

البحث الرابع

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Title	Functional Processed Cheese Spreads with High Nutritional Value as Supplemented with Fresh and Dried Mushrooms.
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ABSTRACT

In this study processed cheese was supplemented with either fresh or dried edible mushroom (*Pleurotus ostreatus* Hk 35), to improve its nutritional value, functional and sensory properties, chemical composition, amino acids content, and microbiological quality. Fresh mushroom was added to cheese blend in pieces and smashed form at levels of 0, 5, 10 and 15%, while dried mushroom was added at levels of 0, 1, 1.5 and 2%. Among all processed cheese treatments obvious differences ($P \leq 0.01$) were noticed in the organoleptic scores; the highest flavor scores (37.4, 37.3) were recorded for processed cheese supplemented with 1% and 1.5% mushroom powder, respectively. Significant differences ($P \leq 0.01$) were also recorded among chemical composition of the resulted processed cheese spreads. Moisture, ash and protein recorded the highest values in processed cheese supplemented with mushrooms compared to control. Moisture content in processed cheese control was 46.26%, while ranged from 47.39 to 53.72% in cheese spread supplemented with mushrooms. There was a significant difference ($P \leq 0.001$) in ash content of processed cheese spreads; the highest ash content (5.4%) was for processed cheese spread supplemented with 2% dried mushroom. Cheese spreads that contain mushrooms was high in protein/DM (31.20- 36.36%) comparing to the spread of control (30.88%). There was also a significant difference ($P \leq 0.001$) in the contents of all tested minerals in processed cheeses. The highest mean values of Ca, P, Mg and Zn was observed in control and processed cheese that contain mushroom powder. Regarding the pH values;

processed cheese spreads that contain mushrooms have pH values ranged from 5.39-5.78, while in control ranged from 5.47-5.63. Microbiological investigation showed that the total viable counts and spore former bacteria was lower in processed cheese supplemented with mushrooms than in cheese control. On the other hand, an increase in lipolytic and proteolytic bacteria was noticed during storage period. No yeast and molds were detected in the first month of storage for all processed cheese treatments.