EFFECT OF SOME ENZYMES ON THE QUALITY CHARACTERISTICS OF PAN BREAD

By

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B.Sc. Agric. Sc. (Food Industries), Ain Shams University, 2000

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ABSTRACT

Mohammed Shebl Mohammed Shebl: Effect of Some Enzymes on the Quality Characteristics of Pan Bread. Unpublished M.Sc. Thesis, Department of Food Science and Technology, Faculty of Agriculture, Ain Shams University, 2018.

Since the action mechanisms of the enzymes are little understood, an integrated studies combining chemical analysis, rheological experiments and baking trials is very important to answers more complicated questions. Therefore, the objective of the study was to evaluate and apply, by way of a central composite rotational design, the effect of adding enzymes (α.amylase, glucose oxidase and phospholipase) on the quality characteristics of pan bread, as attempt to use the enzymes to improve dough handling properties and the quality of baked pan bread. The optimization of enzymes dosage was investigated by using predictive modeling on the rheological parameters (Extensograph parameters). Physical properties, sensory characteristics and staling rate of pan bread also were evaluated.

Results showed that enzymes can be used to improve poor quality of flour and optimize enzymes dosage through predictive modeling. The pan bread dough was done from all-purpose flour with addition of enzymes mixture (Fungal α-amylase, glucose oxidase and phospholipase). The dough had optimized rheological properties (decreasing softening and high resistance to extension) and resulted in bread with improved physical properties, enhanced sensory attributes and decreasing the staling rate.

Finally, the study may open up opportunities for the application of using enzymes as bread improvers within optimize dosage by using predictive modeling.

Key words: Pan bread, Alpha amylase, Glucose oxidase, Phospholipase, Predictive modeling, all purpose flour, Rheological properties, Physical properties, Sensory attributes and Staling rate.

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CONTENTS

	Page
LIST OF TABLES	V
LIST OF FIGURES	X
LIST OF ABBREVIATIONS	XV
1. INTRODUCTION	1
2. REVIEW OF LITRATURE	7
2.1. Chemical composition of wheat flour	7
2.1.1. Starch	9
2.1.2. Gluten proteins	11
2.1.3. Minor constituents	12
2.1.3.1. Non-starch polysaccharides	12
2.1.3.2. Lipids	13
2.2. Rheological properties of wheat flour dough	14
2.3. Enzymes	24
2.3.1. Amylases	24
2.3.1.1. Classification	24
2.3.1.2. Amylases in bread making	26
2.3.2. Glucose oxidase	29
2.3.3. Lipases	35
2.4. Oxidizing agents	37
2.4.1. Ascorbic acid	40
2.5. Staling	46
2.5.1. Amylases as antistaling agent	52
2.5.2. Lipases as antistaling agent	57
3. MATERIALS AND METHODS	59
3.1. Materials	59
3.1.1. Wheat flour	59
3.1.1.1. All-purpose flour	59
3.1.1.2. Strong flour	59
3.1.2. Commercial enzymes	59
3.1.2.1. Fungamyl 2500 SG	59
3.1.2.2. Farinazyme GL	59
3.1.2.3. Farinazyme LP 100	59
3.1.3. Ascorbic acid	60
3.1.4. Chemicals	60
3.1.5. Others	61

3.2. Methods 61
3.2.1. Analytical methods 61
3.2.1.1. Chemical and Physical analyses 61
3.2.1.1.1. Proximate analysis 61
3.2.1.1.2. Damaged Starch 61
3.2.1.1.3. Falling Number 62
3.2.1.1.4. Gluten and gluten index 62
3.2.1.2. Rheological properties of flour doughs 63
3.2.1.2.1. Farinograph test 63
3.2.1.2.2. Extensograph test 64
3.2.2. Pan bread baking procedure 65
3.2.3. Physical properties of pan bread 67
3.2.3.1. Specific volume 67
3.2.3.2. Color measurements 67
3.2.4. Sensory evaluation 68
3.2.4.1. Sensory evaluation of dough 68
3.2.4.2. Sensory evaluation of pan bread 68
3.2.5. Texture profile analysis (TPA) of pan bread 70
3.2.6. Experiment design 74
3.2.7. Statistical analysis 77

