

## EFFECT OF SHEEP'S MILK ENRICHMENT WITH DRIED OYSTER MUSHROOM (*PLEUROTUS OSTREATUS*) POWDER IN YOGURT QUALITY CHARACTERISTICS

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### Abstract

The importance of the study lies in the fact that we propose reinforcement of yogurt with consumable fungi in order to improve its high nutritional value, high protein content, carbohydrates and vitamins, and containing compounds and enzymes that have biological activity. This study aim was to investigate whether adding dried oyster mushroom (*Pleurotus ostreatus*) can improve the quality characteristics of yogurt produced from sheep's milk.

In this study, whole Babilon local sheep's milk, starter culture (*Lactobacillus bulgaricus*, and *Streptococcus thermophilus*) from the Italian company ASCO, and a fresh local Babilon mushrooms (*Pleurotus ostreatus*) were purchased from the market, and dried in freezer dryer were used. The yogurt was manufactured in 4 variants (sections): control (C) - without any addition of mushrooms, and the variants F1, F2 and F3, with addition of 1, 3, and 5% mushrooms, respectively. Milk is heated to 90 °C for 10 minutes, then cooled to 42 °C, and after that starter culture was added and incubated at 42 ± 2 °C until coagulation is done. After yogurt variants manufacture, and during 14 days of cold storage at 5 ± 1 °C, we determined its chemical composition: the humidity by drying oven method, percentage of fat by Kerber method, percentage of protein by Kjeldahl method, ash by using the incineration oven at 650 °C, pH by pH meter, the titrable acidity was determined by use of sodium hydroxide (0.1N). The percentage of carbohydrates was estimated (calculated) mathematically by following formula: carbohydrate % = 100 - (protein + ash + fat + moisture). As for the rheological properties, viscosity was measured by using viscometer; the water holding capacity was measured by taking 10 g of yogurt and placing it in a centrifuge, and a tissue analyzer was used to measure both hardness, cohesiveness, and springiness. Finally, the sensory evaluation was carried out according to the model with flavor, texture and consistency, acidity and appearance characteristics.

The results of chemical properties showed a decrease in moisture by increasing the percentage of added mushrooms due to the increase in total solids originating from the mushrooms. In contrast, the fat percentage decreased for the F1, F2 and F3 variants compared to the control sample. The percentage of protein and carbohydrates increased by increasing the percentage of added mushrooms due to their high percentage of protein and carbohydrates. We didn't noticed a difference in the percentage of ash between the variants. Finally, the acidity increased by increasing the percentage of added mushrooms. Rheological properties results showed that an increase in viscosity, water holding capacity, and hardness are rising with the increase in the concentration of added mushrooms and increased storage duration, while both cohesiveness and springiness decreased by the increase of the percentage of added mushrooms and advanced duration of storage. The sensory evaluation results showed that the best was F1 variant (by adding 1% of mushrooms), and it was similar to the control sample.

From this study, we can conclude that adding dried oyster mushroom powder (*Pleurotus ostreatus*) improved the quality characteristics of yogurt.

**Key words:** Dried oyster mushroom, Yogurt, Sheep's milk, *Pleurotus ostreatus*.