

Evaluation of Dissertation Thesis

Thesis title: Influence of Cambodian traditional smoking practices on the concentration of Polycyclic Aromatic Hydrocarbons (PAHs) in smoked fish processed in Tonlé Sap area, Cambodia

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Objective of the Dissertation Thesis:

The main objective of the thesis was to investigate in detail the traditional practices of smoke-curing fish in the Tonlé Sap lake area in Cambodia, and monitor the concentrations of selected contaminants (polycyclic aromatic hydrocarbons / PAHs) in the final product.

Secondary aim of the study was to develop an effective sample preparation procedure with less solvent and time input for the determination of PAHs in smoked fatty products of animal origin, particularly smoked fish.

General evaluation

From my point of view, the dissertation thesis is developed at a very high professional level and it is visible that in many areas of scientific research (despite the fact it is applied research) the author used new and sophisticated methods.

Especially, I appreciate the comprehensive and multidisciplinary approach, where the author participated in all phases of the project solution, from collecting fish sample, sample preparation and analysis, statistical evaluation and finding the practical reason for very high PAH content in fish in order to contribute to reducing health risks of fish consumers.

I also appreciate the choice of a topic where the scientific findings can (and hope will) be used in practice and help through follow-up awareness and technological changes of smokehouses to reduce the human health risks of local people consuming smoked fish.

In general, the project can also be considered as development project, which leads to the fulfillment of Sustainable Development Goals (SDG), specially 3 (Good health and well-being), 12 (Responsible consumption and production) and 15 (Life on land).

Comments and suggestions

In the chapter Results and Discussion (p. 82) and Conclusions (p. 98) the maximum analyzed concentrations of Σ PAH4 and Σ PAH12 are probably omitted. If data presented in Table 7 are valid, the maximum concentration of Σ PAH4 was 3779 $\mu\text{g}\cdot\text{kg}^{-1}$ in *Labeo chrysophecadion* (instead of 2701.45 $\mu\text{g}\cdot\text{kg}^{-1}$ in *Paralabuca typus*), resp. Σ PAH12 was 17160 $\mu\text{g}\cdot\text{kg}^{-1}$ in *Henicorhynchus siamensis* (instead of 16818 $\mu\text{g}\cdot\text{kg}^{-1}$ in *Paralabuca typus*).

Despite the fact that the generation and accumulation of PAHs in fish during the smoking process is unquestionable, I recommend the next time to collect and analyze the PAH content in several (2-3) fresh fish before the smoking process (i.e. to have blank samples) to exclude the presence of PAHs due to bioaccumulation in fish life.

In addition, there is some minor typo in notes below Table 7 (p.88) - T1 (3-6 hours) and T2 (1-4 days), and T2 (1-4 days) and T4 (up to 10 days); should be T3 (one week)

Additional questions to author

What is the reason that out of a total of 63 samples taken and prepared, only 57 samples were analyzed and presented in this Thesis?

Were / will the results be handed over to any local NGO or state authority that, based on the alarming values of PAH content, will follow up with awareness-raising activities (NGOs) or inspection of local producers and retailers?

Conclusion

Based on a comprehensive evaluation, I recommend accepting this dissertation thesis prepared by Ing. Tereza Slámová for defense without reservations.

Prepared by RNDr. Ondřej Urban, PhD.

In Prague, April 11, 2021

A handwritten signature in blue ink, appearing to read 'Ondřej Urban', is written on a light-colored, textured background.