

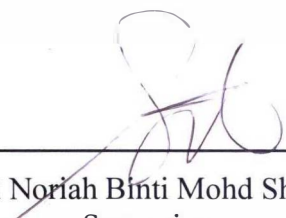
**SYNTHESIS, CHARACTERIZATIONS AND ANTI-CORROSION
SCREENING OF Ni(II) COMPLEX DERIVED FROM *N,N*-
BIS(SALICYLIDENE)ETHYLENEDIAMINE**

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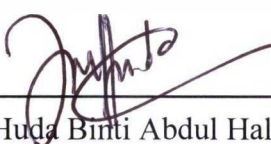
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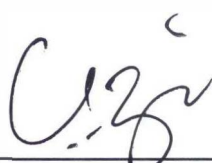
This Final Year Project Report entitled “**Synthesis, Characterization and Anti-Corrosion Screening of Ni(II) Complex Derived From *N,N*-bis (Salicylidene)ethylenediamine**” was submitted by Sabariah Binti Mohd Rofi, in partial fulfilment of the requirements for the Degree of Bachelor of Science (Hons.) Chemistry, in the Faculty of Applied Sciences, and was approved by



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ABSTRACT

SYNTHESIS, CHARACTERIZATIONS AND ANTI-CORROSION SCREENING OF Ni(II) COMPLEX DERIVED FROM *N,N*- BIS(SALICYLIDENE)ETHYLENEDIAMINE

The study was conducted to synthesize, characterize and perform anti-corrosion screening on *N,N*-bis (salicylidene) ethylenediamine or (Salen) and its Ni(II) complex namely [Ni (*N,N*-bis (salicylidene) ethylenediamine)hydrate]. The *N,N*-bis (salicylidene) ethylenediamine and its metal complex, [Ni (*N,N*-bis (salicylidene) ethylenediamine) hydrate] were successfully synthesized by condensation process. Then the synthesized compounds were characterized by elemental analysis, ATR-IR, UV-Vis spectroscopy, molar conductivity and melting point determination. The results of elemental analysis for the synthesized compounds were in good agreement with the theoretical value. From the IR spectrum for ligand, an important peak of $\nu(\text{C}=\text{N})$ was observed at 1631 cm^{-1} which confirm the successful formation of Schiff base. This value shifted to lower frequency after complexation showing that the azomethine nitrogen was involved in coordination with metal center. The UV-Vis spectroscopy analysis shows two types of transition in both compounds which were assign for $\pi-\pi^*$ and $n-\pi^*$ at 215-330 nm and 215-420 nm respectively. The presence of band $> 400\text{ nm}$ in UV-Vis spectral for complex were assigned for *d-d* transition. The molar conductivity result shows that the Ni(II) complex was non-electrolyte with formula $[\text{Ni}(\text{C}_{16}\text{H}_{14}\text{N}_2\text{O}_2)]\cdot\text{H}_2\text{O}$. The corrosion inhibition study displayed the inhibitor efficiency of Ni(II) complex was higher than free ligand. The inhibitor concentration also influence the corrosion rate where the rate of corrosion increase as the inhibitor concentration decrease.