Ain Shams University
Faculty of Education
Chemistry Department

Synthesis and physicochemical studies of metal complexes of some new Shciff bases containing 1,3-thiazine-2,6(3*H*)-dione

A Thesis Submitted
By

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B.Sc. & Ed. 2007

For The Degree of Master

For the Teacher's Preparation
In Science
(Inorganic Chemistry)

Supervisors

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Under supervision of

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This thesis has been approved by

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Shery Anwar Fahmy Ibrahim

List of abbreviations

DMF	Dimethylformamide
DMSO	Dimethylsulfoxide
AHTD	5-Acetyl-4-hydroxy-2*H*-1,3-thiazine-2,6(3*H*)dione
EDTA	Ethylene diamine tetraacetic acid (disodium salt)
H_2L_a	6-hydroxy-5-[*N*-(2-{[(1*E*)-1-(6-hydroxy-2,4-dioxo-3,4-dihydro-2*H*-1,3-thiazin-5-yl)ethylidene]amino}ethyl) ethanimidoyl]-2*H*-1,3-thiazine-2,4(3*H*)-dione,
H_2L_b	5,5'-{propane-1,3-diylbis[nitrilo(1*E*)eth-1-yl-1-ylidene]}bis(4-hydroxy-2*H*-1,3-thiazine-2,6(3*H*)-dione)
H_2L_c	5'-{iminobis[ethane-2,1-diylnitrilo(1*E*)eth-1-yl-1-ylidene]}bis(4-hydroxy-2*H*-1,3-thiazine-2,6(3*H*)-dione)
a.m.u	Atomic mass unit
g.f.w	Gram formula weight
μ_{eff}	Magnetic moment
β	Nephelauxetic parameter
DN	Donor number
l.f.s	Ligand field stabilization
Δ_o	Ligand field stabilization energy
TS	Tanabe-Sugano
E_{HOMO}	High occupied Molecular Orbital
E_{LUMO}	Low Unoccupied Molecular Orbital
E_{gap}	$= E_{HOMO} - E_{LUMO}$
EA	= total energy of free ligand – total energy of complex
TGA	Thermal gravimetric analysis
DrTGA	Derivative thermal gravimetric analysis
ΔG	Free energy change

LIST OF ABBREVIATIONS

ΔH	Enthalpy change
ΔS	Entropy change
α	Weight loss
E_a	Heat of activation
TG	Thermograms
R	Universal gas constant (8.3144 J mol^{-1} K^{-1})
A	Pre-exponential factor
Φ	Heating rate
r	Correlation coefficient
k	Boltzmann's constant (1.388 x 10^{-23} J K^{-1})
h	Plank's constant (6.626 x 10^{-34} J Hz^{-1})
AN^{M+n}	Acceptor number of metal ions

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