

**DETERMINATION OF CHEMICAL COMPONENTS OF
GRADED COCONUT AS POTENTIAL FILLER IN COMPOSITE**



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EXECUTIVE SUMMARY

The abundance of natural fibre base agro by product such as rice husk, sugar bagasse and coconut shell will cause environment problem if efficient solid waste management are not taken. Due to environmental awareness, using natural fibre as filler becomes crucial nowadays. There are lots of special inherent in natural fibre compared to inorganic fillers such as biodegradability, minimal health hazards, an eco-friendly, availability, sustainability, carbon-neutrality, has a reductions in weight and less reliance on petrochemical sources. However, it is complicated in term of cell geometry, morphology and chemical composition. Using natural filler reinforced materials can help to reduce the dependence on non-renewable material sources, lower pollution and green house emission. Nevertheless, it has some drawbacks such as moisture uptake, quality variations and low thermal stability. Grated coconut has the potential to replace the inorganic filler in composite. Besides can be used as feedstock, it is also agro waste carbon-neutrality which offer numerous benefits, such as reduced dependence on synthetic filler, low cost, easy to handle and safe. The benefits of chemical component of it such as cellulose, hemicelluloses, and lignin play important role in major framework components of the fibre. Lots of data regarding chemical component of natural fibre reported by researchers, but few studied about the potential of coconut as reinforced composite, hence, there was lack information of chemical component of grated coconut. Consequently, this research aim to determine the physicochemical component and the potential of grated coconut as bio-composite. In this research, moisture content and chemical analysis in accordance to official method of analysis of AOAC international were used as a guideline. The result shows that, moisture content and transmittance in the grated coconut had achieved the percentage standard to become a bio-composite product. However, the chemical composition analysis shows that only lignin shows the potential of grated coconut to be a good product based on its content. The other chemical analysis that were alpha-cellulose, holo-cellulose and hemicellulose shows that grated coconut has less potential to become bio-composite. Nevertheless, it is recommended to reinforce the grated coconut with other chemical or natural fiber in order to shows its potential to become composite material that contributes the strength enhancement of the matrix or fiber.

3.1.3 Apparatus	10
3.2 Methods	10
3.2.1 Sample extraction	10
3.2.2 Determination of diameter and microstructure	10

TABLE OF CONTENT

CONTENTS	PAGE
ACKNOWLEDGEMENT	ii
EXECUTIVE SUMMARY	iii
TABLE OF CONTENT	iv
1.0 INTRODUCTION	1
1.1 Background of study	1
1.2 Problem Statement	2
1.3 Significance of Study	2
1.4 Objective	3
2.0 LITERATURE REVIEW	4
2.1 Bio-composites and Composite	4
2.2 Structure and Properties of Natural Fibres	5
2.2.1 Cellulose	5
2.2.2 α -cellulose	5
2.2.3 Hemicelluloses	5
2.2.4 Lignin	6
2.3 Chemical Composition of Natural Fibers	7
2.4 Standard Physical and Chemical Composition of Bio-composite	7
3.0 METHODOLOGY	9
3.1 Materials	9
3.1.1 Raw material	9
3.1.2 Chemicals	9
3.1.3 Apparatus	10
3.2 Methods	10
3.2.1 Sample extraction	10
3.2.2 Determination of diameter and microstructure	10

3.2.3	Preparation of sample for chemical analysis	11
3.2.4	Determination of moisture content	12
3.2.5	Determination of turbidity	12
3.2.6	Chemical analysis	13
3.2.6.1	Lignin content	13
3.2.6.2	Holo-cellulose content	14
3.2.6.3	α -Cellulose content	15
3.2.6.4	Hemicellulose content	15
3.3	Data Analysis	15
4.0	RESULTS AND DISCUSSION	17
4.1	Extraction of Grated Cocos Nucifera	17
4.2	The Diameter of Grated Coconut (Cocos Nucifera)	17
4.3	Microstructure of Grated Coconut (Cocos nucifera)	19
4.4	Moisture content	21
4.5	Turbidity	23
4.6	Chemical Analysis	23
4.6.1	Lignin content analysis	24
4.6.2	Holo-cellulose content analysis	25
4.6.3	α -cellulose content analysis	26
4.6.4	Hemicellulose content analysis	27
5.0	CONCLUSION AND RECOMMENDATION	28
	REFERENCE	30
	APPENDIX	35