



Assessment of Bacteriological Quality of Dried Vegetables in South Africa

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Abstract

The aim of the study was to assess the bacteriological quality of dried vegetables (pumpkin flowers (*Cucurbita moschata* Duchesne), pumpkin leaves (*Cucurbita pep* L.) and cowpea leaves (*Vigna sinensis*) in South Africa. Three (3) different types of vegetables in which 15 samples for each were randomly purchased from each location. The samples were prepared using 10 g of dried vegetables which were randomly selected, weighed and transferred aseptically to a sterile stomacher bag containing 90 ml of Buffered Peptone Water (BPW) and homogenized for 2 min. Subsequent serial dilutions of the samples were made using BPW and microbial analyses were done on coliforms, *Escherichia coli*, *Salmonella* species, *Bacillus cereus*, total plate count, yeasts and moulds. The data obtained was subjected to statistical analysis using SPSS version 25.0. Coliform counts were present in all dried vegetables samples ranging from 2.9467 to 3.7006 \log_{10} cfu/g. *Escherichia coli* counts ranged from 0.0000 to 4.6196 \log_{10} cfu/g. *Salmonella* spp. varied from 2.3181 to 3.7503 \log_{10} cfu/g. *Bacillus cereus* ranged from 0.0000 to 3.7237 \log_{10} cfu/g. Total plate count ranged from 2.1338 to 2.6589 \log_{10} cfu/g. Yeast counts ranged from 2.0472 to 5.6086 \log_{10} cfu/g however, there was no mould counts isolated in all dried samples. Most of the results are compliance with FDA (2013). The study showed all samples were safe for human consumption which means the good hygiene practice was properly implemented. However, street vendor needs to be trained on how to handle food products as most of the products were purchased unclosed which may lead to high microbial growth.

Keywords: microbial quality; dried vegetables; foodborne pathogens; microorganisms; food safety.

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Dr. Shonisani E. Ramashia is the Head of the Department of Food Science and Technology. She joined the University as a contract Senior Laboratory Technician (2013-2014). She was then employed as Teaching Assistant (2015-2016). She teaches Food Microbiology, Food Commodity Processing, Product Development and Sensory Evaluation of Foods (coordinating). I am currently supervising two Masters' students and one PhD student. One master student completed and graduating in September 2019 graduation. I also supervised more than 20 BSc in Food Science and Technology final year (4th) research student. I worked in the Food Industry from 2008 to 2013 where I held different positions such as Quality Controller, Senior Food Microbiologist and Departmental Food Technologist. I have 10 published journal that are approved by DHET, one book chapter and two book chapters accepted. I am a project leader for WRC and ARC funded project.