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Physicochemical, Functional and Antioxidants Properties of Dried Insects in Thohoyandou Market

Pfuzo Lucky Mathabi, Shonisani Eugenia Ramashia

University of Venda, Thohoyandou, South Africa

Abstract

Entomophagy is the process of using insects as a food and practiced for three (3) reasons namely health, environment, and livelihood. The aim of this study was to determine the physicochemical, functional and antioxidants properties of the selected dried insects (*Imbrasia berlina*, *Gynasia maja* and *Macrotermes subhylanus*) purchased in Thohoyandou Street vendors market. The proximate composition, functional properties, pH values, colour attributes and antioxidant properties of dried insects' flours were determined. Protein content ranged from 29.12 to 43.76%, *IBF* was significant different from both *GMF* and *MSF* ($p < 0.05$). Moisture content of the flours varied from 3.94 to 4.86% moreover, the highest moisture content was observed in *IBF* (4.86%) and *IBF* showed as significant different. Low moisture content on insects' flour may be due to sun-drying of insects after harvest and also loss of moisture during milling of the flours. The L^* values of the samples ranged from 51.98 to 58.95, *MSF* had the lowest value (51.98) and *IBF* had highest value and showed the significant different. The pH values that are acidic are associated with pleasant smell in food, therefore the results obtained in the study shows that *MSF* may be more useful in baking than *IBF* and *GMF*. The total flavonoids compounds (TFC) of the flours ranged from 0.86 to 1.23 mg CE/ g. The total phenolic compounds (TPC) of the flours ranged from 38.55 to 55.09 mg GAE/ g. The DPPH (1,1-Diphenyl-2-picrylhydrazyl) assay of the flours ranged from 33.68 to 92.06%. Ferric reducing power (FRAP) of the flour was determined and ranged from 1.06 to 1.23 mg GAE/ g. This study may help food manufactures and rural communities to consider insects as another source of important nutrients more especially protein.

Keywords: Dried insects, physicochemical, functional, antioxidant properties

Biography: Shonisani E. Ramashia

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 master's 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.