

Prevalence of Aflatoxin Contamination in Peanuts and Peanut Butter from an Informal Market, Harare, Zimbabwe

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Abstract

Peanuts and peanut butter play an important role nutritionally in improving the diets of individuals in many parts of Africa, especially in the fight against child malnutrition. However, in developing countries such as Zimbabwe, most of the raw peanuts and peanut butter produced in backyard industries are sold in informal markets and rarely undergo formal safety inspection for aflatoxin contamination. The objective of the study was to determine the prevalence of aflatoxins in raw peanuts and backyard peanut butter sold at Mbare informal market. Ten (10) raw peanut samples and twenty (20) peanut butter samples were collected from Mbare informal market. Aflatoxin contamination was determined using liquid chromatography-mass spectrometry (LC-MS). The results revealed that sixty percent (60%) of the raw peanut samples were contaminated with total aflatoxin ranging from <0.75 to $426.4 \mu\text{g}/\text{kg}$. One hundred percent (100%) of peanut butter samples were contaminated with total aflatoxins ranging from $4.7 \mu\text{g}/\text{kg}$ to $435.0 \mu\text{g}/\text{kg}$. Aflatoxin B 1 was the most prevalent aflatoxin in both raw peanuts (range, $1.2 \mu\text{g}/\text{kg}$ to $90.8 \mu\text{g}/\text{kg}$) and peanut butter (range, 4.7 to $382.9 \mu\text{g}/\text{kg}$). Forty percent (40%) of the raw peanuts and 95% of peanut butter samples exceeded the maximum limits of AFB1 as set by Zimbabwe legislation. The results suggest that raw peanuts and especially the peanut butter from backyard industries are heavily contaminated with aflatoxins and could constitute a possible health risk to consumers who regularly purchase these food commodities from informal markets.