



QUALITY PARAMETERS OF PASTEURISED LIQUID EGG

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Abstract

Currently, the main egg-derived products are liquid (refrigerated or frozen) and dehydrated products (egg powder). Regardless of the advancements in egg preservation or processing techniques, it is essential that these products strictly comply with a series of food safety conditions, while maintaining their nutritional qualities. Consequently, through this paper, we aimed to analyze specific quality indicators of pasteurized egg melange. The working material was sourced from two producers, with determinations carried out on day 0 (upon opening the packaging), day 4, day 7, and day 11, with the products being stored under refrigeration. The analysis of the data corresponding to the four time points allowed us to conclude that the analyzed products maintained a high level of quality, even beyond the expiration date specified by the manufacturer.

Introduction

Although human eating habits have evolved considerably over time, the fundamental requirements of the human body have largely remained the same. These needs are met through the consumption of a variety of healthy and enjoyable foods. Well-being depends significantly on health, which in turn is influenced by dietary habits and the quality of consumed products. New applications are anticipated in the pasteurized egg product industry, including functional food and nutraceutical products, as well as non-food uses. In recent decades, the egg product industry has experienced significant growth, made possible by advancements in preservation techniques specific to the food industry. Today, the main products manufactured globally include liquid, dried, and frozen eggs, which can be made from egg white, yolk, or whole egg.

Material and method

The research focused on two types of egg melange, with five repetitions performed to obtain the most accurate data possible. Analyses were conducted for each sample at different time intervals after opening the product, specifically on day 1, day 4, day 7, and day 11. The egg melange samples were stored under appropriate conditions, at the temperature indicated on the product label—between 0–4°C—and at a relative air humidity of 90%. Classical methods were used, monitoring physical and chemical quality indicators such as: melange acidity, salt content; water percentage, dry matter, ash, as well as fat and protein content.

Results and discussions

The analyzed pasteurized egg melange products demonstrated a high level of quality throughout the storage period. Key parameters such as water content and dry matter remained consistent, while greater variability was observed in fat and protein levels. Overall, both products—Familia Toneli and Misto d’uovo Plus 100—maintained stability under recommended storage conditions, confirming their suitability for extended use.

Results obtained for the pasteurized egg melange produced by Toneli family

Table 1. Day 1 – Pasteurized Egg Melange Produced by Toneli family

Statistical estimators					
Specification	N	$X \pm s_x$	V(%)	Min.	Max.
Water (%)	5	75,046±0,03	0,09	74,98	75,12
Dry matter (%)	5	24,954±0,03	0,26	24,88	25,02
Fat (%)	5	9,104±0,27	6,51	8,11	9,61
Protein (%)	5	9,994±0,10	2,24	9,65	10,2
Ash (%)	5	0,898±0,02	3,97	0,85	0,95

Table 2. Day 4 – Pasteurized Egg Melange Produced by Toneli family

Statistical estimators					
Specification	N	$X \pm s_x$	V(%)	Min.	Max.
Water (%)	5	75,026±0,03	0,09	74,96	75,1
Dry matter (%)	5	24,974±0,03	0,26	24,9	25,04
Fat (%)	5	9,106±0,27	6,51	8,112	9,612
Protein (%)	5	9,997±0,10	2,24	9,653	10,203
Ash (%)	5	0,899±0,02	3,96	0,851	0,951

Table 3. Day 7 – Pasteurized Egg Melange Produced by Toneli family

Statistical estimators					
Specification	N	$X \pm s_x$	V(%)	Min.	Max.
Water (%)	5	75,016±0,03	0,09	74,95	75,09
Dry matter (%)	5	24,984±0,03	0,26	24,91	25,05
Fat (%)	5	9,109±0,27	6,51	8,115	9,615
Protein (%)	5	9,999±0,10	0,24	9,655	10,205
Ash (%)	5	0,902±0,02	3,95	0,854	0,954

Table 4. Day 11 – Pasteurized Egg Melange Produced by Toneli family

Statistical estimators					
Specification	N	$X \pm s_x$	V(%)	Min.	Max.
Water (%)	5	74,996±0,03	0,09	74,93	75,07
Dry matter (%)	5	25,004±0,03	0,26	24,93	25,07
Fat (%)	5	9,109±0,27	6,51	8,115	9,615
Protein (%)	5	9,998±0,10	2,24	9,654	10,204
Ash (%)	5	0,902±0,02	3,95	0,854	0,954

Results obtained for the pasteurized melange manufactured by Misto d’uovo Plus 100

Table 5. Day 1 – Pasteurized Egg Melange Produced by Misto d’uovo Plus 100

Statistical estimators					
Specification	N	$X \pm s_x$	V%	Min.	Max.
Water (%)	5	75,046±0,03	0,09	74,98	75,12
Dry matter (%)	5	24,954±0,03	0,26	24,88	25,02
Fat (%)	5	9,516±0,19	4,43	9,08	10,01
Protein (%)	5	10,876±0,09	1,91	10,6	11,12
Ash (%)	5	0,934±0,02	4,64	0,89	0,98

Table 6. Day 4 – Pasteurized Egg Melange Produced by Misto d’uovo Plus 100

Statistical estimators					
Specification	N	$X \pm s_x$	V(%)	Min.	Max.
Water (%)	5	74,996±0,03	0,09	74,93	75,07
Dry matter (%)	5	25,004±0,03	0,26	24,93	25,07
Fat (%)	5	9,109±0,27	6,51	8,115	9,615
Protein (%)	5	9,998±0,10	2,24	9,654	10,204
Ash (%)	5	0,902±0,02	3,95	0,854	0,954

Table 7. Day 7 – Pasteurized Egg Melange Produced by Misto d’uovo Plus 100

Statistical estimators					
Specification	N	$X \pm s_x$	V%	Min.	Max.
Water (%)	5	75,016±0,03	0,09	74,95	75,09
Dry matter (%)	5	24,984±0,03	0,26	24,91	25,05
Fat (%)	5	9,521±0,10	4,43	9,085	10,015
Protein (%)	5	10,881±0,09	1,91	10,605	11,125
Ash (%)	5	0,938±0,02	4,62	0,894	0,985

Table 8. Day 11 – Pasteurized Egg Melange Produced by Misto d’uovo Plus 100

Statistical estimators					
Specification	N	$X \pm s_x$	V%	Min.	Max.
Water (%)	5	74,996±0,03	0,09	74,93	75,07
Dry matter (%)	5	25,004±0,03	0,26	24,93	25,07
Fat (%)	5	9,521±0,19	4,43	9,085	10,015
Protein (%)	5	10,880±0,09	1,91	10,604	11,124
Ash (%)	5	0,938±0,02	4,62	0,894	0,984

Conclusions

Analyzing the data collected over the four intervals, we can conclude that the tested products demonstrated a high level of quality. The egg melange produced by Familia Toneli and the one from Misto d’uovo Plus 100 showed good consistency in essential parameters such as water content and dry matter, but exhibited greater variability in certain components, such as fat and protein.