National University of Science and Technology

Final Year Project

Faculty of Applied Science

Department of Applied Biology & Biochemistry

Project Title: Adapting novel strategies for increasing the shelf life of edible caterpillars.

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ABSTRACT

This project was undertaken to assess the best method that can be used to preserve edible caterpillars so as to increase their shelf life. This was done through the use of several methods of processing mopane worms and preparing them in different salt concentrations before sun drying them. The three methods of processing mopane worms that were employed were; cutting the worms open, cutting them into short pieces and grinding them into powder. The three different salt concentrations that were used were 0.2 g/ml; 0.05 g/ml and 0.02 g/ml, both iodised salt and sodium chloride salt were used for all methods. The aerobic plate count method was used as a measure of sanitary quality. Bacterial counts were determined from plates with between 30-300 colonies. To determine internal micro flora the caterpillars were first boiled for 30 minutes to decontaminate the total surface micro flora and then process them using the three processing methods described above and exposing them in different salt concentrations before sun drying them for a week. To determine their internal flora 1g of dried worm was shaken in 9 ml of peptone water before preparing serial dilutions. One ml quantities from the serial dilutions were spread plated in triplicates and incubated at 37^0C for 48 hr. Caterpillars that were not boiled in salt water had the highest number of plate counts, followed by those that were boiled in lowest concentration of NaCl salt. The least number of plate counts were found in plates with worms preserved using the highest concentration of iodised salt. The best method for processing mopane worms was found to be those cut open and preserved by a high concentration of iodised salt. However, cutting open worms is not recommended if they are not to be salted as this will allow growth of microorganisms.