

Study of Accumulation of Polycyclic Aromatic Hydrocarbons (PAHs) in Smoked Fish (*Thunnus albacares*) Under Different Storage Conditions

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Fish smoking is the most extensively used simplest preservation technique. Although, accumulation of carcinogenic Polycyclic Aromatic Hydrocarbons (PAHs) from wood burning is a major problem associated with the smoked fish. Hence, this research was focused to study the penetration of PAHs in to center of the smoked fish (*Thunnus albacares*) and effect of accumulated PAHs content with the time under different storage conditions. Fish chunks having equal thickness were smoked using smoke of coconut husk and stored under refrigerated (4°C) and frozen (-18°C) conditions. PAHs content of surface and center part of stored smoked fish chunks were analyzed at predetermined time intervals by Infinity Quaternary Gradient HPLC system with FLD and UV detectors. Moisture content, water activity, pH, texture, and color of smoked fish samples were also analyzed. PAHs content (Anthracene) of the surface of the smoked fish at the beginning of storage was 190.39 µg/kg and that was declined during both refrigerated (after 6 day 130.09 µg/kg) and frozen storage (after 15 day 106.19 µg/kg). But PAHs content (Anthracene) of the center of the smoked fish at the beginning of storage was 0.00 µg/kg and that was increased during both refrigerated (after 6 day 19.88 µg/kg) and frozen storage (after 15 day 45.47 µg/kg). There were no significant changes in the moisture content (68.49±0.5%) water activity (0.967±0.007), pH (6.04±0.21) and firmness (0.909±0.162 kg) of the smoked fish during the storage (p>0.05). Therefore, results revealed that PAHs penetrate in to the center part of the smoked fish during the storage.

Keywords: Polycyclic aromatic hydrocarbons, Smoking, Storage conditions, Physiochemical parameters