

F.8. THE INFLUENCE OF SEA BUCKTHORN POMACE POWDER ON THE CHEMICAL AND MICROBIOLOGICAL STABILITY OF GLAZED CHEESE DURING STORAGE

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Abstract. Glazed cheese, a lipid- and moisture-rich fresh dairy dessert, is highly susceptible to oxidative deterioration and physicochemical changes during refrigerated storage. Extending shelf life while avoiding synthetic additives remains a major challenge, prompting interest in natural, bioactive-rich ingredients. Sea buckthorn (*Hippophae rhamnoides* L.) pomace, a by-product of cold-pressing, is rich in tocopherols, carotenoids, polyunsaturated fatty acids, and phenolic compounds, offering significant antioxidant potential for stabilizing lipid-containing dairy systems.

This study evaluated the effect of sea buckthorn pomace (SBP) at incorporation levels of 1.25%, 2.50%, 3.75%, and 5.00% (w/w) on the physicochemical properties of glazed curd cheese during 12 days of refrigerated storage, compared to a control sample (CS). The parameters analyzed included pH, peroxide index (PI), titratable acidity, water activity (a_w), and microbiological stability.

The pH values showed minor variations, ranging initially from 4.56 (CS) to 4.61 (SBP 5.00%) and decreasing slightly by day 12 (4.52–4.57), reflecting typical residual biochemical processes. The peroxide index exhibited the most significant differences: on day 1, the CS recorded 4.38 meq O₂/kg, while SBP-enriched samples showed markedly lower values (2.31–2.42 meq O₂/kg), corresponding to an approximate 46% reduction. This enhanced oxidative stability persisted throughout storage. Titratable acidity increased moderately in all samples, with the most balanced evolution observed at 2.50% SBP.

Water activity values were similar at the beginning (0.771–0.773) but remained slightly higher in enriched samples at the end of storage (0.767–0.769 vs. 0.762 in CS), likely due to the water-binding capacity of pomace components. Microbiological analysis confirmed product safety, with acceptable yeast counts and absence of moulds, coliforms, and *Salmonella* spp.

In conclusion, SBP incorporation, particularly at 2.50%, significantly enhances the oxidative stability of glazed curd cheese without adversely affecting its physicochemical or microbiological quality. The use of sea buckthorn pomace represents a sustainable approach aligned with circular bioeconomy principles and offers promising potential for application in dairy product development.

Keywords: dairy products; peroxide index; pomace; storage stability; sustainable valorisation

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