**Aspergillus and Aflatoxin Contamination of Groundnut (Arachis hypogaea L.) and Food Products in Eastern Ethiopia.**

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Groundnut (Arachis hypogaea L.) is an important cash and food crop in eastern Ethiopia. The lack of awareness and data about *Aspergillus* and aflatoxin contamination of groundnut and groundnut food products in the area is lacking. This study was conducted to: i) assess major *Aspergillus* species and aflatoxins associated with groundnut seeds and “Halawa” (local cake) across different agro-ecological zones in eastern Ethiopia; and ii) evaluate growers’ management practices that promote fungal contamination. A total of 160 groundnut seed samples were collected from farmers’ stores in eastern Ethiopia during the 2013/14 and 2014/15 cropping seasons. Additionally, 50 groundnut cakes collected from open market cafes and restaurants were also included in the study. Fungal isolation was done from groundnut seed samples from both cropping seasons and *Aspergillus* spp. recorded. The species found were *Aspergillus flavus* L and S strains, *A. parasiticus*, *A. niger*, *A. tamarii*, *A. caelatus* and *A. ochraceus*. *Aspergillus flavus* was the most abundant species followed by *A. parasiticus* in both seasons. *Aspergillus flavus* L and S strains, *A. tamarii* and *A. caelatus* associated to groundnut are not yet reported, and this is the first in Ethiopia.

Aflatoxin analyses from groundnut seed samples were performed using UPLC; and 22.5% (from 2013/14) and 41.3% (from 2014/15) were positive for the presence of aflatoxins. Total aflatoxin concentrations of 786 (from 2013/14 samples) and 3135 ng g⁻¹ (from 2014/15 samples) were recorded. The level of specific aflatoxin concentrations in seed samples varied from 0.1 of B₂ to 2526.3 ng g⁻¹ of B₁. In infected seed samples, aflatoxin B₁ was the most abundant aflatoxin species followed by G₁ in both seasons. Among contaminated samples of groundnut cake “Halawa”, 68% of the samples exhibited aflatoxin concentrations below 20 ng g⁻¹, though some samples reached 158.1 ng g⁻¹ aflatoxin B₁. The total aflatoxin concentrate on of infected cake sample showed 173.4 ng g⁻¹, much higher than the international standard set by WHO (5 ng g⁻¹). The study confirms high levels of contamination of groundnut seeds and cakes in East Ethiopia.