

July 08-09, 2019
Vienna, Austria

J Food Nutr Popul Health 2019, Volume 03

Effect of microwave heating on the degradation of aflatoxins in packaged and unpackaged peanuts

Tamari Tatrishvili, Natalia Kiknadze, Elene Zhuravliova and David Mikeladze

Ilia State University, Georgia

Recent studies revealed the highest exposure to aflatoxins and relevant increased risk of carcinogenicity in children and teenagers who are the main consumers of peanuts and peanut butter. Content of aflatoxins in peanuts is still serious problem for region (Turkey, Georgia and other), Georgia has received 24 notifications by RASFF (Rapid Alert System for Food and Feed) in last three years. There recorded seven refusal decision by European countries on peanut import from Georgia in 2018, because of high aflatoxin content in product. The content of aflatoxins in packaged products, particularly in peanuts, is often increased due to the reproduction of aflatoxin-producing fungi depending on the maintenance conditions. The risk of toxic exposure of aflatoxins is additionally enhanced since packaged peanuts are ready-for-use product and is consumed without any additional thermal or other treatment. Processes such as heating, roasting and baking can reduce the levels of aflatoxins but cannot completely

eliminate the toxins. Microwaves were used in the present work in order to study degradation of aflatoxins in packaged and unpackaged peanuts presented on Georgian market. The aflatoxins were extracted by methanol/water, preliminary purified by immunoaffinity columns (EASI-EXTRACT® AFLATOXIN) technique and quantitatively determined by HPLC relevant method. The initial content and level of degradation was estimated for all aflatoxins (B1, B2, G1, G2) separately. Besides the differences in initial concentration of aflatoxins, the average degradation was highest for G2 aflatoxin (72% and 82% respectively to different power setting and heating time). Degradation degree was decreasing in order G2>G1>B1>B2 (45% and 53 % respectively). The rate of total aflatoxin average destruction slightly differs between high power short-time (3 minutes) and moderate power middle-time (5 minutes) exposures-71.6% and 66.4% correspondingly.

tamari.tatrishvili.1@iliauni.edu.ge