

EVALUATION OF PROBABLE SOURCES AND EXTENT OF BEEF CONTAMINATION BY SMOKE PAHS (POLYCYCLIC AROMATIC HYDROCARBONS) IN SELECTED TOWNS OF NORTHERN NIGERIA

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ABSTRACT

Polycyclic Aromatic Hydrocarbons (PAHs) contamination of roasted beef collected from five towns in Northern Nigeria was assessed. The study revealed that the 16 priority listed PAHs contaminated roasted beef especially the USEPA human carcinogenic PAHs. The level of contamination was determined as % PAH contamination from smoke and was in the range of 0-96. The contamination of the beef by these PAHs was presumed to be by adsorption rather than absorption. Some of the PAHs like acenaphthylene, chrysene, benzo[a]pyrene, benzo[g,h,i] perylene among others significantly contaminated the beef samples at $P < 0.05$. Furthermore, the PAH4 were found to contribute higher concentrations from smoke than from other sources in the environment. In addition, the study showed that the source diagnostic ratio indicated that the PAHs that contaminated the beef were from pyrogenic sources rather than petrogenic sources. Generally, Benzo[a]pyrene and sum of PAH4 in the samples were within the Food Standard Agency limits of $2 \mu\text{gkg}^{-1}$ and $12 \mu\text{gkg}^{-1}$.

Keywords: Adsorption, benzo[a]pyrene, contamination, PAHs, pyrogenic, petrogenic.