

Peer Review

Review of: "Polycyclic Aromatic Hydrocarbons in Brazilian Food: A Critical Review of Levels, Human Health Risk Assessment, and Potential Gaps in the Recent Literature"

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Reviewer comments:

Polycyclic Aromatic Hydrocarbons in Brazilian Food: A Critical Review of Levels, Human Health Risk Assessment, and Potential Gaps in the Recent Literature

General:

- a. The manuscript is well-written, addressing an important food safety aspect. The approach in selecting the articles for review follows accepted standard procedures. The manuscript addresses three areas as indicated in the title, namely (1) PAH levels, (2) Exposure risks, and (3) Potential gaps in literature.
- b. Absence of information on origins or pathways of contamination is a major gap in the literature used in this study. This needs to be highlighted in the Brazilian context.
- c. While there is difficulty in comparison for total PAH in foods due to different criteria used in publications (PAH4, PAH8, PAH16, PAH37), it may be more appropriate to compare benzo(a)pyrene in all products (as a marker) reported and convert the data into a bar diagram (product vs. concentration) to strengthen the section 'Levels' in the title.
- d. Focus on the title needs to be increased, leaving out less relevant generalized and speculative aspects.

Specific comments

Abstract (starting at line No 9)

1. Line 28: Stress on funding limitations without discussing the available funding and the limitations in the manuscript. This is speculative and not based on research.

Introduction starting line 38

1. Line 40: Focus on the deposition of PAH by smoke. It does not emphasize PAH generated inside foods due to the effect of heat (Please see: <http://dx.doi.org/10.4038/jnsfsr.v51i2.11396>)
2. Lines 64 to 66: Expand on this aspect to highlight the generation of PAH inside foods due to heat, especially in commercial processes.
3. Line 148: Calculation of health risk based on the total concentration of all detected compounds may bring in limitations, as carcinogenicity is not equal in all compounds, and there are compounds identified to be not carcinogenic to humans (IARC groups 3 and 4). A mention of this limitation is expected.

Results start in line 158

1. Line 191: Consider identifying probable causes of high contamination (ingestion?, preparatory method?). Examination of data on fish for raw fish and cooked vs. roasted grilled may provide useful information. A comparison may show gaps in research data.
2. Lines 212 – 224 (analytical methods): Please cite references. There are many already in the reference list.
3. Line 238 Section 4.1: Disparities in research infrastructure. This section does not align with the title. Please consider either changing the title or discussing this aspect, highlighting and linking with literature gaps.
4. Lines 326 to 362: Discussion on agricultural production systems has low relevance to the title of the manuscript. Please consider deleting it to improve the focus on PAH accumulation or production within foods linked to various food systems in Brazil.
5. Lines 366 to 369: Please expand on it by applying PAH generation knowledge from other countries, linking with the practices of Brazilian food processing systems, and predicting possible foods or processes or steps in processes requiring examination for PAH. That would contribute much to the “potential gaps” in the title.

Line 517 onwards: Future trends and prospects

1. This section is too general, addressing all aspects of contaminants. It is better to focus on PAH to indicate the importance of the subject discussed under the title.

Tables:

1. Please move titles to the top of the tables.
2. Please identify clearly the tables that go as supplementary materials from the tables associated with the manuscript.

Declarations

Potential competing interests: No potential competing interests to declare.