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Health Risk Assessment on Dietary Exposure to Polycyclic Aromatic Hydrocarbons (PAHs) in ready-to-eat meat products in Ribeirão Preto, Brazil

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ABSTRACT

Recent epidemiological studies have revealed that dietary exposure to PAHs is associated with an increased risk of some human cancers. This work describes the health risk assessment of the adult population due to PAHs intake through the consumption of meat products by calculating the Margin of Exposure (MoE) and Incremental Lifetime Cancer Risk (ILCR). Volunteers (n=386) answered a Quantitative Food Frequency Questionnaire, and forty samples of meat samples were collected at local restaurants. Samples were analyzed for benzo[a]anthracene (BaA), chrysene (Chr), benzo[b]fluoranthene (BbF) and benzo[a]pyrene (BaP) content. MoE for 50th percentile meat consumers considering mean values of PAH in samples were 94,826 (female) and 73,167 (male), while ILCR was 5.3×10^{-7} (female) and 6.7×10^{-7} (male). For the worst scenario (95th percentile and highest PAHs levels), MoE calculation resulted in 12,502 (female) and 7,013 (male) and ILCR values of 7.3×10^{-6} (female) and 1.2×10^{-5} (male). MoE below 10,000 is of public concern, and ILCR value higher than 1×10^{-6} denotes potential carcinogenic risk.

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