



Determination of Palladium (II) Using Cinnamaldehyde Isonicotinoyl Hydrazone by Derivative Spectrophotometric Technique

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ABSTRACT

A simple and derivative spectrophotometric method has been developed for the determination of palladium (II) using cinnamaldehyde isonicotinoyl hydrazone (CINH) reagent in aqueous medium. Palladium (II) forms a yellow colored water soluble complex with the CINH reagent in acidic buffer range of pH 3.0-6.0. Beer's law obeyed in the range 0.106 to 2.128 $\mu\text{g mL}^{-1}$ of Pd (II) λ_{max} at 412 nm. The molar absorptivity and Sandell's sensitivity of colored species are $1.03 \times 10^4 \text{ L.mol}^{-1}\text{cm}^{-1}$ and $0.0054 \mu\text{g cm}^{-2}$ respectively. Palladium (II) forms (M: L) 1:1 complex and stability constant of the complex is 9.3×10^4 . The developed derivative spectrophotometric methods were employed for the determination of palladium (II) in alloy samples and hydrogenation catalyst samples.

Keywords: Derivative spectrophotometry, Cinnamaldehyde isonicotinoyl hydrazone (CINH), Palladium (II), Alloy samples.
