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Scientific Research

Effect of Iron Fortification on the Physicochemical and Sensory Properties of Functional Yoghurt

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ABSTRACT

This research examined the effects of iron fortification on the functional yoghurt's chemical, physical, and sensory characteristics. At a concentration of 12% weight/volume, two distinct forms of advantageous iron salts ferrous sulfate T2 and ferrous bis-glycinate T3 were introduced. To provide a comparison, raw milk T1 was used as the control treatment. Tests including chemistry, physics, and rheology were conducted to evaluate the product's sensory qualities immediately after manufacturing and after it had been stored at 4°C for 3, 7, and 10 days. Following storage, the moisture contents of T1, T2, and T3 decreased, reaching 87.06%, 87.00%, and 87.7%, respectively. Meanwhile, the solids percentage increased to 10.98%, 11.70%, and 11.60%. There was an increase in the proportion of protein, fat, and ash after storage. Furthermore, it was observed that the peroxide value had a positive correlation with the advancement of the process. The storage periods were initially calculated to be 1.8, 1.88, and 1.87 MeqO2/kg immediately after production. Subsequently, these values rose to 2.01, 2.16, and 2.15 MeqO2/kg. Additionally, it was observed that the population of lactic acid bacteria progressively grew with the duration of storage, reaching 45×10^6, 50×10^6,55×10^6 CFU/ml at the start of storage. which increased to 75×10^6, 90×10^6, and 95×10^6 CFU/ml after 10 days. T2 had the greatest values for viscosity, hardness, and whey separation, measuring 2890 cp, 99.80 g, and 6.8%, respectively. Following storage, the values show a rise, with T1 exhibiting the greatest overall sensory acceptance in comparison to treatments T2 and T3. The iron content had a substantial decline during the storage periods.