

PRESERVATION OF SNAKE GOURD (*Trichosanthes cucumerina*) BY FERMENTATION

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This investigation was carried out to preserve snake gourd by two fermentation methods. Two types of snake gourds were chosen from Sri Lankan supermarkets and local fairs. The two snake gourd types were pickled using two available traditional pickling methods for preservation (i.e. Sinhala pickling and sweet pickling). The two pickles were produced using TA 2 (long snake gourd) and MI Short (short snake gourd) and a combination of both long and short snake gourds (i.e. TA 2 and MI Short). A sensory analysis was carried out to select the best product from the two preservation methods. The resulted best products were again subjected to sensory evaluation to select the best traditional fermentation technique. For the selected two best products, experimental procedures were carried out to test for the physical, chemical and microbiological parameters. After a storage period of seven months, the products were analyzed for microbial stability and for proximate composition. According to sensory results, the pickles made from MI short snake gourd were most preferred and among the two traditional fermentation methods, the sweet pickle had a higher rank sum and was selected as the best fermentation method. Overall, the acceptability data were considered for the samples to statistically analyze using Friedman Test in Minitab Statistical Package. The sweet pickled MI short snake gourd had a moisture level of 89.02% while the Sinhala pickled MI short snake gourd had 89.05% of moisture. The dried and powdered product of sweet pickled MI short snake gourd had protein, fiber, total fat and ash contents as 3.94%, 3.51%, 0.89% and 2.0%, respectively whereas the dried Sinhala pickled MI short snake gourd had protein, fiber, total fat and ash contents as 4.99%, 3.65%, 0.92% and 2.36%, respectively. Sweet pickle had a pH of 3.52 while the Sinhala pickle had a pH of 3.46. The salinity of the sweet pickle was 102 g/kg and for the Sinhala pickle it was 75 g/kg. Mineral content observed by Atomic Absorption Spectrophotometer gave 283.9, 219.0, 4.9197 and 42.5 mg/L of potassium, calcium, iron and magnesium, respectively, for the sweet pickle sample, and 1758.3, 418.6, 6.4 and 142.5 mg/L of potassium, calcium, iron and magnesium, respectively, for the Sinhala pickle sample. No pathogenic microorganisms were detected in the products. Sweet pickle and Sinhala pickle had an APC count of 5.6×10^3 and 5.8×10^2 , respectively. The products after 7 months of storage gave 90.70% and 90.11% of moisture levels for sweet pickle and Sinhala pickle, respectively. Sweet pickle contained 3.5% of protein and 1.70% fiber after the storage. The Sinhala pickle contained 4.94% of protein and 2.03% of fiber content after the storage. The pH levels of samples were 3.76 and 3.68 for sweet pickle and Sinhala pickle, respectively. The APC counts during the two month interval have increased in both products indicating a good environment for the fermentation bacteria. Both products after the 7 month storage had no development of yeast and mould but had become

smooth and resulted in a strong odour with a persistent colour. The results show that the pickles made from MI short snake gourd has a high level of minerals and nutrients which are good for the health and the pickling methods contribute to microbial safe products and also is a good approach to preserve snake gourd.

Keywords: fermentation, pickling, preservation, snake gourd, Sinhala pickle, sweet pickle

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