

STUDY THE EFFECT OF ADDING ARABIC GUM AS A FAT REPLACER ON QUALITY CHARACTERISTICS OF LOW-FAT PROCESSED CHEESE

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Abstract

The importance of this study is the production of low-fat processed cheese. Therefore, the current study aims to determine the impact of adding Arabic gum as a fat replacer on the quality characteristics of low-fat processed cheese by mixing whole-fat cheddar cheese and full-fat soft cheese.

Raw cow's milk was obtained from a field near the Green Qasim University, emulsion salts were obtained from the Chinese CAS, and Arabic gums were obtained from the Indian company Thomas Baker. Soft cheese was made using a quantity of raw cow's milk divided into two parts. In the first section, whole milk was used to make whole cheese, while the second section used low-fat milk to manufacture low-fat cheese and then left in the incubator for 30 minutes until coagulation occurred. The processed cheese was then manufactured by mixing whole cheddar cheese and full-fat soft cheese to produce positive control cheese C+ and mixing whole cheddar cheese and low-fat soft cheese to produce low-fat cheese to produce negative control cheese C-. In addition to the production of cheese made from a mixture of full-fat cheddar cheese with a soft low-fat cheese with the addition of Arabic gums as a substitute for fat with added proportions of: 0.5, 1.0, and 1.5% marked as T1, T2, and T3, respectively. The humidity was estimated by using the oven, the fat percentage was estimated by the Kerber method, the ash percentage by the direct burning method, the carbohydrate percentage by the difference between the ingredients, and the pH of the cheese was estimated by the PH meter device, and the total acidity titrated with NaOH (0.1 N), and use a texture measuring device to analyze (hardness, cohesion, springiness) for cheese treatments. Finally, sensory evaluation tests were conducted by a group of professors specializing in dairy science.

The results showed that replacement treatments were characterized by moisture content and a protein ratio lower than negative control treatment and closer to positive control treatment. Carbohydrate, ash, and acidic ratios rose in replacement transactions, while fat and pH decreased. As for texture analysis, the hardness values of the treatments to which gum Arabic was added were higher than the negative control sample (C-). Cohesion values gave T3 the highest value compared to other treatments. As for the elasticity values of the resulting gin samples, the T3 treatment was the highest value compared to other treatments and was equal to the positive control sample (C+). The results of the sensory evaluation of the resulting cheese treatments were close, and the best treatment was T2 compared to other treatments to which gum Arabic was added.

From this study, we conclude that adding Arabic gum improved textile tests and the sensory properties of low-fat processed cheese.

Key words: Arabic gum, Processed cheese, cheddar cheese, Quality properties.