SYNTHESIS, CHARACTERIZATION AND TOTAL PHENOLIC CONTENT OF Ni(II) AND Cr(III) HYDROXAMIC ACIDS COMPLEXES

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NOVEMBER 2008

ACKNOWLEDGEMENTS

First of all, I would like to express my gratitude to Allah S.W.T for giving me opportunity to complete my thesis work. Sincere gratitude to my supervisor, Dr. Karimah Kassim, my co-supervisor, Prof Madya Dr. Hadariah Bahron and Puan Sharifah Rohaiza Syed Omar for their entire valuable guidance, advices, comments and infinite patience throughout this project. I also want to thank Encik Adnan, Encik Khairul, Encik Din for their assistance in using the laboratory facilities.

I also wish to express my sincere thank to my father, Encik Bari bin Suriaman, my mother, Abang Edi, Kak Oya, Abang As and Iwan for their infinite patience, abundant love and support. Last but not least, I would like to express my appreciation to all my friends, especially Lini, Lily, Zalina, students of ASB6KM and ASB5KD and not forget to the second important person in my life for their never ending support and encouragement in completing this project. May God bless you all.

Suhainiza binti Bari

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ABSTRACT

SYNTHESIS, CHARACTERISATION AND TOTAL PHENOLIC CONTENT OF Ni(II) AND Cr(III) HYDROXAMIC ACIDS COMPLEXES

Four complexes of Hydroxamic acid ligands, 2-pyridinehydroxamic acid and salicylhydroxamic acid with metal Ni(II) and Cr(III) have been prepared in ratio 2:1 (hydroxamic acids : metal salt). New hydroxamic acid complexes bis(salicylhydroximato)Nickelate(II) derived from salicylhydroxamic acid and Ni(II) acetate and bis(2-pyridinehydroxamato)Nickel(II) derived from 2-pyridinehydroxamic acid and Ni(II) acetate using the same ratio were successfully synthesized. The hydroxamic acid metal complexes have been characterized by using elemental analysis, UV-Vis spectrophotometry, magnetic susceptibility and infrared spectroscopy. These complexes also have been tested to know their total phenolic content (TPC) or the antioxidant compound. The results show that the $Ni(sha)_2.MeOH$ complex have higher total phenolic content compared to $Ni(pyha)_2.MeOH.H_2O$ complex.

CHAPTER 1

INTRODUCTION

1.1 Background and problem statement

Hydroxamic acids, RCONR'OH, have been known since 1869 was being the most important families of organic bioligands. Hydroxamic acids or catecholate group have the capability to coordinate iron(III) which is insoluble under physiological conditions became water soluble, very stable, high spin octahedral complexes. A remarkable feature of siderophores, which is crucial to their functions, is their ability to selectively bind iron(III) over other metal ions, which may be poisonous. Siderophores also have high affinities for other tripositive metal ions such as aluminium(III), but their complexes are less stable than those iron(III). The application of hydroxamic acids became increases because of their roles a potent and peroxidises, hydrolases,