

**A STUDY OF DIFFERENT HEAT EFFECTS ON THE PROCESSING OF
RAW MILK TO DRINKING MILK FOR COMMERCIALIZATION**

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ABSTRACT

Heat treatment is applied on the raw milk in order to decrease the microbiological risk, reduce the effect of protein denaturation, lower the acidity in milk and longer the shelf life. The study is conducted until the milk is stale from 26th of April until 22nd of May 2017 in order to treat the raw milk with different heat treatment method, such as pasteurization and in-container sterilisation, to investigate the effect of the heated raw milk with microbiology examination, protein denaturation, sensory evaluation and pH and to determine the best heat treatment method with or without preservative of raw milk to drinking milk to fulfil the customer demands. Low Temperature- Short Time (LTST) with incorporation with honey and cinnamon which act as preservatives in milk is the best heat treatment method due to prolong shelf life, less of microbial colony, does not affect the protein consumption and has optimum pH. The equipment used to heat the raw milk in laboratory is not suitable for processing milk for commercialization thus it will affects the hygienity, loss of nutrients and decrease the shelf life. It was concluded that application of the hygiene rules, combined with better equipment of heat treatment method will improve quality of the milk. Future research is needed by using Low Temperature Short Temperature using heat exchanger in order to make the best fresh raw milk to processing drinking milk by maintaining its nutrient quality with low cost.

keywords—LTST, heat treatment, preservative, raw milk, shelf life

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INTRODUCTION

1.1 Research Background

Throughout the world, milk is used as a human food due to its high nutritive value and it is considered as one of the most important diet items of many people. Milk also defined as “the most nearly perfect food”. Thus, the demand of consumers for safe and high quality milk has placed a significant responsibility on dairy producers, retailers and manufacturers to produce and market safe milk. (Teshome Gemechu, 2015)

Milk is a good medium for the growth of various microorganisms, especially bacterial pathogens such as *Bacillus cereus*, *Listeria monocytogenes*, *Salmonella spp.*, *Streptococcus*, *Streptococcus*, *Campylobacter spp.* etc. Those bacteria are case milk borne diseases for example tuberculosis, brucellosis and disease about gastroenteritis. Raw milk from healthy cow may contain a low microbial load, but the microbial may increase multiply if it stored in some temperature. (Khanitta Ruangwittayanusorn, 2016) These microorganisms are harmful for consumers.

In many countries, raw milk is required to undergo thermal processing so that the milk is safe to consume. Recent interest in the consumption of raw milk and raw