



COMPARATIVE STUDY REGARDING QUALITY OF QUAIL EGGS SOLD IN SUPERMARKETS

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Abstract

Research on the importance of quail eggs has shown that regular consumption leads to a significant increase in resistance to diseases, stress, and revitalization of the body. In Romania, there has been observed a consistent consumer appetite for this category and their constant presence in the market, especially at supermarkets, since 2018-2019. Due to the inability of Romanian aviculture to consistently satisfy supply demands, products are partly imported. Hence, the main purpose of this paper is to establish the quality of quail eggs. Quality evaluation was based on determining specific physical indicators (weight, specific weight, white and yolk index, Haugh index, shell thickness), and chemical composition (% water, D.M., fats, and proteins). The values obtained for physical indicators were within the limits accepted by the literature (although there were differences of up to 8% in weight between batches, freshness indices showed very close values, highlighting the freshness of the product, and shell thickness fluctuated insignificantly with shell integrity at 100%). Chemical properties were characteristic of fresh eggs, with no significant differences between batches or literature references. The overall conclusion of the study was that marketed quail eggs comply with current norms, regardless of their origin.

Introduction

Ensuring a healthy and normal diet is a priority of any state's policy, because food is a problem with vast social, economic and cultural implications.

Due to the importance they have acquired, eggs represent an element of appreciation of the economic balance of animal husbandry, and therefore the consumer egg production sector is very well monitored in all countries.

Regarding the culinary and pharmaceutical qualities of the quail egg, Chinese naturopathic medicine considers that they rank 3rd after viper venom and Ging-Seng. The extraordinary qualities of the quail egg are due to its high content in: vitamins, proteins, amino acids and mineral salts which are combined and have a miraculous dosage. Quail eggs also contain much less cholesterol than chicken or other domestic bird species.

People who regularly consume quail eggs have a body more resistant to diseases and stress, they revitalize the human body regardless of age, thousands of quail egg treatment recipes are known and applied.

Material and method

In order to carry out this work, a series of physical parameters were analyzed, such as weight, specific gravity, yolk index, white index and Haugh index, respectively physico-chemical parameters, in this category falling the percentage of water, dry matter, protein and fat content. The biological material was represented by quail eggs purchased from three different producers and the working methods were the defining ones for this category of food products. P1 consistently demonstrates higher mean values across all chemical parameters, suggesting potentially superior quality in terms of protein and fat content, as well as water percentage. P2 shows the most consistent results across all parameters, indicating reliability in maintaining quality standards. P3 exhibits lower mean values and higher variability, suggesting less consistent quality compared to P1 and P2.

Results and discussions

P1 has the highest average egg weight, followed by P3 and then P2. The standard deviation (SD) is smallest for P1 (0.10) indicating more consistent egg weights, and largest for P3 (0.21) indicating more variation. Also, P1 has the highest yolk index on average, suggesting a slightly better quality of yolk, followed by P3 and then P2. P1 also shows the least variability (smallest SD), while P3 shows the most.

Tab. 1. Physical and morphological indicators of quality

Parameter	Producer	$\bar{X} \pm s\bar{x}$ (g)	V%	Min.	Max.
Egg weight analyzed (g)	P1	12.6±0.10	3.9	12.2	13.4
	P2	11. ±0.12	2.8	11.4	12.3
	P3	11.3±0.21	2.2	10.9	12.5
Egg weight analyzed (g)	P1	1.035 ± 0.002	1.22	1.031	1.038
	P2	1.030 ± 0.003	1.48	1.029	1.032
	P3	1.027 ± 0.002	1.86	1.026	1.029
Index yolk	P1	0.392 ± 0.002	6.26	0.372	0.400
	P2	0.375 ± 0.006	4.34	0.355	0.382
	P3	0.387 ± 0.009	3.88	0.362	0.396
Index egg white	P1	0.234 ± 0.005	6.19	0.228	0.242
	P2	0.219 ± 0.003	5.14	0.012	0.236
	P3	0.204 ±0.004	5.34	0.196	0.234
Index Haugh	P1	105.26 ± 1.02	6.26	103.44	107.98
	P2	103.18 ± 1.22	5.38	102.12	105.44
	P3	101.38 ± 1.44	5.08	100.06	103.46
Thickness mineral shell	P1	0.294±0.02	4.98	0.288	0.299
	P2	0.304±0.04	5.82	0.299	0.306
	P3	0.311±0.01	4.96	0.308	0.313

Tab. 2. Chemical indicators of quality

Parameter	Producer	$\bar{X} \pm s\bar{x}$ (g)	V%	Min.	Max.
The water percentage %	P1	74.54±1.06	2.34	72.22	75.78
	P2	73.96±0.98	1.86	72.17	75.14
	P3	73.13 ±1.24	2.08	71.86	74.52
Protein %	P1	13.42 ±0.08	3.24	13.36	13.52
	P2	13.29 ±0.04	2.68	13.24	13.34
	P3	13.16 ±0.04	3.54	13.10	13.21
Fat %	P1	4.66 ±0.1	4.22	4.50	4.70
	P2	4.53 ±0.1	5.74	4.40	4.55
	P3	4.24 ±0.1	5.19	4.15	4.25

Conclusions

The general conclusion of the present study is that all quail eggs sold in supermarket-type stores, regardless of the producer, meet the minimum quality standards and are therefore suitable for human consumption.