



**Extractive and Spectrophotometric Determination of Cobalt (II)  
Using 2-(5- Bromo-2- Oxindolin-3- Ylidene) Hydrazinecarbothioamide  
as Analytical Reagent**

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Accepted on 19<sup>th</sup> March 2016

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**ABSTRACT**

*2-(5-bromo-2-oxindolin-3-ylidene) hydrazine carbothioamide, [5-Bromoisatin thio semi carbazone (HBITSC)] extracts Cobalt (II) quantitatively (99.5%) into n-amyl alcohol. The n-amyl alcohol extract shows an intense peak at 510nm ( $\lambda$  max). Beer's law is obeyed over the Co (II) concentration range 1.0 – 5.0ug mL<sup>-1</sup>. The molar absorptivity is 4125.7 L mol<sup>-1</sup> cm<sup>-1</sup> at 510 nm and Sandel's sensitivity is 14.28 ng cm<sup>2</sup>·<sup>-1</sup>. The composition of extracted species found to be 1:2 (Co: HBITSC) by Job's continuous variation and Mole ratio method. Interference by various ions has been studied. The proposed method has been applied for the determination of Co (II) in pharmaceutical samples.*

**Keywords:** HBITSC, Cobalt, Spectrophotometry, Molar Absorptivity.

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