

## Polycyclic Aromatic Hydrocarbons and Heavy Metal Contents of selected Smoked Meats

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### Abstract

Polycyclic Aromatic Hydrocarbons (PAHs) and heavy metal contents of smoked chicken, fish and beef were investigated in this study using standard procedures. Analyte extraction was carried out using Sonication and Soxhlet extraction methods with two different solvents (n-hexane and Dichloromethane (DCM) and their combinations (n-hexane: DCM) and PAHs content determined using GC/MS. The total PAHs content in smoked Beef using Sonication method ranged from 36.15-45.15 µg/kg, Soxhlet extraction method, from 33.04 - 42.80 µg/kg irrespective of the extractant, with n – hexane extract having the highest PAHs and n-hexane:DCM the least. Similarly, for smoked Chicken, the total PAHs content using Sonication method ranged from 50.45 - 55.91 µg/kg irrespective of the extractant, with n – hexane having the highest and DCM the least. The highest concentration for individual PAHs was 11.65 µg/kg and was obtained in Phenanthrene. Lower molecular weight PAHs made up 40.22 to 57.30% of the total PAHs in smoked Beef. The result of heavy metal analysis using Atomic Absorption Spectrophotometer revealed that Zn had the highest concentration (11.00 to 44.61 mg/kg among the metals analysed while Cd had the least (0.032 to 0.075 mg/kg). Concentrations of some of the metals in the smoked samples were within safe limit based on International Standard (WHO and FAO). The concentrations of the metals were in the order: Zn>Fe>Mn>Cu>Pb>Cd.

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### Speaker Publications:

1. “Determination of polycyclic aromatic hydrocarbons and heavy metal contents of barbecue beef, fish and chicken”
2. “Determination of the physico-chemical properties and selected heavy metal concentration in soils around Kolo creek oil well head in Bayelsa State, Nigeria.”
3. “Physico-chemical, Fatty Acid Profile and Amino Acid Composition of the Fruit Pulp and Seeds of Ximenia americana L. (Tallow Plum) Obtained in Niger State”
4. “Analysis of Cyanide and Essential Mineral Contents in Raw and Processed Cassava from Minna, Nigeria”
5. “Heavy Metals Accumulation in Water, Sediments and Catfish (*Clarias gariepinus*) from Two Fishing Settlements along River Kaduna in Niger State, Nigeria”

[3<sup>rd</sup> International Conference on Food Safety and Health;](#)  
Webinar- June 09-10, 2020.

### Abstract Citation:

Ajai. A. I, Polycyclic Aromatic Hydrocarbons and Heavy Metal Contents of selected Smoked Meats, Food Safety Meet 2020, 3<sup>rd</sup> International Conference on Food Safety and Health; Webinar- June 09-10, 2020

<https://foodsafety.nutritionalconference.com/2020>



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