

REDUCTION OF MYCOTOXINS IN SEMI-DRY FISH PRODUCTS WITH ELECTROLYZED WATER TREATMENT

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Electrolyzed water (EW), including acidic electrolyzed oxidizing water (AcEW) and alkaline electrolyzed water (AIEW), has been reported as a novel and effective technology for inactivating bacteria and preserving the freshness of foods. In this study, five mycotoxins (aflatoxin B1 [AFB1], aflatoxin B2 [AFB2], aflatoxin G1 [AFG1], aflatoxin G2 [AFG2], and ochratoxin A [OTA]) in semi-dry fish products were investigated. The effects of single treatment and combination treatments removal on the five mycotoxins were also investigated. Furthermore, some external factors (liquid-to-solid ratio, soak temperature, and time) that might influence the elimination rates of mycotoxins in semi-dry fish products were also tested. The results indicated that the removal rates of the combination treatments were superior to those of the single treatments. The optimum mycotoxins elimination for contaminated semi-dry fish product (2±0.5 g, 40 µg/kg) was obtained after the following treatment: oscillation with 10 mL of AIEW (pH 11.77) at 80 rpm for 40 min (35°C), followed by soaking with 10 mL of TW for 20 min (25°C). This treatment resulted in elimination rates of 81.16%, 75.01%, 77.19%, 75.60%, and 43.62% for AFB1, AFB2, AFG1, AFG2, and OTA, respectively. Also the metabolites of the AIEW degradation of the five mycotoxins were investigated. The satisfactory elimination effects suggest that an AIEW treatment is a promising method for mycotoxins decontamination in semi-dry fish products.

Biography

Yong Zhao has obtained his Doctorate of science of Microbiology at the Nanjing Agricultural University in 2005. His main research areas are molecular ecology of food microbiology, food quality and safety risk assessment, food quality safety and system biology research. He has hosted more than 20 scientific research projects, including the National Natural Science Foundation of China, and participated in more than 10 scientific research projects.

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