

Suwanoot Tuntragul 2010: Factors Affecting on Stretchability and Meltability of Imitation Mozzarella cheese. Master of Science (Food Science), Major Field: Food Science, Department of Food Science and Technology. Thesis Advisor: Associate Professor Somjit Surapat, Ph.D. 87 pages.

Mozzarella production has grown considerably in recent years. The impetus for the dynamic growth of Mozzarella consumption has been the growing popularity of pizza. However, Mozzarella cost is high. Imitation Mozzarella cheese may offer an excellent opportunity to substitute a traditional product with lower cost by using caseinate. Imitation Mozzarella is manufactured by blending rice bran oil and sodium – caseinate into a smooth emulsion. Imitation Mozzarella cheese with high protein to oil ratio has high stretchability, but it is not as long as commercial Mozzarella. For meltability, imitation Mozzarella cheese with different protein to oil ratios did not show any difference in meltability. Substitution lactic acid modified sodium – caseinate at limited moisture content to sodium – caseinate could improve stretchability. Using high moisture to modify sodium – caseinate resulted in high stretchability. During modification, lactic acid and moisture cut the protein molecules into small fractions. Increasing moisture content used to modify sodium – caseinate caused more small molecular weight proteins which could slip through each other. Small molecular weight proteins also promoted imitation cheese to melt and flow leading to high meltability. Palm oil has higher melting range than rice bran oil. It could decrease meltability of imitation cheese. Moreover, palm oil could reduce stretchability of imitation cheese, due to its higher solid fat content, which might disrupt stretching fibrous of protein. Substitution rice flour and waxy rice flour to protein was done in order to improve stretchability and meltability of imitation cheese. Gelatinised starch in waxy rice flour could decrease meltability of imitation cheese. Imitation Mozzarella cheese with similar stretchability and meltability to those of commercial one could be prepared by emulsifying 20% rice bran oil in an aqueous suspension containing 16% sodium – caseinate, 7.75% modified sodium – caseinate, 1.25% waxy rice flour and 51% water.

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