

## **Development of set type yoghurt from goat milk and evaluation of its shelf-life, sensory properties and microbiological quality**

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### **Abstract**

The dairy industry is a vital part of the Agricultural and Food Processing Industry in Sri Lanka. Milk is a very good medium for the growth of micro-organisms and thus it is highly susceptible to spoilage by microorganisms within a short period of time. Therefore, raw milk has to be processed into products like yoghurt in order to extend the shelf-life. All though cow milk is widely used in yoghurt manufacture, other milks such as goat milk and ewe milk can also be used to produce yoghurt.

This study mainly focused on development and assessment of shelf life of set-type plain yoghurt produced from goat milk. Moreover, set type yoghurts were produced using vanilla and strawberry flavours. Studies were carried out to determine the microbiological quality, shelf-life, sensory properties and microbiological quality of the finished product of set yoghurt. The finished products were stored in the cold room at 4-6 °C for 17 days. Sensory properties such as appearance, taste, texture, aroma and overall acceptability of products were tested using a 5-point hedonic scale after manufacture. Titratable acidity and pH were also determined in 1<sup>st</sup>, 5<sup>th</sup>, 7<sup>th</sup>, 10<sup>th</sup>, 12<sup>th</sup>, 15<sup>th</sup> and 17<sup>th</sup> days after manufacture. Completely Randomized Design (CRD) was used as the experimental design. Results were analyzed statistically using Kruskal-Wallis non parametric one way ANOVA test using the SPSS computer statistical software package. Furthermore, observations were explained mathematically by using graphs, charts and tables.

Results of the sensory studies revealed that synthetic flavours such as vanilla and strawberry flavours are not acceptable for goat milk yoghurt and panelists preferred plain type set yoghurt to flavoured yoghurts. Results further showed that vanilla and strawberry flavoured goat milk yoghurt had similar physico-chemical characteristics and poor sensory properties compared to plain goat milk yoghurt. Having considered the overall quality and responses of the tasting panel, plain goat milk yoghurt was selected as the best product of goat milk yoghurt. Further, chemical analysis of the yoghurts revealed that the products should contain not less than 3.4% fat and 23% total solids (TS) for it to be acceptable in terms of nutritive value. Set type goat milk

yoghurt completed the fermentation cycle with an inoculum of not less than 2.5% (w/v) starter strength and an incubation period of approximately 7 – 8 h. The results of the microbiological analysis indicated that all three products were well within the recommended microbial standards.

**Keywords:** Set yoghurt, Goat milk, Shelf-life, Sensory properties