

EVALUATION OF FOOD SAFETY IN A WHEY-BASED FERMENTED PRODUCT

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Abstract

Although long considered a by-product of cheesemaking, whey has been proven by this study to be a resource with high nutritional and functional value. Its utilization in the form of a fermented beverage, plain or enriched with elderberry extract, has been confirmed as an efficient strategy both technologically and sensory-wise. The study confirmed the potential of acid whey as a substrate for functional fermented beverages, with physicochemical values showing a low pH (4.45 ± 0.00), high titratable acidity and a nutritional composition characterized by 1.02% protein, 3.74% lactose and 0.72% ash. Microbiological analyses showed a low microbial load ($\text{NTG} \sim 2 \times 10^4 \text{ UFC/mL}$), below the limit set by EC Regulation no. 1441/2007, and the absence of *E. coli* and coliform bacteria colonies confirmed the safety of the sample. From a sensory point of view, the variants with the addition of elderberry extract were the best appreciated, due to their balanced taste, natural aroma and pleasant appearance. The results obtained indicate that fermented whey beverages can be classified as safe, nutritious and attractive products, with potential for use in the functional food industry and within the circular economy.

Keywords: whey, fermented product, food safety