

## CONTENTS

SERIAL NO.	CHAPTERS	PAGE NO.
1	INTRODUCTION	1 - 6
2	REVIEW OF LITERATURE	7 - 36
3	MATERIALS AND METHODS	37 - 46
4	RESULTS AND DISCUSSION	47 - 72
5	SUMMARY AND CONCLUSION	73 - 74
6	BIBLIOGRAPHY	75 - 82

## LIST OF TABLES

Table No.	Title	Page No.
1	Chemical properties of fruits of wild and Chakiya variety of Amla	8
2	Total phenolic content and antioxidant % of extract extracted with ethanol at different concentration	48
3	Effect of solubility, swelling ratio, antioxidant activity on thickness of alginate film	48
4	Moisture content & thickness of film	50
5	Water Solubility & swelling ratio of alginate film	50
6	Film transparency & light transmission of film	54
7	Water vapour transmission & mechanical behaviour of film	54
8	Thermal behaviour of alginate film	56
9	Antioxidant activity & TPC of film	56
10	Study of effect of level of thickness of edible film (incorporated with 10% extract) on free fatty acid content of the butter during storage (at refrigerated temperature)	63
11	ANOVA table for the FFA content of butter wrapped with edible film (10 % extract) of different thickness and stored at refrigeration temperature	63
12	Study of effect of level of thickness of edible film (incorporated with 10% extract) on free fatty acid content of the butter during storage (at room temperature)	64
13	ANOVA table for the FFA content of butter wrapped with edible film (10 % extract) of different thickness and stored at room temperature	64
14	Study of effect of level of thickness of edible film(incorporated with 10% extract) on PV of the butter during storage (at	67

	refrigerated temperature)	
15	ANOVA table for the PV content of butter wrapped with edible film (10 % extract) of different thickness and stored at refrigeration temperature	67
16	Study of effect of level of thickness of edible film(incorporated with 10% extract) on PV of the butter during storage(at room temperature)	68
17	ANOVA table for the PV content of butter wrapped with edible film (10 % extract) of different thickness and stored at room temperature	68
18	Study of effect of level of thickness of edible film(incorporated with 10% extract) on TBA of the butter during storage(at refrigerated temperature)	70
19	ANOVA table for the TBA of butter wrapped with edible film (10 % extract) of different thickness and stored at refrigerated temperature	70
20	Study of effect of level of thickness of edible film(incorporated with 10% extract) on TBA of the butter during storage(at room temperature)	71
21	ANOVA table for the TBA of butter wrapped with edible film (10 % extract) of different thickness and stored at room temperature	71

## LIST OF FIGURES

Figure No.	Title	Page No.
1	Indian gooseberry slices before drying	45
2	Image of developed Control film	45
3	Image of Extract	45
4	Image of Antioxidant enriched film	45
5	Procedure for pre-treatment of butter	46
6	Melted butter	46
7	Remoulded butter	46
8	Butter wrapped with antioxidant enriched alginate film	46
9	Butter wrapped again in aluminium foil	46
10	Butter wrapped only in aluminium foil	46
11	TPC of extract	48
12	Antioxidant % of extract	48
13	DSC thermograph of control film (0.25 mm)	57
14	DSC thermograph of control film (0.3 mm)	57
15	DSC thermograph of 5 % extract incorporated film (0.25 mm)	58
16	DSC thermograph of 5 % extract incorporated film (0.3 mm)	58
17	DSC thermograph of 7.5 % extract incorporated film (0.25 mm)	59
18	DSC thermograph of 7.5 % extract incorporated film (0.3 mm)	59
19	DSC thermograph of 10 % extract incorporated film (0.25 mm)	60
20	DSC thermograph of 10 % extract incorporated film (0.3 mm)	60

21	% DPPH radical scavenging activity of antioxidant enriched alginate film	61
22	TPC of alginate film	61
23	FFA content of butter under refrigerated temperature and room temperature	65
24	PV content of butter under refrigerated temperature and room temperature	69
25	TBA content of butter under refrigerated temperature and room temperature	72