## TABLE OF CONTENTS

CHAPTER		TITLE	PAGE No.
1.0		INTRODUCTION	1-4
2.0		REVIEW OF LITERATURE	5-18
2.	1	Packaging materials properties and uses	5-6
2.2	2	Types of packaging materials	6-9
2.:	3	Recent trends in packaging	10-13
2.4	4	Edible films and coatings	13-17
2.:	5	Properties of edible films and coatings	17-18
2.0	6	Recent trends in use of edible films and coating	s 18-19
3.0		MATERIALS AND METHODS	20-32
3.	1	Materials	20
3.:	2	Methods	20-32
3.3	3	Statistical analysis	32
4.0		RESULTS AND DISCUSSION	33-51
4.	1	Starch and its physiochemical properties	33
4.2	2	Properties of films	33-42
4.:	3	Changes in bioactive compounds of minimally	
		processed vegetables during storage	42-51
5.0		SUMMARY AND CONCLUSION	52-54
5.3	1	Summary	52-53
5.2	2	Conclusion	53-54
6.0		BIBILOGRAPHY	55-60

## LIST OF TABLES

Table No.	Title	Page no.
4.1	Total soluble matter in the starch-protein composite films.	34
4.2	Transparency of the starch-protein composite films.	35
4.3	L, a, b values of the starch-protein composite films.	35
4.4	The water vapor transmission rate of the different films.	36
4.5	The tensile strength and the elongation of the different for starch, protein and the starch-protein composite films.	37
4.6	Crystallinity of starch, protein and the starch-protein composite films.	39
4.7	The melting temperatures and enthalpy of transition of starch, casein and the films.	41
4.8	The changes in microbial load during the storage period.	51

## LIST OF FIGURES

•

Figure	Title	Page no.
No.		
3.1	Photos showing the packaging of green chilies in the composite	29
	film and composite coatings on garlic.	
4.1	RVA graph showing the changes in viscosity with temperature.	33
4.2	SEM of films at 5,500X (a) Film S1, (b) Film S4.	37
4.3	XRD plots for starch, casein and for starch, protein and the starch-protein composite films.	39
4.4	DSC thermograms for starch, protein and the starch-protein composite films.	40
4.5	FT-IR spectra for starch, protein and the starch-protein composite films.	42
4.6	Changes in Total phenolic content in (a) green chili and (b) garlic.	43
4.7	Changes in ferric reducing antioxidant property in (a) green chilies, (b) garlic.	44
4.8	Changes in radical scavenging activity property in (a) green chilies (b) garlic.	45
4.9	Changes in $L$ (a), $a$ (b), $b$ (c) values for green chili.	46
4.10	. Changes in $L$ (a), $a$ (b), $b$ (c) values for garlic.	47
4.11	Changes in hardness (a), gumminess (b) and chewiness (c) of green chili.	49
4.12	Changes in hardness (a), gumminess (b) and chewiness (c) of garlic.	50

## **ABBREVIATIONS**

$\Delta H$ - Enthalpy of Transition
AOAC- Association of Official Analytical Chemists
ASTM- American Society for Testing and Materials
BD- Break Down
CFU- Colony Forming Units
CFU- Colony Forming Units
DPPH-2, 2-diphenyl-1-picrylhydrazyl
DSC- Differential Scanning Calorimetry
E- Elongation at break
FRAP- Ferric Reducing Antioxidant Property
FTIR- Fourier Transmission Infra Red Spectroscopy
XRD- Xray Duffraction
GAE- Gallic Acid Equivalent
HPV- Hot Paste Viscosity
CPV- Cold Paste Viscosity
MG- Mesquite Gum
PEN- Polyethylene Naphthalate
PET - Polyethylene terephthalate
PNC- Polymer nanocomposites
PV-Peak Voscosity
PVC- Polyvinyl Chloride

RH- Relative humidity

RVA- Rapid Visco Analyser

SB- Set Back

SEM- Scanning electron Microscope

SPI- Soya Protein Isolate

**TEMPTIME-** Temperature Time

T<sub>m</sub>-Melting Point Temperature

TPA- Texture profile Analysis

TPTZ-2,4,6-tri(2-pyridyl)-1,3,5-triazine

TS-Tensile strength

VISTAB -Visual Indicator Tag System AB

WPI- Whey Protein Isolate

WVTR- Water Vapour transmission Rate

Y-Youngs' Modulus