Available online at **www.joac.info**

ISSN: 2278-1862

Journal of Applicable Chemistry

2016, 5 (1): 242-247

(International Peer Reviewed Journal)

Simultaneous Spectrophotometric Determination of Iron (II) And Gallium(III) In Micellar Media Using 2-Hydroxy-3-Methoxybenzaldehyde-Isonicotinoylhydrazone (HMBAINH)

V.S Anusuya Devi[1*], P. Govinda Chowdary[2] and L. Parashuram[1]

1. Department of Chemistry, New Horizon College of Engineering, Bangalore, **INDIA**
2. Department of Chemistry, Vignan Institute of Technology and Sciences, Deshmuki, Telangana, **INDIA**

Email: anukmp@gmail.com

Accepted on 16th December 2015

ABSTRACT

A simple and sensitive derivative spectrophotometric method for simultaneous determination of iron and gallium using 2-hydroxy-3-methoxybenzaldehydeisonicotinoylhydrazone (HMBAINH) as a selective analytical reagent was developed. The complexes of metal ions with HMBAINH were formed immediately in acidic media at pH 5.0 in presence of aqueous solution of nonionic surfactant Triton-X100. The zero-crossing measurement technique was found suitable for the direct measurement of the second derivative value of [Fe(II)-HMBAINH] and [Ga(III)-HMBAINH] at 442 nm and 412 nm respectively. The concentration ranges applicable for the determination of Fe (II) and Ga (III) are 0.14-1.396 μg mL^{-1} and 0.266-2.661 μg mL^{-1} with detection limits 0.013 μg mL^{-1} and 0.085 μg mL^{-1} respectively. Analysis of synthetic samples of magnetic garnets showed that this method can be successfully used for simultaneous determination of iron and gallium in real samples.

Keywords: Iron, Gallium, HMBAINH, Derivative spectrophotometry, Simultaneous determination.