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Physical and Chemical Properties of Mozzarella Cheese Analogue Microwavable

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Abstract : The purpose of this study was to improve physical and chemical properties of mozzarella cheese analogue microwavable using modified casein and inulin, there are 3 step researches. The method of stage 1 using combination of concentration of calcium chloride ($CaCl_2$) (0.025, 0,050 and 0.075% (w/v)) and pH (4.2, 4.6 and 5.0) treatments to determine the appropriate of modified casein. The method of stage 2 using five ratio of modified casein : inulin (50:50, 60:40, 70:30 and 60:40) treatments in mozzarella cheese analogue manufacturing. The method of stage 3 using five level of microwave power level (Low, Medium low, Medium, Medium high and High) treatments on manufacturing of mozzarella cheese analogue microwaveable.

The results showed that combination of $CaCl_2$ 0.025% (v/v) and pH 4.6 gave desired rheology properties. The ratio of modified casein: inulin gave similar effectiveness in terms of SEM profile and sensory properties of mozzarella cheese analogue. The higher level of microwave power decreased moisture content, increased protein content, fat content and volumetrix expansion of mozzarella cheese analogue, decreased cavity in the microstructure by SEM and sensory properties of both taste and aroma was similar however color score decreased and crispiness score increased.

It concluded that modification casein using $CaCl_2$ 0.025% and pH 4.6 produced more viscous than elastic and desired rheology properties of modified casein. Increasing inulin in modified casein:inulin ratio tend decreased sensory properties and cavity in the microstructure of mozzarella cheese analogue. Microwave power level affect the composition, volumetric expansion, sensory properties and microstructure of mozzarella cheese analogue microwaveable.

Keywords : Modified casein, Inulin, Mozzarella cheese analogue, Microwaveable, physical, chemical.

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