

PHYSICAL QUALITY ANALYSIS OF HIGH FIBER SORBET AS A FUNCTIONAL FOOD

Dwi Irma Rachmadani

Diploma 3 of Nutrition in Health Polytechnic of The Ministry of Health Malang,
77C Besar Ijen Street, Oro-oro Dowo, Klojen District, Malang City.

Email : irmarachmadanii@gmail.com

ABSTRACT

The rising prevalence of non-communicable diseases (NCDs) in Indonesia is closely linked to changes in people's lifestyles, one of which is low dietary fiber intake. According to the 2023 Indonesian Health Survey (SKI), 97.5% of Indonesia's population still experiences fiber intake deficiency. This condition underlies the development of functional food products, including avocado-based high-fiber sorbet. This study aimed to analyze and compare the physical quality characteristics of avocado-based high-fiber sorbet with commercial sorbet. The method used was a quantitative experimental design employing a mixture design approach, specifically the D-Optimal Non-Simplex Screening Design based on a linear model, processed using Design-Expert software version 13. The physical quality parameters analyzed included density, overrun, melting point, melting rate, total soluble solids (TSS), viscosity, pH, color, and texture. The results showed that avocado-based high-fiber sorbet had a density value of 0.93 ± 0.01 g/cm³, higher than commercial sorbet at 0.90 ± 0.01 g/cm³. The overrun value of high-fiber sorbet was slightly lower, at $14.86 \pm 1.91\%$, compared to commercial sorbet at $15.17 \pm 0.75\%$, while its melting point was longer, at 22.67 ± 2.08 minutes compared to 10 ± 1.73 minutes for commercial sorbet. Consistent with these findings, high-fiber sorbet also exhibited a slower melting rate than commercial sorbet throughout the observation period. The TSS value of high-fiber sorbet was recorded at $28 \pm 0^\circ$ Brix, higher than commercial sorbet at $22 \pm 0^\circ$ Brix. The viscosity of high-fiber sorbet was 1582.22 ± 47.18 mPa.s with a pH of 4.43 ± 0.02 , a yellowish-green color, and a texture of 6.76 ± 1.30 mm/second. In contrast, commercial sorbet had a viscosity of 64.39 ± 0.42 mPa.s, a pH of 3.46 ± 0.02 , a color ranging from brownish-yellow to light orange, and a texture of 6.05 ± 4.01 mm/second. Overall, avocado-based high-fiber sorbet demonstrated favorable physical quality characteristics and shows potential for development as a high-fiber functional food.

Keywords: non-communicable diseases, functional food, high-fiber sorbet, commercial sorbet, physical quality