

## **Development of a Low Cost Cheese Analogue Using Sweet Potato (*Ipomoea batatas*), Wheat Flour and Fresh Cow Milk**

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The demand for cheese analogues is being increased due to the low cost of production, simplicity of manufacturing, and diverse use of ingredients. Hence, this research was conducted to develop a low-cost cheese analogue. Series of preliminary trials were done to develop a method for manufacturing a suitable cheese analogue. A gel was prepared using wheat flour, butter, and fresh cow milk. A mixture was prepared using the best combinations of gel and boiled sweet potato. Vinegar was added to fresh cow milk for curd preparation. The best curd and mixture (gel and sweet potato mixture) combination was selected by sensory evaluation using a nine-point hedonic scale. The organoleptic properties were evaluated using a sensory panel comprised of 37 untrained individuals and data were analyzed by the Friedman non-parametric test. As chemical properties pH, titratable acidity and peroxide value were determined during five weeks of storage period (4 °C) and data were analyzed using one-way ANOVA. *E.coli*, yeast and mold and total plate count were analyzed as microbiological analysis. Further, colour and hardness of the product were measured. Moisture content, ash content, fat content and protein content were determined as proximate analysis. Cost analysis was done for the final product and it was Rs.75.09 for 100 g of cheese analogue. Curd at 66.7% (w/w) and 33.3% (w/w) of the mixture (gel and sweet potato mixture) was selected as the final product among four treatments according to the highest preference of panelists. Salt at 1.5% (w/w), 0.1% (w/w) Potassium sorbate and 0.05% (w/w) soy lecithin were added to finalize the product. All the physicochemical and microbiological results were in acceptable limits according to Sri Lanka Standards during the five weeks of storage period at 4 °C. This method is a simple and low cost to produce a cheese analogue.

*Keywords:* Cheese substitute, Low cost, Cheese analogues, Catering purpose, Dairy