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(POS-11) Quality Assessments of Peanuts Treated with High Voltage Atmospheric Cold Plasma (HVACP)

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The contamination of peanuts by Aspergillus flavus and the subsequent production of aflatoxin B1 (AFB1) poses significant health risks and economic losses to the food industry. High voltage atmospheric cold plasma (HVACP) has emerged as a promising non-thermal technology for mitigating fungal contamination and reducing mycotoxin levels in various food commodities, with short treatment time, low energy consumption, and no chemical residue on the food. Our previous study demonstrated that HVACP can effectively inactivate A. flavus and reduce AFB1 on raw peanut kernels with room air as working gas. To understand the effect of HVACP on the quality, the moisture content, color, hardness, fracture force, peroxide value, and chemical structure of peanut oil were assessed for the peanuts treated with HVACP using the optimal conditions regarding A. flavus inactivation and AFB1 reduction (90 kV for 10 min at 80% RH). There were no significant differences in moisture content, color, texture, peroxide values as well as the structure of peanut oil between untreated and treated peanut kernels ($P > 0.05$). HVACP exhibits a great potential intervention with a high efficiency to decontaminate the A. flavus and reduce AFB1 in peanut without negative effects on the quality, which is beneficial to food post-harvest processing and safety, offering a promising solution for the peanut industry to ensure the delivery of safe peanuts to consumers worldwide.

Keyword-1

Cold plasma

Keyword-2

Food Quality

Keyword-3

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