4. RESULTS AND DISCUTION 79
4.1. Chemical composition and physicochemical properties of wheat flour 79

4.2. Rheological properties 83
4.2.1. Farinograph parameters 83
4.2.1.1.Farinogram properties of dough in the presence of ascorbic acid and fungal α.amylase 83
4.2.1.2.Farinogram properties of dough in the presence of ascorbic acid and fungal glucose oxidase 92
4.2.1.3.Farinogram properties of dough in the presence of ascorbic acid and fungal phospholipase 100
4.2.2. Extensograph parameters 109
4.2.2.1.Extensogram properties of dough in the presence of ascorbic acid and fungal α.amylase at 45 min 109
4.2.2.2.Extensogram properties of dough in the presence of ascorbic acid and fungal α.amylase at 90 min 112
4.2.2.3.Extensogram properties of dough in the presence of ascorbic acid and fungal α.amylase at 135 min 115
4.2.2.4.Effect of ascorbic acid concentration on the extensograph parameters at 90 min (quadratic polynomial regression model) 124

4.2.2.5.Effect of fungal α.amylase concentration on the extensograph parameters at 90 min (quadratic polynomial regression model) 127
4.2.2.6.Three dimension response surface of fungal α.amylase enzyme and ascorbic acid combination on the extensograph parameters at 90 min 132
4.2.2.7.Verification of predictive extensograph parameters at 90 min for ascorbic acid and fungal α.amylase combination 136
4.2.2.8.Extensogram properties of dough in the presence of ascorbic acid and fungal glucose oxidase at 45 min 139
4.2.2.9.Extensogram properties of dough in the presence of ascorbic acid and fungal glucose oxidase at 90 min 142
4.2.2.10.Extensogram properties of dough in the presence of ascorbic acid and fungal glucose oxidase at 135 min 145
4.2.2.11.Effect of fungal glucose oxidase concentration on the extensograph parameters at 90 min (quadratic and cubic polynomial regression model) 152
4.2.2.12.Three dimension response surface of fungal glucose oxidase enzyme and ascorbic acid combination on the extensograph parameters 157
4.2.2.13.Verification of predictive extensograph parameters at 90 min for ascorbic acid and fungal glucose oxidase combination 163
4.2.2.14.Extensogram properties of dough in the presence of ascorbic acid and fungal phospholipase at 45 min 166
4.2.2.15.Extensogram properties of dough in the presence of ascorbic acid and fungal phospholipase at 90 min 169
4.2.2.16.Extensogram properties of dough in the presence of ascorbic acid and fungal phospholipase at 135 min 171
4.2.2.17.Effect of fungal phospholipase concentration on the extensograph parameters at 90 min (quadratic and cubic polynomial regression model) 177
4.2.2.18.Three dimension response surface of fungal phospholipase enzyme and ascorbic acid combination on the extensograph parameters 181
4.2.2.19.Verification of predictive extensograph parameters at 90 min for ascorbic acid and fungal phospholipase combination 186
4.2.2.20.Regression coefficient response of different concentrations of mixed enzymes with fixed concentration of ascorbic acid, Multiple regression coefficients (interaction modeling) 189

4.2.2.21. Verification of optimal predictive extensograph parameters at 90 min for ascorbic with mixed enzymes combination 193

4.3. Baking quality of pan bread 196
4.3.1. Physical properties 196
4.3.1.1. Specific volume 196
4.3.1.2. Color measurements of pan bread 198
4.3.2. Sensory characteristics of dough and pan bread 205
4.3.2.1. Sensory evaluation of dough 205
4.3.2.2. Sensory evaluation of pan bread 209
4.3.3. Texture profile analysis of pan bread 224

