

**EQUILIBRIUM STUDIES ON Co (III) CORRINOIDS
COMPLEXES AND THEIR DERIVATIVES**

A THESIS

**Submitted in Partial Fulfillment's of the
Requirements of the M. Sc. Degree in Chemistry**

Presented By

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B.Sc. (Chemistry – Bio Chemistry) 1999**

To

**The Department of Chemistry, Faculty of Science
Ain Shams University, Abbassia, Cairo, Egypt**

Supervised By

**Prof. Dr. Mohamed Samir Hamza
Dr. Ahmed Saad Hussein**

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**CHAIRMAN
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Prof. Dr. Elsaid Ahmed Soliman

Note

Beside the Work done in this the candidate has attended Post-graduate courses for one year in advanced inorganic and analytical chemistry including the following topics:

1. Advanced instrumental chemical analysis.
2. Advanced chromatographic and separation sciences.
3. Advanced electro- and electroanalytical chemistry.
4. Mechanisms of inorganic reactions.
5. Group theory and computer applications in chemistry.
6. Molecular spectroscopy.
7. Organometallic chemistry.
8. Radiation and radioanalytical chemistry.
9. English language.

He has successfully passed a written examination in these topics.

Prof. Dr. Elsaid Ahmed Soliman

**CHAIRMAN
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List of abbreviation

γ, β and α	The visible bands α and β and the sort band γ in UV spectrum.
λ	Wavelength (nm).
[]	Molar concentration.
A	Absorbance.
A_{∞}	Final absorbance.
A_0	Initial absorbance.
ACCbi	Aquacyanocobinamide.
ACCbs	Aquacyanocobyric acid heptamethylester.
ACCbs-Pr	Aquacyanocobyric acid heptapropylester.
B_{12}	Vitamin B_{12} (Cyanocobalamin).
Cbi	Cobinamide.
Cbs	Vitamin B_{12} derivatives containing COOCH_3 groups in the side chains "Cobester".
DCCbs	Dicyanocobyric acid heptamethylester.
DCCbs-Pr	Dicyanocobyric acid heptapropylester.
Et	Ethyl.
$E_T(30)$	An empirical parameter of solvent polarity and defined as the transition energy of the dissolved 2, 6-diphenyl-4-(2, 4, 6-triphenyl-1-pyridinio)phenoxide (betaine dye) measured in Kcal/mol [7].
EtCbs-Pr	Ethylcobyric acid heptapropylester.
k	Rate constant.
K	Equilibrium constant.
K_a	Acid dissociation constant.
ln	Logarithm to base e.
log	Logarithm to base 10.
Me	Methyl.
MeCbs-Pr	Methylcobyric acid heptapropylester.
n	The slope of a straight line of The relationship $\log (A_i - A_x / A_x - A_{\infty})$ versus $\log [L]^n$.
pK_a	Acid dissociation constant.
R	Alkyl.

SCbs	Sulphitocobyritic acid heptamethylester.
SCbs-Pr	Sulphitocobyritic acid heptapropylester.
UV-Vis	Ultraviolet-Visible.
V	Vinyl.
X	Trans-ligand whose effect is being studied.
X-Co-OH ₂	Aquo-corrinoid in which only the axial ligands are shown.
Z	Nucleophile.

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