

Thesis Title	A Study of Shelf Life Extending of Pasteurized Milk with Nisin
Student	Mr.Somyot Tantiwongwanich
Thesis Advisor	Asst.Prof.Dr. Prapaporn Khopaibool
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ABSTRACT

The shelf life extending of raw and pasteurized milk with nisin was studied by adding nisin at 50, 100, 150, 200 and 250 IU/ml in raw milk and separated into two parts. The first part was kept at 10 °C and the second part was heated at 60, 63 and 65 °C for 30 minutes and then kept at 10 °C. Every 3 days of storing time the stored milk would be sampling checked for organoleptic test ; color, flavor, taste and appearance and for chemical test ; pH, acidity test, alcohol 68% and clot-on-boiling and furthermore for microbial analysis ; total plate count, lactic acid bacteria, *Staphylococcus aureus* and *Bacillus cereus* until milk sampling were spoiled.

The results indicated that nisin at 200 IU/ml could extend the shelf life of raw milk for 3 days and at 100, 150, 200 and 150 IU/ml for inhibition of total plate count, lactic acid bacteria, *Staph. aureus* and *B. cereus* in raw milk, respectively.

The proper pasteurized milk concentrations of nisin at 60, 63 and 65 °C for 30 minutes were 200, 100 and 200 IU/ml respectively, that could extend the pasteurized milk to 12 days. The minimum concentration of nisin in milk pasteurized at 60, 63 and 65 °C were 150, 100 and 100 IU/ml that could inhibit of total plate count and respectively, lactic acid bacteria were 150, 100 and 100 IU/ml, *Staph. aureus* were 150, 150 and 100 IU/ml and *B. cereus* were 150, 150 and 100 IU/ml.

The quantity of residual in raw and pasteurized milk at 60 and 63 °C did not change during storage period. The concentration of residual nisin in pasteurized milk at 65 °C significantly decreased on 18 and 21 days.

The minimum concentrations of nisin in milk pasteurized at 60, 63 and 65 °C, could inhibit sporing of *B. cereus*, were between 150 - 250 IU/ml. The proper condition to inhibit spore of *B. cereus* in milk was adding 250 IU/ml nisin following by pasteurization at 63 °C 30 minutes.