SYNTHESIS, CHARACTERIZATIONS AND CORROSION INHIBITION SCREENING OF SCHIFF BASE LIGAND AND ITSCOBALT (II) COMPLEX

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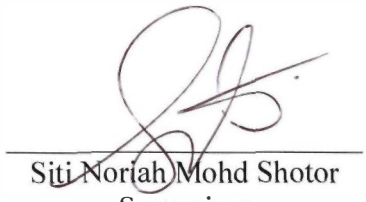
This Final Year Project Report entitled "**Synthesis, Characterization And Corrosion Inhibition Screening Of Schiff Base Ligand And Its Cobalt(II) Complex**" was submitted by Nurul Shuhada Shaharuddin, in partial fulfilment of the requirements for the Degree of Bachelor of Sciences (Hons.) Chemistry, in the Faculty of Applied Sciences, and was approve by



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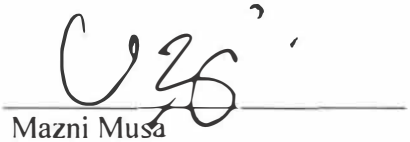

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ABSTRACT

SYNTHESIS, CHARACTERIZATION AND CORROSION INHIBITION SCREENING OF SCHIFF BASE LIGAND AND ITS COBALT(II) COMPLEX

N,N-Bis (4-chlorobenzaldehyde)-*o*-phenylenediamine and Co(II) complex were synthesized by using condensation method and also have been characterized by using elemental analyser (CHNS), ATR-IR and Ultraviolet-Visible (UV-Vis) spectroscopy, molar conductivity and melting point determination. The melting points of the ligand and complex are 125 °C and >300 °C respectively. The elemental analysis found that the actual percentage of C, H and N for ligand and complex were in good agreement with the theoretical percentage. The major bands that are expected in IR spectral data for ligand were at 3100 cm^{-1}, 1640 $cm^{-1}$and 1250 cm^{-1} which were assigned for ν(N-H), ν(C=N) and ν(C-N) respectively. All these bands were shifted to higher frequency after complexation between ligand and Co(II) metal center occurred showing that the ligand coordinated through the azomethine nitrogen. A new band assigned for ν(M-N) peak was observed at 750 cm^{-1} which confirm the bonding between ligand and Co(II) metal center. For UV-Vis analysis, at 415 nm was assigned for d-d transition for metal center. For anti corrosion screening, the general trends were observed where as the concentration of inhibitor increase, the corrosion rate will decrease and the percentage of inhibition efficiency will increase. The Co(II) complex shows a better corrosion inhibition efficiency compared to the ligand.