

S Y N O P S I S

The dissertation entitled, ' Photometric determination of some metals by thiosemicarbazone ' consists of five chapters and embodies accounts of : Chapter I, Analytical aspect of thiosemicarbazone; Chapter II, introduction synthesis and characterization of 6-methyl 2-chloroquinoline 3-carbaldehyde thiosemicarbazones; Chapter III, Spectrophotometric determination of Cobalt(II) by 6-methyl 2-chloroquinoline 3-carbaldehyde thiosemicarbazone (6-me-QAT), Chapter IV and Chapter V, Spectrophotometric determination of Iron(III) and Nickel(II) with 6-methyl 2-chloroquinoline 3-carbaldehyde thiosemicarbazone respectively.

Chapter I :

It includes the description of theory of thiosemicarbazone. As far as present study is concerned the review of thiosemicarbazones used in analytical chemistry is given in this chapter.

Chapter II :

This chapter covers on account of the thiosemicarbazones introduction. This chapter also includes synthesis of 6-methyl 2-chloroquinoline 3-carbaldehyde thiosemicarbazone and its characterization.

Chapter III :

The study of spectrophotometric determination of Cobalt(II) is made in this chapter. Cobalt(II) forms 1:1 complex with 6-Me-QAT. The sandell sensitivity for Cobalt(II) is $0.01 \mu\text{g cm}^{-2}$ at 400 nm.

Chapter IV :

In this chapter Spectrophotometric procedure for determination of Fe(III) using 6-methyl 2-chloroquinoline 3-carbaldehyde is presented. Fe(III) forms 1:1 complex with 6-Me-QAT. The sandell sensitivity for Fe(III) is $0.016 \mu\text{g cm}^{-2}$ at 300 nm.

Chapter V :

The study of spectrophotometric determination of Ni(II) is made in this chapter. Nickel(II) forms 1:1 complex with 6-Me-QAT. The sandell sensitivity for Nickel (II) is $0.039 \mu\text{g cm}^{-2}$ at 400 nm.

The summary of results is given below.

Reagent	Metal ion studied	pH	Composition of the complex (metal to reagent)	max	Molar extinction coefficient	Sandell sensitivity
6-Me-QAT	Co(II)	6	1:1	400	2.626×10^4	$0.01 \mu\text{g cm}^{-2}$
6-Me-QAT	Fe(III)	5	1:1	380	2.548×10^4	$0.016 \mu\text{g cm}^{-2}$
6-Me-QAT	Ni(II)	8	1:1	400	3.120×10^4	$0.039 \mu\text{g cm}^{-2}$