



Short Communication

Simple, Selective and Non-Extractive Spectrophotometric Determination of Co (II) Using 2-aminoacetyl-3-hydroxy-2-naphthoic hydrazone

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ABSTRACT

2-aminoacetyl-3-hydroxy-2-naphthoic hydrazone (AHNH) is a new chromogenic reagent used for the determination of cobalt (II) by simple, rapid, sensitive, selective, direct and derivative spectrophotometric method. 2-aminoacetyl-3-hydroxy-2-naphthoic hydrazone forms a light pink coloured Co (II) - 2-aminoacetyl-3-hydroxy-2-naphthoic hydrazone complex shows maximum absorbance at 450 nm at pH 2.0. The reagent blank shows negligible absorbance. Hence, the analytical studies were carried out at 450nm. The method obeyed Beer's law validity in the range 0.294-2.94 $\mu\text{g mL}^{-1}$. The molar absorptivity and Sandell's Sensitivity are calculated and found as $1.00 \times 10^4 \text{ l mol}^{-1} \text{ cm}^{-1}$ and $0.00581 \mu\text{g cm}^{-2}$. The composition of the complex has 1:1 and stability constant of the complex was calculated as 8.38×10^4 . The effect of various diverse ions also incorporated. The amount of cobalt present in some alloy steel samples was determined by the present method and the results obtained were compared with certified values, the results are quite encouraging compared with certified values.

Keywords: 2-aminoacetyl-3-hydroxy-2-naphthoic hydrazone, Cobalt (II), Spectrophotometry, alloy steel samples.