5. SUMMARY 243

6. REFERENCES 257

7. APPENDIX 285

8. ARABIC SUMMARY

LIST OF TABLES

No.		Page
1.	Chemical composition of wheat flour (%).	8
2.	Recipe for pan bread.	66
3.	Matrix 1: Fungal α-amylase and ascorbic acid (ppm).	75
4.	Matrix 2: Fungal glucose oxidase and ascorbic acid (ppm).	75
5.	Matrix 3: Fungal phospholipase and ascorbic acid (ppm).	75
6.	Matrix 4: Fungal α- amylase, Fungal glucose oxidase, Fungal phospholipase and Ascorbic acid.	76
7.	Proximate chemical composition and physicochemical characteristics of wheat flour.	82
8.	Effect of matrix of ascorbic acid (ppm) and fungal α.amylase (ppm) on farinogram characteristics.	86
9.	Effect of matrix of ascorbic acid (ppm) and fungal glucose oxidase (ppm) on farinogram characteristics.	95
10.	Effect of matrix of ascorbic acid (ppm) and fungal phospholipase (ppm) on farinogram characteristics.	104
11.	Effect of matrix of ascorbic acid (ppm) and fungal α.amylase (ppm) on extensogram at 45 min.	111
12.	Effect of matrix of ascorbic acid (ppm) and fungal α.amylase (ppm) on extensogram at 90 min.	114
13.	Effect of matrix of ascorbic acid (ppm) and fungal α.amylase (ppm) on extensogram at 135 min.	118
14.	Regression coefficient response of different concentrations of α-amylase and ascorbic acid on the extensogram parameters.	134
15.	Verification of optimal extensogram predictive values using α.amylase and ascorbic acid predictive concentrations were 3.8 and 33.8 ppm, respectively.	136
16.	Effect of matrix of ascorbic acid (ppm) and fungal glucose oxidase (ppm) on extensogram at 45 min.	141
17.	Effect of matrix of ascorbic acid (ppm) and fungal glucose oxidase (ppm) on extensogram at 90 min.	144

18. Effect of matrix of ascorbic acid (ppm) and fungal glucose oxidase (ppm) on extensogram at 135 min. 147

19. Regression coefficient of response of different concentrations of glucose oxidase and ascorbic acid on the extensogram parameters. 160

20. Verification of optimal extensogram predictive values using glucose oxidase and ascorbic acid predictive concentrations were 7.5 and 33.8 ppm, respectively. 163

21. Effect of matrix of ascorbic acid (ppm) and fungal phospholipase (ppm) on extensogram at 45 min. 168

22. Effect of matrix of ascorbic acid (ppm) and fungal phospholipase (ppm) on extensogram at 90 min. 170

23. Effect of matrix of ascorbic acid (ppm) and fungal phospholipase (ppm) on extensogram at 135 min. 172

24. Regression coefficient of response of different concentrations of phospholipase and ascorbic acid on the extensogram parameters. 184

25. Verification of optimal extensogram predictive values using phospholipase and ascorbic acid predictive concentrations were 18.8 and 33.8 ppm, respectively. 186

26. Regression coefficient of response of different concentrations of mixed enzymes and ascorbic acid on the extensogram parameters. 192

27. Verification of optimal extensogram predictive values using α.amylase; glucose oxidase; phospholipase and ascorbic acid predictive concentrations were 7.1, 13.5, 19.2 and 33.8 ppm, respectively. 193

28. Effect of different optimal predictive concentrations of α.amylase; glucose oxidase; phospholipase and ascorbic acid on the Specific volume (cm^3/g) of fresh pan bread, compared to negative and positive controls. 197

29. Effect of different treatments on the crust color of pan bread, compared to negative and positive controls. 199

30. Effect of different treatments on the crumb color of fresh pan bread, compared to negative and positive controls. 200

31. Effect of different treatments on the crumb color of pan bread after 24 h of storage at room temperature (25°C±2), compared with negative and positive controls. 201

32. Effect of different treatments on the crumb color of pan bread after 48 h of storage at room temperature (25°C±2), compared to negative and positive controls. 202

33. Effect of different treatments on the crumb color of pan bread after 72 h of storage at room temperature (25°C±2), compared to negative and positive controls. 203

34,a. Effect of different treatments on the dough evaluation parameters compared to negative control. 207

34,b. Effect of different treatments on the dough evaluation parameters compared to positive control. 207

35. Organoleptic characteristics of pan bread prepared using optimal predictive concentrations of α.amylase; glucose oxidase; phospholipase and ascorbic acid compared to pan bread prepared from strong flour as a positive control and medium strength flour as a negative control. 212

36. Staling characteristics of fresh pan bread prepared using optimal predictive concentrations of α.amylase; glucose oxidase; phospholipase and ascorbic acid compared to pan bread prepared from strong flour as a positive control and medium strength flour as a negative control at (25°C±2). 216

37. Staling characteristics of pan bread prepared using optimal predictive concentrations of α.amylase; glucose oxidase; phospholipase and ascorbic acid compared to pan bread prepared from strong flour as a positive control and medium strength flour as a negative control after 24 h storage at (25°C±2). 219

