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## **Polycyclic Aromatic Hydrocarbons in Ready -to-Eat Meat and Chicken**

A thesis Presented by

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(Hygiene and control of meat, fish and their products and animal by-products)

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## **Abstract**

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Ninety meats and meat products samples were collected from different restaurants and supermarkets in Fayoum Governorate. The samples were represented by grilled: beef steak, beef kofta, and broiler chicken, smoked: beef, chicken, turkey, salami, frankfurter and hotdog (10 samples each). Additionally, another 90 experimentally marinated and grilled samples were represented by beef steak, beef kofta and broiler chicken grilled by charcoal, gas and electric grill (10 samples each for every grilling method). Eighteen PAHs compounds were analyzed by gas chromatography-mass spectrometry. Smoked meat products contained reasonable amounts of PAHs. The highest benzo[a]pyrene, PAH4, PAH8 and  $\Sigma$ PAHs were recorded in charcoal grilled kofta with mean levels of 7.59, 15.74, 17.86 and 60.95 $\mu$ g/kg, respectively. Contrarily, the least content was recorded in electric grilled chicken. Averages were 0.0, 0.44, 0.55 and 26.36 $\mu$ g/kg, respectively. Some of the examined grilled samples exceeded the permissible limits and may represent some health risks to consumers. The public health hazards were discussed as well as recommendations were done.

**Key words:** PAHs, grilled meats, smoked meats, smoked sausages, GC-MS.

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# List of abbreviations

Ac.	Acenaphthene
Acl.	Acenaphthylene
Anth.	Anthracene
B[a]A	Benzo[a]anthracene
B[b]F	Benzo[b] fluoranthene
B[k]F	Benzo[k]fluoranthene
B[a]P	Benzo[a]pyrene
BghiP	Benzo[ghi]perylene
Chr.	Chrysene
DahA	Dibenzo[a,h]anthracene
Fa.	Fluoranthene
IcdP	Indeno[1,2,3-cd]pyrene
Na.	Naphthalene
NFSA	National Food Safety Authority (Egypt)
Phen.	Phenanthrene
Pyr.	Pyrene
PAH4	Sum. of B[a]P+B[a]A+ Chrysene +B[b]F
PAH8	Sum. of PAH4+B[k]F+ IcdP+ DahA +BghiP
QuEChERS	Quick, Easy, Cheap, Effective, Rugged and Safe
ΣPAHs	Total PAHs content