STUDIES ON THE USE OF MILK CONCENTRATES IN MOZZARELLA CHEESE MANUFACTURE

By

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دراسات على استخدام مركزات الألبان
في تصنيع بعض منتجات الموزاريلا

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ABSTRACT

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Mozzarella cheese is used in several applications like in eating, pizza and coatings. The yield of hard and semi hard cheese types like Mozzarella is usually very low specially when using cow milk in making process. Due to growing interest in cheese developing, this study was planned to improve the yield of Mozzarella cheese or cheese analogue with keeping a comparable quality in light of the shortfall of milk production in Egypt. So, cow milk was fortified with milk protein concentrate (MPC), rennet casein (RC), soy protein isolate (SPI), or stabilizer (Dairy gel-162) as well as a trial of manufacturing Mozzarella cheese analogues of different available commercial ingredients with retaining functional properties.

Therefore, this investigation was carried out in four parts.

In the first part, Egyptian local market was surveyed for Mozzarella cheese products. The Surveyed samples were either imported or locally made. There was a remarkable difference between imported and locally collected Mozzarella cheese samples in acceptability attributes and compatibility with the Egyptian standard specifications associated with type of milk as well as manufacturing process.

The second part of this research was conducted to improve Mozzarella functional properties and yield by fortifying with MPC in ratios of 2, 3, 4% (Section A), RC in ratios of 0.25, 0.5, 1% (Section B) and SPI in ratios of 0.5, 1, 2% (Section C). The data revealed that, the best result was with adding MPC up to 3%, followed by adding SPI for up to 1%, then RC which came last when added up to 0.5%.

In the third part of study, Mozzarella cheese was made of cow milk fortified with the addition of stabilizer in ratios of 0.1, 0.2 and 0.3%. Such treatment significantly increased the moisture content of cheese and therefore the yield increased. Functional and orgenolipetic properties were improved by treating the cheese milk with stabilizer. The best treatments were produced by fortifying the milk with stabilizer up to 0.2%.

From the fourth part of study, it was concluded that Mozzarella cheese analogues could be effectively formulated with cheese curd as a substitution of rennet casein. Blending cheese curd in formulation led to improve the functional properties of Mozzarella analogues such as functional (meltability, free oil), rheological properties and sensory attributes. Furthermore, it was of low cost when compared with traditional Mozzarella cheese.

Key words: Mozzarella, Milk protein concentrate, Rennet casein, Soy protein, Stabilizer, Yield, Functional properties, Sensory evaluation, Mozzarella cheese analogues.

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