Aflatoxins in sunflower seeds and unrefined sunflower oils from Singida, Tanzania

Salum Mohammed, Joan J.E. Munissi and Stephen S. Nyandoro
Chemistry Department, College of Natural and Applied Sciences, University of Dar es Salaam, Dar es Salaam, Tanzania

ABSTRACT

A total of 61 samples comprising sunflower seeds (40) and unrefined sunflower oils (21) samples collected randomly from Singida, Tanzania were analysed by Reverse Phase-high performance liquid chromatography (RP-HPLC). 15% (6/40) of the seed samples were contaminated with aflatoxin B_1 ranging from limit of detection (LOD) to 218 ng g with three of them exceeding the European Commission/European Union (EC/EU) and Tanzania Bureau of Standards (TBS)/Tanzania Food and Drug Authority (TFDA) maximum limits of 2 ng g^{-1} for AFB_1 in oilseeds. The levels of total aflatoxins (AFT) in seeds ranged from LOD to 243 ng g^{-1}. Other aflatoxins, except AFG_2, were also detected. For the unrefined sunflower oils, the levels of AFB_1 ranged from LOD to 2.56 ng mL^{-1}. About 80.9% (17/21) of the analysed oil samples contained AFB_1 of which 17.65% (3/17) exceeded the EC/EU and TBS/TFDA maximum limits of 2 ng mL^{-1}. Other aflatoxins were also detected in the oils. The measured levels indicate there is a need for food quality education among food processors.