



## Research Article

# Determination of Polyaromatic Hydrocarbon Levels in Barbecued Mutton and Beef with Different Grilling Procedures

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Received | April 21, 2022; Accepted | June 07, 2022; Published | August 03, 2022

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Citation | Anjum, Z., F. Shehzad, S. Ali, S. Yousaf, A. Rahat and H.U. Shah. 2022. Determination of polyaromatic hydrocarbon levels in barbecued mutton and beef with different grilling procedures. *Sarhad Journal of Agriculture*, 38(3): 1044-1050.

DOI | <https://dx.doi.org/10.17582/journal.sja/2022/38.3.1044.1050>

Keywords | Proximate analysis, PAHs, Contaminants and Chrysene, Naphthalene, Flourenthene and DBAHA



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### Suggestions for safe grilling

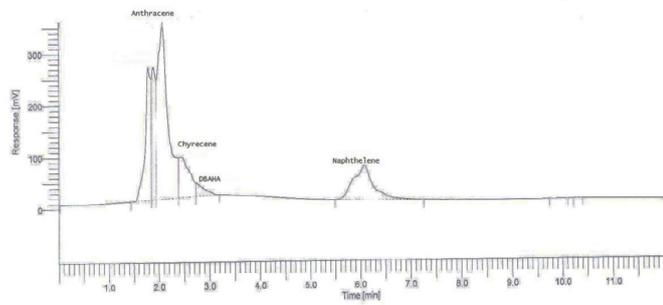
1. Covered grilling is helpful in lowering the formation of PAHs in meat, as it prevents the meat from direct contact with the heat.
2. Direct contact of meat with flame should be avoided. This could be achieved by placing the meat away and at distance from the heat source.
3. Melting and dripping of fat onto the coals should be avoided. This could be accomplished by trimming the fat layers from meat before grilling.
4. Lower temperatures should be used for meat grilling rather high temperature and over cooking should be avoided. Though, the meat should be prepared thoroughly to kill foodborne pathogens.
5. Before grilling or cooking meat at high temperature, the meat could be cooked partially by a method which employs a lower cooking temperature such as boiling.
6. Marination of meat before grilling will be helpful in minimizing the levels of meat toxicants, as marination mixture contains herbs and spices

which have shown possible role in minimizing the levels of heavy metals and PAHs in grilled meat.

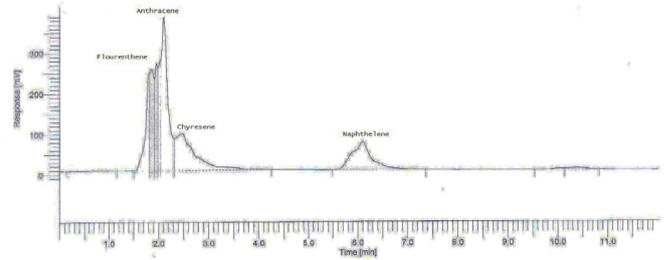
7. Grilling of meat on coals produces more PAHs, whereas other grilling procedures are comparatively safer; like gas and electric grilling so in this regard modification is needed in grilling techniques.
8. Charred or burned parts of grilled meat should be trimmed off and avoided for consumption.

### Chromatograms for PAHS

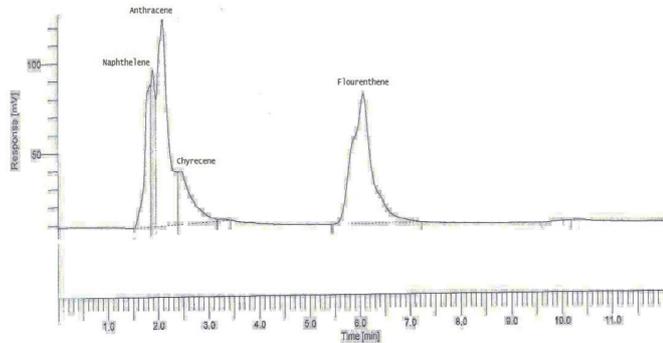
The high performance liquid chromatography was applied for the detection of PAHs in barbecued meat and few of chromatograms are as follows:



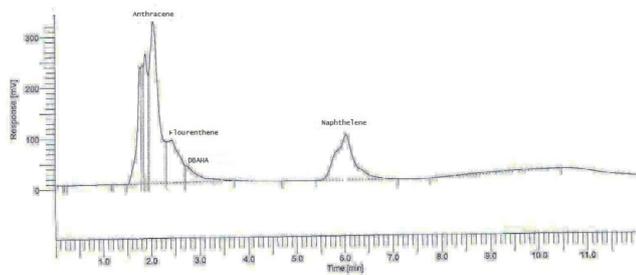
Supplementary Chromatogram 1: Coal grilled mutton.



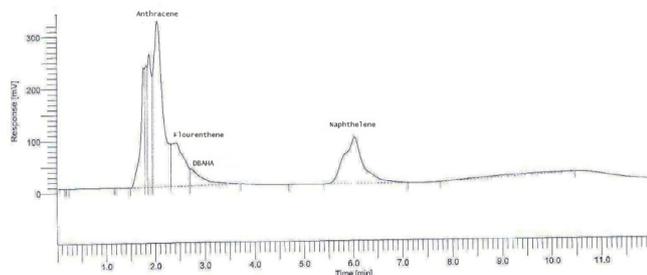
Supplementary Chromatogram 6: Electric grilled beef.



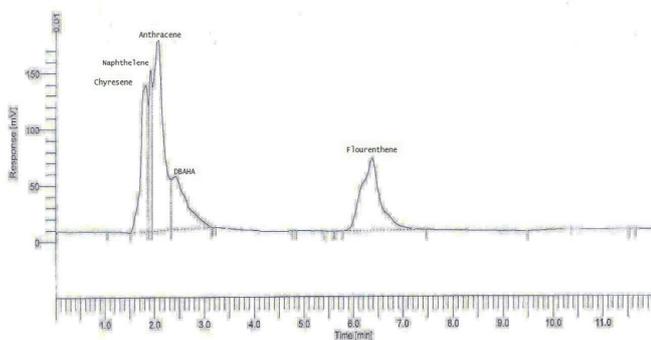
Supplementary Chromatogram 2: Coal grilled beef.



Supplementary Chromatogram 3: Gas grilled mutton.



Supplementary Chromatogram 4: Gas grilled beef.



Supplementary Chromatogram 5: Electric grilled mutton.