38. Staling characteristics of pan bread prepared using optimal predictive concentrations of α.amylase; glucose oxidase; phospholipase and ascorbic acid compared to pan bread prepared from strong flour as a positive control and medium strength flour as a negative control after 48 h storage at (25°C±2). 221

39. Staling characteristics of pan bread prepared using optimal predictive concentrations of α.amylase; glucose oxidase; phospholipase and ascorbic acid compared to pan bread prepared from strong flour as a positive control and medium strength flour as a negative control after 72 h storage at (25°C±2). 223

40. Effect of different optimal predictive concentrations of α.amylase; glucose oxidase; phospholipase and ascorbic acid on Hardness (g) of pan bread during 72 h of storage at room temperature (25°C±2), compared to pan bread prepared from strong flour as a positive control and medium strength flour as a negative control. 226

41. Effect of different optimal predictive concentrations of α.amylase; glucose oxidase; phospholipase and ascorbic acid on Springiness of pan bread during 72 h of storage at room temperature (25°C±2), compared to pan bread prepared from strong flour as a positive control and medium strength flour as a negative control. 227

42. Effect of different optimal predictive concentrations of α.amylase; glucose oxidase; phospholipase and ascorbic acid on Cohesiveness of pan bread during 72 h of storage at room temperature (25°C±2), compared to pan bread prepared from strong flour as a positive control and medium strength flour as a negative control. 229

43. Effect of different optimal predictive concentrations of α.amylase; glucose oxidase; phospholipase and ascorbic acid on Adhesiveness (cm^2) of pan bread during 72 h of storage at room temperature (25°C±2), compared to pan bread prepared from strong flour as a positive control and medium strength flour as a negative control. 230

44. Effect of different optimal predictive concentrations of α.amylase; glucose oxidase; phospholipase and ascorbic acid on Chewiness (g) of pan bread during 72 h of storage at room temperature (25°C±2), compared to pan bread prepared from strong flour as a positive control and medium strength flour as a negative control. 232

45. Effect of different optimal predictive concentrations of α.amylase; glucose oxidase; phospholipase and ascorbic acid on Gumminess (g) of pan bread during 72 h of storage at room temperature (25°C±2), compared to pan bread prepared from strong flour as a positive control and medium strength flour as a negative control. 234

46. Effect of different optimal predictive concentrations of α.amylase; glucose oxidase; phospholipase and ascorbic acid on Resilience of pan bread during 72 h of storage at room temperature (25°C±2), compared to pan bread prepared from strong flour as a positive control and medium strength flour as a negative control. 237

LIST OF FIGURES

No.		Page
1.	Proposed mechanisms of glucose oxidase improvement, via disulfide linkages or phenolic type linkages.	31
2.	Ascorbic acid. (a) Formation of dehydroascorbic acid, a relatively stable oxidation product, from ascorbic acid. (b) Four different stereo isomers of ascorbic acid can be distinguished.	42
3.	Texture profile analysis. Interpretation of texture parameters from a complete record: hardness, H1; springiness, L2/L1; cohesiveness, A2/A1; gumminess, H1 x (A2/A1); chewiness, H1 x (A2/A1) x (L2/L1).	73
4.	Farinograms for negative and positive controls.	87
5.	Farinograms of medium strength flour (All-purpose flour) dough in the presence of ascorbic acid.	88
6.	Effect of matrix of ascorbic acid and fungal α.amylase on farinogram characteristics.	89
7.	Effect of matrix of ascorbic acid and fungal glucose oxidase on farinogram characteristics.	96
8.	Effect of matrix of ascorbic acid and fungal phospholipase on farinogram characteristics.	105
9.	Extensograms for negative and positive controls.	119
10.	Extensograms of medium strength flour (All-purpose flour) dough in the presence of ascorbic acid.	120
11.	Effect of matrix of ascorbic acid and fungal α.amylase on extensogram characteristics.	121
12.	Polynomial Quadratic trend of ascorbic acid concentration (ppm) versus the extensogram parameters at zero level of enzymes.	126
13.	Polynomial Quadratic trend of α-amylase concentration (ppm) versus the extensogram parameters at zero percent of ascorbic acid.	131
14.	Three dimension regression plot to predict the extensogram parameters against different α-amylase and ascorbic acid concentrations.	135