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An incidence of aflatoxins in some selected vegetable oils commonly sold in Gadan Maiwa open market place of Ningi, Bauchi state, Nigeria

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Abstract
A research was carried out determine different types and levels of aflatoxins associated with some essential vegetable oils in Gadan Maiwa open market place, of Ningi, Bauchi State. The total of three (3) different samples of vegetable oils were obtained and these included; Peanut, Soya and Palm oils respectively. The products were obtained in sterile containers and transported to the laboratory for analysis. Malt Extract Agar (MEA) was used for the isolation, in which about four (4) different fungal species were isolated and identified. These included; *Aspergillus niger, Aspergillus flavus, Penicillium spp, Fusarium spp* and *Rhizopus spp.* Environmental parameters were also determined such as temperature and pH. *Aspergillus spp* had the highest frequency of occurrence among the isolates. Therefore, it can be recommended that vegetable oils must be properly stored in clean, dry places. Consumers of such products should ensure properly pasteurization prior used.

Keywords: Gadan-Maiwa, aflatoxins, MEA

Introduction
Aflatoxins are secondary metabolites produce by setting strains of filamentous fungi which are capable for causing diseases in both humans and other animas (Atanda *et al.*, 2001).

The infection on plants by various species of fungi is not only results in reduction of crop yield and quality but with significant economic losses and also contamination of grains with poisonous fungal secondary metabolites called aflatoxins ((Bhat and vasanthi 2003) [3]. The presence of mycotoxins in our food systems and tissues has enormous public health significance because these toxins are nephrotoxic, immunotoxic, teratoxigenic and mutagenic. Nigeria has experienced high recorded of aflatoxins exposure levels in humans and has reported that the highest estimated number of cases of hepatocellular-carcinoma (HCC- liver cancer) attributable to aflatoxins (Liu and Wu, 2010) [6] in the world.

Fungi are ubiquitous pathogens in nature that are major agents of deterioration in foods and feedstuffs. The ingestion of such aflatoxins in vegetable oils by humans has enormous public health significance, because these toxins are capable of causing diseases in both humans and other animals (Bhat and Vasanthi, 2003) [3]. Although the involvement of fungi and their toxins in causing diseases to man and animals dates back to the period when the Dead Sea Scrolls were written (Richard, 2007) it seems the evidence of their historic occurrence and impact were not obvious until the Middle Ages, when ergot alkaloids poisoning outbreaks in Europe were responsible for the death of thousands of people. Subsequently, between 1940s and 1950s a lethal human disease caused by *Fusarium* toxins and referred to as 'Alimentary Toxic (Smith and Moss, 1985). Peanut, soya and palm oils were found to be essentials in human body and can be contaminated by the activities of different fungal metabolites.

Statement of the Problem
Various cases of liver cancer and kidney dysfunction were reported in various tertiary medical centers in Nigeria. (Paul and Jibrin 2010) reported that most cases of natural death in Nigeria are due to the ingestion of high aflatoxins levels in food and feeds. Therefore, there is a stringent need to identify aflatoxin types present in commonly consumed vegetable oils.

AIM
The research is aimed at determining aflatoxins types associated with commonly consumed vegetable oils in Gada-Maiwa Open market place of Ningi, Bauchi State.

Objectives of the Study
1. The determination of different species of fungi associated with the products
2. The determination of moisture contents (MC) that aids the production of such aflatoxins.

Materials and Method
Study Area
The study area included Gadan-Maiwa Open Market Place of Ningi, Bauchi State.

Samples collection
Samples of some selected vegetable oils (such as peanut, soya and palm oils) were obtained in a sterile containers at random and thereafter transported to the laboratory for analysis.

Aflatoxin Analysis

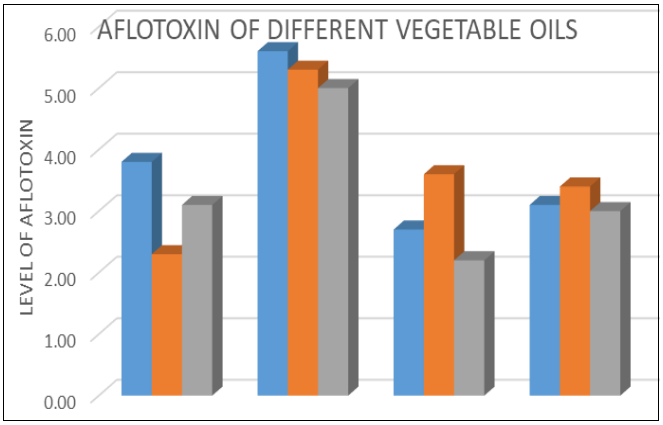

Fig 1

Distribution of Fungal Metabolites in the Vegetable oils

Table 1

	B1	B2	B3	TOTAL
Aspergillus	+	+	-	02
Spp				
Fusarium	+	+	+	03
Penicillium	-	+	-	01
TOTAL	02	03	01	06

KEY: B1= Peanut oil sample
B2= Soya bean oil sample
B3=Palm oil sample

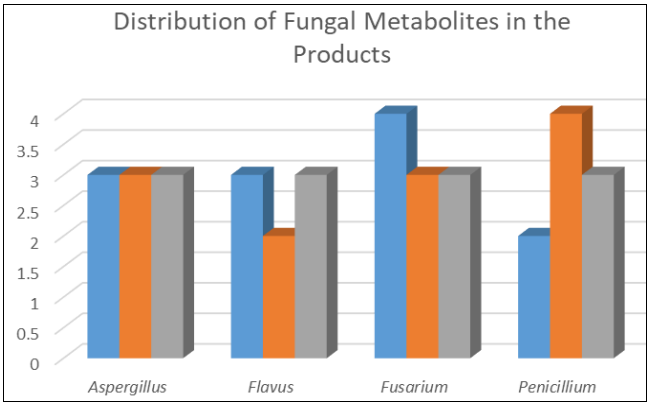

Fig 2

Conclusion

We can conclude that, vegetable oils sold in Gadan-Maiwa open market place found to contain different species of fungal metabolites, and these organisms are aflatoxins producing species.

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