

Title Removal of polycyclic aromatic hydrocarbons by low density polyethylene from liquid model and roasted meat

Author Jason Chen and Shaun Chen

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Abstract

Low density polyethylene (LDPE) was used to remove polycyclic aromatic hydrocarbons (PAHs) from liquid media and roasted meat by sorption. Three liquid models and five carcinogenic PAHs were employed to monitor the sorption process, and amounts of chemicals were determined by GC-FID. More than 50% of the total adsorption occurred within 24 h for the selected PAHs in the three model systems. The water–oil system yielded the highest PAHs removal by LDPE; and the system containing phospholipid resisted the diffusion and resulted in the least adsorption among three models. Certain residual PAHs in the LDPE were significantly decreased to a range of 70.8–84.0% after 3 h of UV radiation, and benzo(*a*)pyrene was the most sensitive to UV among these PAHs. Removal of PAHs in roasted meat packaged under vacuum was achieved, and potent contamination by the PAHs in the LDPE may be avoided by subsequent UV irradiation.