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Aflatoxin Distribution in Crop Products from Burundi and Eastern Democratic Republic of Congo

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Abstract

Aflatoxins (AFs) are noxious secondary metabolites of certain fungal species found in food and feed. Contamination of a commodity is associated with production and storage losses, and subsequently less food availability. Aflatoxins can also pose human health risks and represent a barrier to the development of trade, in both domestic and international markets. In this study, samples of cassava, maize, groundnuts, beans, soybeans, and sorghum, and their processed products were collected from local markets in Burundi and Eastern DRC. In order to investigate the levels of AF, samples were analysed using a single step lateral flow immunochromatographic assay (Reveal Q+). The results revealed the presence of AFs in all samples from both countries, with levels ranging from 1.5 to 2781 $\mu\text{g kg}^{-1}$. Samples collected from Burundi contained relatively higher levels of AFs. In 51% of all the crops samples, total AF contamination was above the EU maximum tolerable level of 4 $\mu\text{g kg}^{-1}$. Processed products, particularly from groundnut, maize and sorghum, had the highest incidence of AF contamination when compared to dried seeds. These results can serve as the basis for strategic and systematic approaches to reduce AF contamination in agricultural commodities in Burundi and Eastern DRC in order to reduce health risk, avoid reduced production in livestock, and open up export markets. To further strengthen the national efforts in abating contamination, risk assessments are proposed in order to establish regulatory thresholds that the local consumer population can depend on, and which can be used to monitor safety across the country.

Keywords: Aflatoxins, Central Africa, dairy products, fungi, milk