Tropentag, September 17-19, 2018, Ghent

"Global food security and food safety:
The role of universities"

Proximate Composition and Total Aflatoxins in some Selected Grain Crops in Selected States in Nigeria

Kayode Adebisi Arowora[1], Bosede Folashade Oluwabamiwo[2], Chinedu Imo[1]

[1] *Federal University, Wukari, Dept. of Biochemistry , Nigeria*
[2] *National Agency for Food and Drug Administration and Control, Mycotoxins, Nigeria*

Abstract

The role of good preharvest, harvest and postharvest practices cannot be overemphasized in food safety and security in Nigeria. Good postharvest handling practices had been found to reduce contamination by mycotoxins especially aflatoxins. Some of the postharvest handling practices which would ensure food security include among others: good transportation, processing, marketing and storage. Therefore, this study was conducted to evaluate the proximate composition and total aflatoxins in some selected grain crops in selected states of Nigeria in Africa. The samples analysed were: maize (*Zea mays*), rice (*Oryza sativa*), groundnut (*Arachis hypogeae*) and acha (*Digitaris exilis*). Rice samples were procured from vandeikya local government area of Benue state, while other samples were purchased from wukari market in Taraba state, Nigeria. Proximate composition of the samples were determined by Standard Methods of Association of Official Analytical Chemists (AOAC), while total aflatoxin levels were carried out using the method of Enzyme Linked Immunosorbent Assay (ELISA). Gross energy composition was theoretically determined. The mean moisture content determined for the samples were within safe level for storage with the range (9.00-10.25 %), while the following ranges were determined for the following parameters: Crude protein (7.58-25.83 %), Crude fibre (0.26-5.41 %), Ether extract(0.18-49.20 %), Ash(0.49-2.84 %), Nitrogen free extract (17.66-88.36 %). Gross energy compositions of the crops were between 395.40 and 614.01 Kcal/100 g. This study revealed the variation in the nutritional composition of grain crops analysed. Aflatoxins were not detected in the clean grain crops analysed with the exception of acha that had 0.5ppb which is below current EU maximum levels of 4ppb for ready-to-eat products. Based on the findings in this study, therefore, clean grain samples procured at the selected markets were found to be safe for human consumption.

Keywords: ELISA, grain crops, proximate composition, total aflatoxins, wukari market

Contact Address: Kayode Adebisi Arowora, Federal University, Wukari, Dept. of Biochemistry , P.M.B. 1020, Wukari, Nigeria, e-mail: aroworak2002@gmail.com