

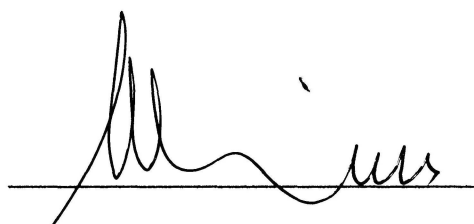
**ADSORPTION OF BASIC METHYLENE BLUE (BLUE 90) DYE BY  
CALCINE AND UNCALCINED ZnALCO<sub>3</sub> LDH**

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## TABLE OF CONTENTS

	<b>Page</b>
<b>ACKNOWLEDGEMENTS</b>	iii
<b>TABLE OF CONTENTS</b>	iv
<b>LIST OF FIGURES</b>	vi
<b>LIST OF APPENDICES</b>	vii
<b>ABSTRACT</b>	viii
<b>ABSTRAK</b>	viii
<b>CHAPTER 1 INTRODUCTION</b>	
1.1 Problem statement	1
1.2 Objectives of study	2
1.3 Significance of study	2
<b>CHAPTER 2 LITERATURE RIVIEW</b>	
2.1 Layered Double Hydrotalcite(HT)	3
2.2 Structure of Hydrotalcite (HT)	4
2.2 Application of Hydrotalcites (HT)	5
2.3 Adsorption	5
2.4 Introduction of dye	8
2.5 Clasification Of Dye	9
2.6 Basic Dye	10
2.7 Methelene Blue (MB 90)	12
<b>CHAPTER 3 MATERIALS AND METHODS</b>	
3.1 Chemicals	13
3.2 Equipments and Instrument	13
3.3 Preparation of ZnAlCO <sub>3</sub> Hydrotalcite	15
3.4 Characterization of hydrotalcite (HT)	16
3.4.1 Powder X-Ray Diffraction (XRD)	16
3.4.2 Fourier Transform Infrared Spectroscopy (FTIR)	16
3.4.3 Field Emission Electron Microscope (FESEM)	16
3.5 Adsorption properties Experiments	17
3.5.1 Adsorption efficiency	17
3.5.2 Adsorption capacity	17
3.5.3 Langmuir isotherm	17
3.5.4 Freundlich isotherm	17
3.6 UV- Visible Spectrophotometer	18

## ABSTRACT

Layered Double Hydroxides (LDH) were found to have higher anionic exchange capacity as removal dye contamination from aqueous solution. In this study,  $\text{ZnAlCO}_3$  was synthesized by using co precipitation method. Different parameters that effect the adsorption process were studied which includes contact time, initial concentration, adsorbent dosage, initial pH and particle size. The result of contact time indicate that the maximum percentage uptake of methelene blue by LDH is 40% was achieve in 180 min and for the effect of initial concentration in 2ppm. The result for adsorbent dosage indicates that the maximum uptake of MB 90 is 42.3% was achieve in 1.5 g of LDH and effect of pH is 30.44% at pH 2. for particle size, the maximum % uptake are 37.8% at 212 um. Those are for uncalcine LDH and for calcine LDH, there are just slightly increase in the percentage uptake about 10 – 20%.Result shown that the adsorption isotherm will fitted only in Langmuir and not for freundlich. The maximum capacity adsorbent of freundlich is 0.11 mg/g lower that langmuir 5.13 mg/g.From the characterization study using FTIR, XRD and FESEM, it confirm that the  $\text{ZnAlCO}_3$  are the true LDH, and here it confirmed that  $\text{ZnAlCO}_3$  calcine and uncalcine was effective removal of MB 90 from aqueous solution.