

TABLE OF CONTENTS

CHAPTER	TITLE	PAGE No.
1.0	INTRODUCTION	1-3
2.0	REVIEW OF LITERATURE	4-35
3.0	MATERIALS AND METHODS	36-51
4.0	RESULTS AND DISCUSSION	52-78
5.0	SUMMARY	79-81
6.0	CONCLUSION	82
7.0	REFERENCE	83-91

LIST OF TABLES

Table No.	Title	Page no.
3.1	Formulation of cake mix	48
4.1	Moisture content of native and modified corn starch	52
4.2	Crystallinity of starch samples	54
4.3	Pasting properties of native and modified corn starch.	55
4.4	L, a, b values of native and modified corn starches.	56
4.5	WSI and swelling capacity of native and modified corn starches.	58
4.6	Bulk, true density and porosity of raw and modified corn starches.	59
4.7	Onset, melting and final temperature, gelatinization transition and enthalpy of gelatinization of native and modified starches.	61
4.8	Proximate analysis and crude fiber content of oyster mushroom.	64
4.9	Inhibition zone of <i>PLEUROTUS OSTREATUS</i> and its polysaccharide extracts against selected microbes.	67
4.10	Physical properties of formulated cakes	70
4.11	Changes in textural properties of cakes	71
4.12	Changes in L, a, b values of crust	72
4.13	Changes in L, a, b values of crumb	73
4.14	Sensory analysis cakes with storage	74
4.15	Changes in moisture content of cakes with storage	75
4.16	Total calorific values of formulated cakes.	78

LIST OF FIGURES

Figure No.	Title	Page no.
2.1	Cluster model of amylopectin	5
2.2	SEM picture of corn starch	5
2.3	Structure of RS 1	8
2.4	Structure RS 2	9
2.5	Action patterns of hydrolytic enzymes on amylose and amylopectin	14
4.1	Light transmittance of native and modified starches.	53
4.2	X-ray diffractograms of native and modified starch.	54
4.3	RVA graphs of native and modified corn starches.	55
4.4	SEM pictures of (a) native (b) modified starch cycle 2	57
4.5	Moisture sorption capacity of native and modified corn starches.	57
4.6	Hydration capacity of native and modified corn starches.	59
4.7	Freeze thaw stability of native and modified corn starches.	60
4.8	DSC thermograms of native and modified corn starches.	61
4.9	FT-IR spectra of native and modified corn starches.	63
4.10	Extent of hydrolysis of native and modified corn starches	64
4.11	Percentage of resistant starch in native and modified corn starches	64
4.12	DPPH radical scavenging activity. Of <i>P. ostreatus</i> and its polysaccharide.	65
4.13	Reducing power of <i>P. ostreatus</i> extracts	67
4.14	XRD plots for <i>P. ostreatus</i> polysaccharide	68
4.15	FT-IR spectra <i>P. ostreatus</i> polysaccharide.	69
4.16	Proximate analysis of cakes.	70
4.17	DPPH radical scavenging activity of cakes	75
4.18	Change in moisture content with storage.	76

4.19	Changes in free fatty acid during storage.	76
4.20	Total bacterial count changes of cakes during storage.	77
4.21	Changes in counts of yeast and moulds of cakes during storage	77

List of abbreviations

1. ΔH : Changes in enthalpy
2. AAP: *Auricularia auricula* polysaccharide
3. AM: Amylose
4. AML: Amylose leaching
5. ANN: Annealing
6. ANOVA: Analysis of variance
7. AOAC: Association of Official Analytical Chemists
8. AS: Available starch
9. Bb: Bulk density
10. BD: Breakdown
11. BHT: Butylated hydroxyl toluene
12. CFU: Colony forming unit
13. CPV: Cold paste viscosity
14. CV: Calorific Value
15. DSC: Differential Scanning Calorimetry
16. DM: Dry matter
17. DNS: 3, 5-dinitrosalicylic acid
18. DP: degree of polymerization
19. DPPH: 2,2-diphenyl-1-picrylhydrazyl
20. Dt: True density
21. E: Porosity
22. EURESTA: European Flair Action Concerted on Resistant Starch
23. FTIR :Fourier Transform Infra Red
24. GI: Glycemic index
25. HACS: High amylose corn starch
26. HI: Hydrolysis index
27. HMT: heat-moisture treatment
28. HPA: High-pressure autoclave
29. HPV: hot paste viscosity

30. **MINSP: Mushroom insoluble non-starch polysaccharides**
31. **MW: Molecular weight**
32. **PAH : Partial acid hydrolysis**
33. **PV: Peak viscosity**
34. **RDS: Rapidly digestible starch**
35. **RS: Resistant starch**
36. **RSRP: Resistant starch-rich powder**
37. **RVA: Rapid Visco Analyser**
38. **SB: Setback**
39. **SCFA: Short chain fatty acid**
40. **SDS: Slowly digestible starch**
41. **SEM: Scanning electron microscopy**
42. **SF: swelling factor**
43. **Td : Tapped density**
44. **TDF: Total dietary fiber**
45. **T_f: Conclusion temperature**
46. **Tg: Temperature of gelatinization**
47. **Tm: Temperature of melting**
48. **T_o: Onset temperature**
49. **T_p : Peak temperature**
50. **TPA: Texture profile analysis**
51. **TPC: Total phenolic contents**
52. **TS: Total starch**
53. **UHT: Ultra-heat treatment**
54. **WHO: World Health Organization**
55. **WSI: Water solubility index**
56. **XRD :X- ray diffraction**