

TABLE OF CONTENTS

	PAGE
INTRODUCTION	1
REVIEW OF LITERATURE	4
1- Enzyme production, purification and characteristics.....	4
2- Immobilization system for enzyme application (Enzyme immobilized on insoluble support).....	10
3- Direct enzyme application (Enzyme remain in the product)..	21
4- Ultrafiltration retentate for producing low lactose milk.....	30
5- Low lactose ice cream production.....	32
6- Low lactose yoghurt production.....	35
7- White soft cheese from ultrafiltrated milk.....	40
MATERIALS AND METHODS	46
- Materials.....	46
- Methods.....	51
- Preparation of cell free extract.....	51
- Purification of Beta-galactosidase.....	52
- Immobilization of Beta-galactosidase.....	52
- Assay of Beta-galactosidase activity.....	53
- Kinetic parameter of Beta-galactosidase from <i>K. lactis</i> ...	54
- Chemical analysis.....	56
- Manufacture of products.....	62
- Ice cream manufacture.....	62
- Yoghurt manufacture.....	62
- White soft cheese.....	62

	PAGE
Part I: Production of β-galactosidase enzyme from <i>K. lactis</i>....	64
Introduction.....	65
Section A: The suitable conditions for the production of	
β -galactosidase enzyme from <i>K. lactis yeast</i> ..	67
Experimental.....	67
Results and Discussion.....	68
Section B: Preparation and characteristics of crude	
enzyme.....	86
Experimental.....	86
Results and Discussion.....	88
Section C: Purification of the enzyme and its characte-	
ristics.....	102
Experimental.....	102
Results and Discussion.....	102
Part II: Immobilization of <i>K. lactis</i> β-galactosidase enzyme	
on cellulose fabric strips and its efficiency in	
hydrolysing lactose.....	119
Introduction.....	120
Experimental.....	122
Results and Discussion.....	126
Part III: Manufacturing of low lactose dairy products.....	140
Section A: Low lactose ice cream.....	141
Introduction.....	141
Experimental.....	142
Results and discussion.....	142

	PAGE
Section B: Low lactose yoghurt.....	156
Introduction.....	156
Experimental.....	157
Results and discussion.....	157
Section C: Low lactose white soft cheese.....	180
Introduction.....	180
Experimental.....	181
Results and discussion.....	182
SUMMARY AND CONCLUSION.....	210
REFERENCES.....	218
ARABIC SUMMARY.	

ooo0ooo