Title Aflatoxin B_1 in post-harvest peanuts and dietary risk in China

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Citation Food Control, Volume 23, Issue 1, January 2012, Pages 143-148

Keywords Peanut; Aflatoxin B_1; High Pressure Liquid Chromatography (HPLC); Immunoaffinity column; Dietary risk

Abstract

To monitor the aflatoxin contamination status in raw peanuts and evaluate the effect on public health, 1040 samples were collected from four agro-ecological zones throughout 12 provinces from 2009 to 2010 in China and then analyzed for aflatoxin B_1 (AFB_1) levels using High Pressure Liquid Chromatography (HPLC) and immunoaffinity columns. The results revealed that AFB_1 was detected in 25% of the samples, ranging from 0.01 to 720 μg/kg. The Monte Carlo and bootstrap methods were employed to estimate AFB_1 intake in children and adults and their potential liver cancer risk. The mean estimated intakes for children and adults were 0.218–0.222 ng/kg body weight (bw)/day and 0.106–0.108 ng/kg bw/day. The liver cancer risk, calculated by two approaches derived from the Joint FAO/WHO Expert Committee on Food Additives (JECFA) and European Food Safety Authority (EFSA), were estimated at 0.003–0.17 cancer cases/year/100,000 and 24.7–1273 margins of exposure values, respectively. The results suggest that AFB_1 contamination in raw peanuts and dietary risk was low, but essential surveillance measures should be taken to protect public health.