

**ECO-FRIENDLY *ALOE VERA* BLEND CHITOSAN AND
POLYVINYL ALCOHOL FILM-BASED FOR FOOD PACKAGING**

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ABSTRACT

ECO-FRIENDLY ALOE VERA BLEND CHITOSAN AND POLYVINYL ALCOHOL FILM BASED FOR FOOD PACKAGING

Aloe vera is a medicinal plant with antioxidant and antibacterial properties. *Aloe vera* benefits include reducing dental plaque, accelerating wound healing, preventing wrinkles, and managing blood sugar. These beneficial therapeutic properties of *Aloe vera* have been employed for several commercial applications. Driven by the urgent need to replace current non-biodegradable packaging, research is turning to *Aloe vera* as a key ingredient in innovative polymer-based film solutions. Therefore, this study aims to prepare *Aloe vera* blend chitosan and polyvinyl alcohol film based for food packaging, and to determine the physical, chemical, and mechanical properties of film via thickness test, moisture content test, total soluble matter test, swelling test, biodegradability test and tensile test. The film was successfully prepared using PVA, chitosan and aloe vera. In this study, by adding *Aloe vera*, the thickness of the film is decreased from 0.67 mm to 0.10 mm. The moisture content for combination of *Aloe vera*, chitosan and PVA is 11.02% which is low and suitable for food packaging application. The Total Soluble Matter for the prepared film is 37.76%. A lower percentage indicates slower dissolution in water which is good for food packaging. The film-based swelling test yielded a satisfactory result of 38.30%, indicating that the function and appearance of food packaging remain unaffected by low swelling percentages. Tensile test is 33.33% MPa indicate that adding *Aloe vera* will improve the mechanical strength. Overall, the prepared *Aloe vera* blend with chitosan and polyvinyl alcohol film as food packaging was successful.

TABLE OF CONTENTS

	Page
ACKNOWLEDGMENT	v
TABLE OF CONTENTS	vi
LIST OF TABLES	ix
LIST OF FIGURES	x
LIST OF SYMBOLS	xi
LIST OF ABBREVIATIONS	xii
CHAPTER 1: INTRODUCTION	
1.1 Research Background	1
1.2 Problem Statement	5
1.3 Research Questions	6
1.4 Objectives	7
1.5 Significance of Study	7
1.6 Expected Outcomes	9
CHAPTER 2: LITERATURE REVIEW	
2.1 <i>Aloe Vera</i>	11
2.1.1 Application of <i>Aloe vera</i> blend in film based.	14
2.1.2 <i>Aloe vera</i> -Chitosan films	17
2.2 Chitosan and PVA film based on food packaging.	18
2.3 Eco-friendly Packaging	19
2.3.1 Glass containers	20
2.3.2 Stainless steel containers	21
2.3.3 Bamboo containers	21
2.3.4 Rice husk containers	23
2.3.5 Film packaging	23
2.4 Characterization of <i>Aloe vera</i> blend with chitosan and PVA film based.	25
2.4.1 Film thickness and appearance	25
2.4.2 Moisture content and Total soluble matter	25
2.4.3 Swelling Test Analysis	27
2.4.4 Biodegradability Test: Soil Burial Method	28
2.4.5 Tensile Test Analysis	29
2.4.5.1 Tensile Strength	29
2.4.5.2 Elongation at break	30

2.4.6 Young's Modulus	31
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CHAPTER 3: METHODOLOGY

3.1	Materials	32
	3.1.1 <i>Aloe vera</i> Gel	32
	3.1.2 Chitosan and Polyvinyl Alcohol	32
3.2	Chemicals	32
3.3	Instrumentation	33
3.4	Preparation of <i>Aloe vera</i> gel	33
3.5	Preparation of film	34
3.6	Characterization of Physical, Chemical, and Mechanical Properties	37
	3.6.1 Preparation of film	37
	3.6.2 Determination of moisture content	38
	3.6.3 Determination of Total Soluble Matter	39
	3.6.4 Swelling Test	40
	3.6.5 Biodegradability Test	42
	3.6.6 Tensile Test	42
	3.6.6.1 Sample preparation of Tensile test	42
	3.6.6.2 Tensile test result analysis	42
3.7	Experimental design/Flow chart	45