

Final report of Aktion 96p6 project

Investigation of potentially toxic elements in Antarctic terrestrial flora

Summary

The Aktion project 96p6 facilitated three collaborative visits undertaken between the Czech and Austrian research teams, promoting the exchange of technical expertise, scientific knowledge, and research methodologies. By joint efforts, unique samples of Antarctic terrestrial flora were subjected to comprehensive analysis. The project generated concrete outcomes, including a co-authored conference presentation and a joint paper currently under review.

The first visit

10th to 13th of July 2023, Brno (CZ) → Graz (A)
attendee: Ondřej Zvěřina (OZ, researcher)

Activities:

- OZ brought a total of 95 digested samples of Antarctic terrestrial flora to Graz.
- At the Analytical Chemistry for Health and Environment (ACHE) laboratories, the elemental composition of these samples was determined in collaboration with Walter Goessler (WG) and his team.

Follow-up steps:

- The obtained results were further used for comparative purposes during the development of a novel method for lead determination.
- Lenka Brůhová (LB), a student involved in the project, subsequently optimized this method at the Department of Public Health.
- As a result, the developed method was presented at the Euroanalysis 2023 conference in Geneva, Switzerland (August 27th to 31st). The joint contribution was entitled "Advanced method for simultaneous determination of Pb, Al, and Fe using HR-CS GF-AAS for the analysis of Antarctic moss and lichens" (see attachments).

Second visit

18th to 21th of September 2023, Brno (CZ) → Graz (A),
attendees: Ondřej Zvěřina, Lenka Brůhová (student)

Activities:

- OZ and LB brought plant samples with high arsenic levels to the ACHE laboratories for further analysis.
- Collaborating with the ACHE team, they conducted the speciation of arsenic compounds. (This topic proved to be valuable and will be further investigated in the coming months.)
- The team jointly assessed and interpreted the results obtained so far. A concept for a publication was developed.
- Local students guided LB and OZ through the department and the university. They shared and discussed the specifics of professional education in the Czech Republic and Austria. The visitors were taken on a tour of the city (see attachments).

Follow-up steps:

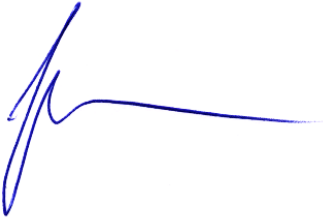
- An intensive work on a joint publication was launched.

Third visit

11th to 14th of December 2023, Brno (CZ) → Graz (A)
attendee: Ondřej Zvěřina

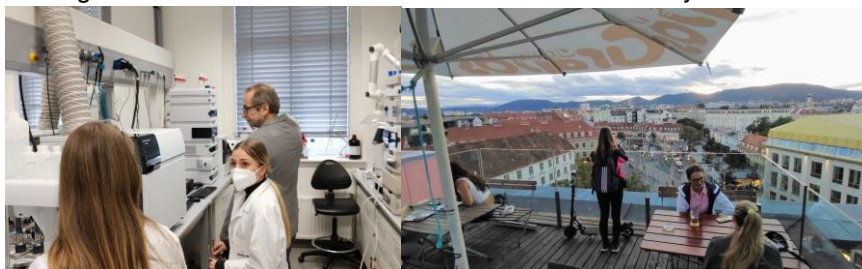
Activities:

- A draft of the publication was thoroughly discussed and prepared for submission.
- Joint paper titled "Advanced HR-CS GF-AAS method for simultaneous determination of Pb, Al, and Fe in the analysis of Antarctic terrestrial flora" was submitted to Microchemical Journal (see attachments).

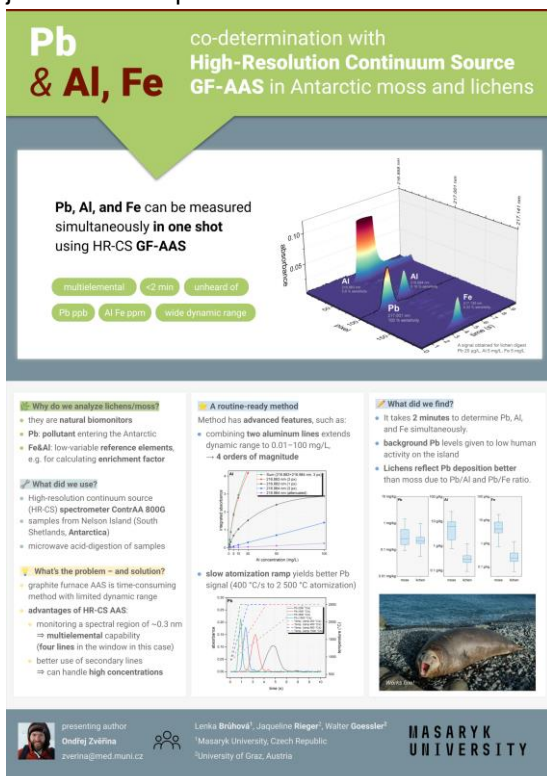
 <p>Ondřej Zvěřina project promoter 11. 1. 2023</p>	<p>Walter Goessler project partner 11. 1. 2023</p>
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Appendix: Photo attachments

- Visiting Graz: Work in the laboratory and the city tour.



- joint poster for Euroanalysis 2023 conference:



- submission of a joint paper to Microchemical Journal:

Microchemical Journal

Advanced HR-CS GF-AAS method for simultaneous determination of Pb, Al, and Fe in the analysis of Antarctic terrestrial flora

--Manuscript Draft--

Manuscript Number:	
Article Type:	Research Paper
Section/Category:	Atomic Spectroscopy
Keywords:	Simultaneous multi-element analysis; HR-CS GF-AAS; Antarctic flora analysis; Biomonitoring; Antarctica
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