

Effect of different types of pectin on the physicochemical, rheology, and sensory properties of low-fat yogurt

ABSTRACT

Low-fat yogurt has been defined to contain fat content of not more than 2.0 percent as per The Code of Federal Regulations, FDA, U.S. Nevertheless, the reduced fat content affects the physicochemical properties of yogurt by weakened texture, poor body, syneresis, and sensory quality. This is due to fat globules that govern the protein linkages that are responsible for the yogurt's texture and firmness. The objectives of this study are to evaluate the physicochemical, rheology properties, and to determine the sensory properties and overall acceptability of low-fat yogurt enriched with different types of pectin. Pectin helps improve the gel characteristics, rheology, and microstructure of set yogurt through interactions with the casein network. Two different types of pectins are used which are low-methoxyl pectin (LMP) and high-methoxyl pectin (HMP). For each type, two different concentrations were used which are 0.5% and 1.0% for both types of pectin. Analysis such as pH measurement, titrable acidity, color measurement, water holding capacity measurement, syneresis measurement, viscosity measurement, microbial analysis, and scanning electron microscopy were conducted. The results from the analysis above were subjected to two-way ANOVA and post hoc Tukey's test. The addition of LMP (0.5% and 1.0%) showed a positive effect on the quality of yogurt with primary attributes compared to the pectin added with HMP and control sample. In conclusion, the low-fat yogurt had a positive effect due to the enrichment of the pectin. Sample 4 which is the low-fat yogurt with 1.0% of LMP showed better properties compared to other samples.