

**ANTIOXIDATIVE PROPERTIES AND
LACTOBACILLUS POPULATION IN TRADITIONAL
SRI LANKAN PICKLE DURING FERMENTATION**

A dissertation submitted to the
Faculty of Science and Technology, Uva Wellassa University
in partial fulfilment of the requirements for the award of the
Degree of Bachelor of Technology

by

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July 2014

ABSTRACT

The aim of this study was to determine the functional properties of the traditional Sinhala pickle. The antioxidant activity, pH variation and Lactic Acid Bacteria (LAB) population in Sinhala pickle was evaluated using different analytical techniques: DPPH free radical scavenging assay was used to determine the antioxidant activity. The results showed that there was a significant changes ($P < 0.05$) in antioxidant activity during fermentation. Total phenolic content (TPC) in pickle extracts initially increased from 11.7353 ± 0.16 mg/ml to 15.0893 ± 0.58 mg/ml and started to decline. Antioxidant activity in pickle reduced after 96 hours storage time compared to that in 0 hours. The results showed that, pH was almost same during the 10 days of storage, and it consisted within the optimal pH level for growth of the LAB. And results present that the bacteria population increased from an initial number of 8.0997 ± 0.56 $\text{Log}_{10}\text{cfu/g}$ after 24 hours fermentation at 37°C . The maximum bacteria growth was observed as 9.4248 ± 0.23 $\text{Log}_{10}\text{cfu/g}$ after 48 hour's fermentation. After three days storage at 37°C , the bacteria population decreased but, no significant difference was observed with the storage time at 37°C . The present study demonstrated that after second and third day of preparation LAB, and total phenolic content reached to their optimum value and after that they started declining. pH value remained almost constant and fermentation retained 90-95% Antioxidant capacity during the 10 day of storage at 37°C . Second and third days after the preparation, can consider as the best consumption period of pickle to gain the additional health benefits beyond their basic nutritional value.

Keywords: Antioxidant activity, Lactic Acid Bacteria, Total Phenolic content, DPPH assay