

IMPACT OF HIGH-PRESSURE ON THE YIELD AND TECHNOLOGICAL PARAMETERS OF GREEK YOGURT

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The objective of this work was to evaluate the impact of high pressure on yield and technological parameters of Greek yogurt. 20 g of skimmed milk powder were mixed with 1 L pasteurized whole milk. Dairy matrix was treated with different hydrostatic pressures [0.1 (Control), 100, 300, and 500 MPa] for 5 min each, heated at 43 °C, and fermented with *Streptococcus thermophilus* and *Lactobacillus delbrueckii ssp bulgaricus* at 43 °C until reaching the pH value in the range 4.5 – 4.6. After coagulation, the yogurt was drained under refrigeration at 4 °C for 18 h. Then, milk cream was incorporated at a proportion of 10% (w/w). The yield was calculated by the ratio between the final mass of yogurt and the initial mass of the dairy matrix. The texture analysis of yogurt samples was carried out in a TA - XT2i Texture Analyser (Stable Micro Systems, Godalming, UK). The parameters obtained were hardness, gumminess, and chewiness. Control sample showed a yield of $39.21\% \pm 0.77$, while samples treated with high pressure had yields of $43.92\% \pm 2.00$ to 100 MPa, $47.50\% \pm 5.34$ to 300 MPa, and $46.42\% \pm 4.12$. For texture profile, high pressure process promoted the obtaining firmer and creamier samples. Control sample showed hardness of $47.33 \text{ g} \pm 7.91$, while pressurized samples showed values between $162.83 \text{ g} \pm 14.86$ and $209.65 \text{ g} \pm 47.45$. For gumminess and chewiness, control sample has values of 38.48 ± 6.29 and 32.05 ± 3.77 , already 100 MPa, 300 MPa, and 500 MPa showed values of 128.32 ± 14.06 and 114.40 ± 13.54 , 95.19 ± 8.91 and 87.64 ± 8.12 , 122.31 ± 17.73 and 109.57 ± 14.60 , respectively. It is notable the improvement in the yield of Greek yogurt production due to the high-pressure process, with increases between 4.71% and 8.29%, when compared to the control. Obtaining yogurts with greater firmness and creaminess is extremely advantageous, since it helps to improve the characteristics of the identity pattern of Greek yogurt. Thus, the application of the high-pressure process prior to fermentation becomes viable for the optimization of the manufacturing process of this dairy product.