



Physical, chemical and cooking qualities of eggs as affected by five methods of home preservation
by Sister Agnes Marie Nash

A THESIS Submitted to the Graduate Faculty in partial fulfillment of the requirements for the degree
of Master of Science in Home Economics

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Abstract:

Eight hundred thirty-eight, one day old, grade AA eggs from New Hampshire hens were used in this study. Five methods of preservation that could be easily duplicated in the home were studied: waterglass, freezing, S-100, mineral oil, and vinylite. Untreated eggs were stored also and served as controls. These eggs were numbered, weighed, and stored in a home basement where the temperature range was from 50-60 degrees Fahrenheit. At the end of three and again at the end of six months the eggs were tested for the following physical, chemical, and cooking qualities: change in weight during storage; height, width and index of albumen; yolk color and height; pH of albumen; palatability of cooked yolk; acceptability for poaching; coagulating ability when used in custards; and baling value as determined in the making of sponge cakes. The same measurements were made on similar fresh eggs.

After six months' storage, all preserved eggs showed a loss in weight, though not as great as those receiving no treatment. The mean albumen index of storage eggs had changed as much as 0.051 at the end of six months. Yolk height had decreased and the color became progressively darker during storage. At the end of six months the pH of all treated eggs had increased noticeably and they were of poor poaching quality. After the eggs had been stored by any method the internal temperature at time of coagulation was from two to four degrees higher than that required for fresh eggs. At the end of six months' storage all the cakes, with the exception of those made from eggs treated with mineral oil, had larger volume indexes than after three months' storage. Volume index, by itself, was not considered an accurate measurement of the entire baking quality of the stored eggs. Photographs of the center cuts of sponge cakes indicated that the cakes made from the treated eggs stored for three months were of a finer texture than those from eggs stored six months. A composite rating of the various eggs based on all physical, chemical, and cooking measurements, placed these eggs in the order of their desirability as follows: fresh, S-100, waterglass, mineral oil, vinylite and no treatment. Measurements made on frozen eggs indicated they were of high quality.

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BY FIVE METHODS OF HOME PRESERVATION

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TABLE OF CONTENTS

	Page
ABSTRACT	7
INTRODUCTION	8
HISTORY	10
Domestication of present day fowl	10
Early treatment of eggs	10
Methods used by Chinese	11
Dry packing	11
Immersion in liquids	11
More recent methods of egg preservation	12
Shell-sealing treatment	12
Sealing under vacuum	13
Thermostabilization	13
"Flash" heat treatment	13
Measurements used for egg quality	14
Physical determination	15
Alkalinity values	16
Cooking characteristics	17
EXPERIMENTAL PROCEDURE	17
Quality of eggs used	17
Condition of storage room	18
Methods of preservation	18
Waterglass	18
Freezing	18

S-100	19
Mineral oil	19
Vinylite	19
Methods of testing for egg quality	19
Physical measurements	20
Albumen index	20
Yolk color and height	20
Chemical measurements	20
pH of albumen	20
Cooking qualities	20
Palatability of yolk	20
Poaching	22
Method of measuring quality	22
Coagulation of custards	22
Making of sponge cake	23
Evaluation of cake	25
RESULTS AND DISCUSSION	25
Physical measurements of eggs	25
Change in weight	25
Albumen index	28
Yolk color and height	32
Chemical measurement of eggs	37
pH of albumen	37
Cooking qualities of eggs	37
Palatability of yolk	37

Tasting panel	37
Poaching	41
Coagulation of custards	41
Sponge cakes	45
Area of center cut	45
Evaluation by photograph	48
Rating of preservation methods	53
SUMMARY	57
ACKNOWLEDGEMENTS	61
LITERATURE CITED	62

LIST OF TABLES

Table	Page
I. Changes in weight of eggs during storage under four methods of home preservation	26
II. Albumen and yolk measurements of fresh eggs, eggs stored by four methods of home preservation and eggs stored with no treatment	30
III. pH of albumen of fresh eggs, eggs stored by five methods of home preservation and eggs stored with no treatment	35
IV. Palatability scores of yolks of soft cooked eggs before and after four methods of home preservation	38
V. Measurement of poaching quality of fresh eggs and eggs stored by four methods of home preservation	42
VI. Coagulating quality of baked custards made from eggs before and after five methods of home preservation	43
VII. Volume index of sponge cakes made from fresh eggs, eggs stored by five methods of home preservation and eggs stored with no treatment	46
VIII. Rating of fresh eggs, eggs stored by four methods of home preservation and eggs stored with no treatment	55

LIST OF ILLUSTRATIONS

Figure	Page
1. Spherometer used to measure the height of the yolk and of the thick albumen	21
2. Compensating polar planimeter used to measure the area of the center cut of the sponge cakes	21
3. Change in weight of eggs during storage under four methods of home preservation	29
4. Albumen index of fresh eggs, eggs stored by four methods of home preservation and eggs stored with no treatment . . .	31
5. Yolk height of fresh eggs, eggs stored by four methods of home preservation and eggs stored with no treatment	33
6. pH of albumen of fresh eggs, eggs stored by five methods of home preservation and eggs stored with no treatment . . .	36
7. Palatability scores of yolks of soft cooked eggs before and after four methods of home preservation	40
8. Area of center cut of sponge cakes made from fresh eggs, eggs stored by five methods of home preservation and eggs stored with no treatment	47
9. Grain and general appearance of center cut of sponge cakes made from eggs stored three months	49
10. Grain and general appearance of center cut of sponge cakes made from eggs stored six months	50
11. Silhouettes of center cuts of sponge cakes made from eggs stored three months	51
12. Silhouettes of center cuts of sponge cakes made from eggs stored for six months	52
13. Grain and general appearance of center cut of sponge cakes made from eggs preserved with vinylite and stored six months	54
14. Grain and general appearance of center cut of sponge cakes made from eggs frozen for six months, with and without sugar	54

