Using UV-Visible Spectrophotometric Method with Photometric Reagent**

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ABSTRACT

3-(2-Hydroxyphenylimino)indolin-2-one [HPI2O], a new Analytical reagent is proposed as a sensitive spectrophotometric reagent for Fe(III). The reagent HPI2O is synthesized in the laboratory and characterized by NMR, IR and elemental analysis. A selective spectrophotometric method is presented for the trace determination of Fe(III) using HPI2O as spectrophotometric reagent ($\lambda_{max}=430$ nm) in acidic aqueous solution (pH=4.2). The Beer's law is obeyed in the concentration range from 1 to 5 ppm. The HPI2O forms a 1:2 brown coloured complex. The Sandell's Sensitivity is $0.016194 \mu\text{g cm}^{-2}$ with molar absorptivity $3448.7 \text{ L mol}^{-1} \text{ cm}^{-1}$. The proposed method has been successfully applied to the determination of Iron in various real and synthetic samples. The precision and the accuracy obtained were satisfactory.

Keywords: Iron, Spectrophotometric determination, n-Butanol, Reagent, HPI2O.
