

**SYNTHESIS, CHARACTERIZATIONS OF Co(II) COMPLEX OF
N,N'-BIS(SALICYLIDENE)ETHYLENEDIAMINE
AS ANTI CORROSION SCREENING**

NURFARHANA BINTI HUSIN

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This Final Year Project Report entitled “**Synthesis, Characterizations of Co(II) Complex of *N,N'*-Bis(Salicylidene)Ethylenediamine as Anti Corrosion Screening**” was submitted by Nurfarhana Binti Husin in partial fulfillment of the requirements for the Degree of Bachelor of Science (Hons.) Chemistry, in the Faculty of Applied Sciences, and was approved by

Siti Noriah Binti Mohd Shotor
Supervisor
B. Sc. (Hons.) Chemistry
Faculty of Applied Sciences
Universiti Teknologi MARA
72000 Kuala Pilah
Negeri Sembilan.

Dr. Sheikh Ahmad Izaddin
Bin Sheikh Mohd Ghazali
Project Coordinator
B. Sc. (Hons.) Chemistry
Faculty of Applied Sciences
Universiti Teknologi MARA
72000 Kuala Pilah
Negeri Sembilan

Mazni Binti Musa
Head of Programme
B. Sc. (Hons.) Chemistry
Faculty of Applied Sciences
Universiti Teknologi MARA
72000 Kuala Pilah
Negeri Sembilan

Date : _____

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ABSTRACT

SYNTHESIS, CHARACTERIZATIONS OF Co(II) COMPLEX OF *N,N'*BIS(SALICYLIDENE)ETHYLENEDIAMINE AS ANTI CORROSION SCREENING

The synthesis, characterizations and anti corrosion activity on Schiff base ligand and its Co(II) complex namely *N,N'*-Bis(salicylidene)ethylenediamine and *N,N'*-Bis(salicylidene)ethylenediamine Co(II) complex was conducted in this research project. *N,N'*-Bis(salicylidene)ethylenediamine were synthesized from the reaction of salicylaldehyde with ethylenediamine undergo further insertion with Co(II) metal center to produce *N,N'*-Bis(salicylidene) ethylenediamine Co(II) complex. The ligand and complex were characterized by using elemental analysis, UV-Vis and IR spectroscopy. Through the IR spectra, it was found that the Co(II) metal coordinate through the azomethine-*N* and phenolic-*O* producing a bidentate ligand. From the UV-Vis data showed the charge transfer from nonbonding orbital of azomethine nitrogen to half-filled *d*-orbitals of Cobalt(II) at 382 nm. The anti corrosion screening has been done with different concentration which are 0.1 M, 0.01 M and 0.001 M of inhibitors. The results showed that the inhibition efficiency of ligand and complex were increased with increased in concentration of inhibitors. However, the *N,N'*-Bis(salicylidene)ethylenediamine ligand possess a good corrosion inhibitor compared to the complex. This maybe was due to the presence of lone pair of electrons in nitrogen and oxygen atoms along with the delocalized π electron. The chemical adsorption of metal complex was less than ligand because the lone pair was shared with the metal ion that was reduced the effective adsorption on mild steel surface.