PRELIMINARY STUDY Cocos nucifera FROND POWDER TREATED WITH SULPHURIC ACID AS LEAD ADSORBENT

NUR FADHILAH BINTI HASSAN

Final Year Project Proposal Submitted in Partial Fulfillment of the Requirement for the Degree of Bachelor of Science (Hons.) Chemistry in the Faculty of Applied Scinces

JANUARY 2017

ABSTRACT

PRELIMINARY STUDY ON *Cocos nucifera* FROND POWDER TREATED WITH SULPHURIC ACID AS LEAD ADSORBENT

This preliminary study about the availability of coconut frond treated with Sulphuric acid used to check its characteristics in removing lead in lead aqueous solution by characteristics of pH slurry, pH zero point charge and FTIR analysis. The treatment of sulphuric acid on coconut frond by electrophilic addition reaction The maximum adsorption of the aqueous lead solution was at dosage of 0.08 g with percent removal of 99.78 %. An initial pH in the range of 6–9 was favorable for the lead removal by the natural adsorbents. Adsorption can be used in removing heavy metal using treated coconut frond with sulphuric acid.

TABLE OF CONTENTS

		PAGE
ACKNOW	LEDGEMENT	iii
TABLE OF CONTENTS		iv-v
LIST OF TABLES LIST OF FIGURES		vi
		vii
LIST OF A	ix	
ABSTRAT	x	
ABSTRAK	xi	
CHAPTER	1: INTRODUCTION	
1.1	Background	1-5
1.2	Problem Statement	6
1.3	Significance of Study	6-7
1.4	Objectives	7-8
CHAPTER	2: LITERATURE REVIEW	
2.1	Coconut Frond	9
2.2	Natural Adsorbent	10
2.3	Agro Waste	11
2.4	Lead	12
2.5	Chemical Treatment	13
2.6	Biosorption	13-14
2.7	Biomaterial	14-15
CHAPTER	3. METHODOLOGY	

3.1	Materials		
	3.1.1 Raw Materials	16	
	3.1.2 Chemicals	16	
3.2	Apparatus	17	
2 2			

3.3 Experimental

	18	
	3.3.2 Adsorbent Characteristics	19
	3.3.2.1 Functional group identification	
	using FTIR	20
	3.3.2.2 pH of slurry	21
	3.3.3 Adsorption Experiments	21-22
CHAPTER	4: RESULT AND DISCUSSION	
4.1	pH Slurry of Adsorbent	23
4.2	Functional group identification using FTIR	23-24
4.3	Effect of Adsorbent Dose	25-26
4.4	pH Zero Point Charge of Adsorbent	27
CHAPTER	5: CONCLUSION AND RECOMMENDATIONS	
5.1	Conclusion	28-29
5.2	Recommendations	29
CITED RE	FERENCES	30-34
APPENDIC	35 36-37	
CURRICUI		

LIST OF FIGURES

Figure	Caption	Page
1.1	Structure of H ₂ SO ₄	5
2.1	Cocos nucifera frond	10
3.1	SACF	19
3.2.	SACF with Pb adsorbed preparation	20
4.1	Graph of pH zero point charge SACF	24
4.2	FTIR analysis of raw coconut frond pellet	25
4.3	FTIR analysis of SACF pellet	25
4.4	FTIR analysis of Pb adsorb on SACF pellet	26
4.5	Effect of SACF dosage on Pb(II) removal.	27