LIST OF TABLES

TABLE NO.	TITLE	PAGE NO
Table2.1	Top 10 citrus fruit producer countries 2007	6
Table2.1.1	Nutritional composition of Orange	8
Table2.1.1.1	Top ten orange producer countries 2005	10
Table3.6.4.1	Protocol for commercial enzyme treatment	27
Table3.6.4.2	Protocol for crude enzyme treatment	27
Table4.1	Shows clarified juice after centrifugation process at 20°C for 3 mins	31
Table4.2	Observation of commercial enzyme treatment	35
Table4.3.	Observation of commercial enzyme treatment	39

SL NO.	TITLE	PAGE NO
Fig: 3.1	Pure culture of Aspergillus niger	22
Fig: 3.2	Submerged fermentation1	26
Fig: 3.3	Submerged fermentation2	26
Fig: 4.1.1	Effect of centrifugation rate on pH	32
Fig: 4.1.2	Effect of centrifugation rate on T.S.S.	33
Fig: 4.1.3	Effect of centrifugation rate on clarity.	33
Fig: 4.2.1	Effect of enzyme concentration on pH of commercial enzyme treatment	36
Fig: 4.2.2	Effect of enzyme concentration on reducing sugar of commercial enzyme treatment.	37
Fig: 4.2.3	Effect of commercial enzyme treatment on clarity	38
Fig: 4.3.1	Effect crude pectinase treatment on T.S.S. at different incubation time	. 40
Fig: 4.3.2	Effect of crude pectinase treatment on reducing sugar	41
Fig 4.3.3.1	O.D.vs enzyme concentration of crude pectinase treatment	41
Fig 4.3.3.2	O.D. vs enzyme concentration of crude pectinase treatment	41
Fig 4.3.3.3	O.D. vs enzyme concentration of crude pectinase treatment	42
Fig 4.3.3.4	O.D. vs enzyme concentration of crude pectinase treatment	42

CONTENTS

CHAPTER	PAGE NO.
CERTIFICAT	ES i-iii
ACKNWOLE	DGEMENT iv
LIST OF TAR	BLES v
LIST OF FIG	URES vi
LIST OF FIG	OKESVI
CHAPTER: 1	
	tion 1-4
·	
CHAPTER: 2	
Review	of literature 5-20
2.1	Different Citrus fruits
2.1.1	Orange ,
2.2	-
2.3	
2.3.1	Harvesting and Testing for Maturity
2.3.2	· · · · · · · · · · · · · · · · · · ·
2.3.3	Extraction
2.3.4	Clarification
2.3.5	Preservation
2.3.5.1	Thermal Treatment of Juice.
2.3.5.2	Canning
2.3.5.3	Aseptic Processing
2.3.5.4	Bottling
2.3.5.5	Chemical Preservatives
2.3.5.6	Freezing
2.3.5.7	Filtration Sterilization
2.4	Enzymes
2.4.1	Enzyme production
2.4.2	Structure of Pectin
2.4.3	Pectinase Enzyme
2.4.4.1	Active Principles

2.4.4.2 The effect of Pectinase Enzyme on Juice Processing

CHAPTER. 3

Materials and methods	21-29
3.1 Collection of Raw materials	
3.2 Enzyme Source	
3.3.1 Commercial Pectinase	
3.3.2 Crude Pectinase	
3.2 Equipments utilized	
3.3 Glass Wares Utilized	
3.4 Chemicals	
. 3.5 Parameters Selected For Study	
3.6 Design of Experiment	
3.6.1 Juice Extraction	
3.6.2 Centrifugation process	
3.6.3 Enzyme Extraction	
3.6.4 Enzyme Preparation	
3.6.5 Enzyme Treatment	
3.7 Methods: Chemical and Physical analysis	s28-29
CHAPTER 4	
Results and discussion	30-42
4.1 Centrifugation treatment	30 12
4.1.1 Commercial Pectinase Treatment	,
4.1.2 Crude Pectinase Treatment	
4.1.2 Clude rectinase Heatment	
CHAPTER 5	
SUMMARY AND CONCLUSION	43
BIBLIOGRAPHY	
-	