EFFECT OF SEA BUCKTHORN POMACE BIOACTIVE COMPOUNDS ON THE COLOR CHARACTERISTICS OF PLANT-BASED MAYONNAISE

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Introduction. Color is an important sensory characteristic of food products and is associated with consumers' perception of product freshness, quality, and acceptability. In plant-based mayonnaise, the absence of egg results in a white-creamy or pale appearance, unlike traditional mayonnaise, in which carotenoids from the egg yolk contribute to its characteristic color. In this context, the present study aimed to evaluate the effect of using a liposoluble extract obtained from sea buckthorn pomace, based on sunflower oil, on the color characteristics of plant-based mayonnaise.

Materials and Methods. Four mayonnaise samples were prepared: one control sample (PM), formulated with 100% refined oil, and three samples formulated with sunflower oil fortified with bioactive compounds (BACs) extracted from sea buckthorn pomace, cultivar Mara, at proportions of 35%, 53%, and 65%. The color of the samples was evaluated using the CIELab colorimetric system by determining the L*, a*, and b* parameters, as well as the total color difference (ΔE), chroma (C), and yellowness index (YI). The determinations were performed in four replicates, and the results were expressed as mean values.

Results and Discussion. Colorimetric analysis revealed clear differences between the control sample and the samples formulated with oil fortified with BACs from sea buckthorn pomace. The L* value was 75.59 for PM and ranged from 51.16 to 75.51 for the fortified samples, indicating changes in lightness. The b* parameter showed values of 14.76 for PM, 57.18 for PM1, 53.46 for PM2, and 40.39 for PM3, indicating an intensification of yellow hues in the fortified samples. The yellowness index (YI) increased from 27.90 for PM to 108.14, 125.43, and 112.78 for PM1, PM2, and PM3, respectively. The ΔE values of 42.64, 41.59, and 35.67 for PM1, PM2, and PM3, respectively, confirm visible color differences compared with the control sample. Overall, the use of fortified oil resulted in changes in the color characteristics of the mayonnaise, particularly through the intensification of yellow hues and a reduction in lightness.

Conclusions. Sunflower oil fortified with bioactive compounds from sea buckthorn pomace, cultivar Mara, demonstrated potential for the natural modification of the color characteristics of plant-based mayonnaise. The results confirm the influence of fortified oil on the L*, b*, and YI colorimetric parameters and highlight the possibility of valorizing sea buckthorn pomace as a source of bioactive compounds for food applications.

Keywords: *bioactive compounds, CIELab, colorimetry, plant-based mayonnaise, sea buckthorn pomace*

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