

# Review of: "Probabilistic Assessment of the Heavy Metal Pollution in Debrecen's Topsoil"

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Potential competing interests: No potential competing interests to declare.

## **Review Comments on Manuscript Titled**

### **Probabilistic Assessment of the Heavy Metal Pollution in Debrecen's Topsoil**

Thank you for sharing this research manuscript. Here are some suggestions to help improve the quality and clarity of the writing:

- The introduction provides good context on the topic of heavy metal pollution in soils, especially in Hungary. However, it could be strengthened by more clearly articulating the specific research questions and hypotheses being tested in this study. What gaps in knowledge is this work aiming to address?
- The soil sampling and analytical procedures are described well. Providing the number of samples collected in each land use category (urban vs. non-urban) would be useful additional information.
- Providing equations for how each index is calculated would allow readers to more easily interpret the results. The author can refer to the following study:

<http://dx.doi.org/10.1007/s10653-023-01650-4>

<https://doi.org/10.1016/j.totert.2023.100039>

- Figures 2-5 are informative for visualizing the spatial patterns of pollution. Make sure to explain what the different colours represent in the figure captions.
- The PCA results identify important sources and relationships between the metals. Connecting these statistical findings back to likely anthropogenic activities in Debrecen would strengthen the real-world implications.
- Expanding the discussion of health/ecological risks and comparisons to studies in other cities would help contextualize how concerning the pollution levels are. The author can refer to the following study:

<http://dx.doi.org/10.1016/j.psep.2022.12.063>

<https://doi.org/10.1016/j.envpol.2022.120608>

- Proofread for minor grammatical errors and to improve word choice in some places

- Make sure all tables and figures are referenced in the text in order
- Adding a few more key references, especially in the Discussion, would further demonstrate how this work builds on previous research