

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.

Interesting manuscript in terms of metal pollution in topsoil. Nevertheless, I have some comments for improvement to be considered by the authors to enhance its impact and clarity.

1. Introduction: It is better if the authors could briefly describe a similar recent investigation of urban soil in Europe or worldwide.

2. Materials and methods:

-The authors should provide relevant information such as the geomorphology, geological setting, and climate of the studied region.

-Figure 1 does not appear. Please add a good resolution figure.

-QA/QC: The authors should explain the quality assurance and control for soil sampling and the analytical procedure. E.g., how was the XRF calibrated? How about the detection limit, duplicates, blanks, standard? This could improve the validity and reliability of the data presented.

-How about the fraction of the soil (<2 mm or <63 µm?) analyzed? Please be specific.

-Statistical analysis: It is better if the authors included the statistical anomalies (extremes and outliers) for each element. This could help to locate which spots are mostly anthropogenically affected.

3. Results and discussion:

-The authors should include comparisons with other study areas (city or rural soils). The authors should include in-depth discussion to link the spatial variation of the elements with the local lithologies and anthropogenic activities. This would add value as readers would grasp the idea of how polluted the Debrecen soil is in comparison to other areas.

-Page 7, "Mn is the most abundant pollutant in the topsoil of Debrecen due to mining and the abundance of oxides, carbonates, and sulphates in the soil." How sure are the authors about this? Please justify with a reference.

-The primary findings are typically supported by broad consideration and research from other nations, neglecting the specific geological characteristics of certain regions; perhaps the authors could be more specific.

4. Conclusion: It is good if the authors could provide the limitations of the study, i.e., the methods' limitations.
5. References: Please be consistent in terms of reference list format.