IsoPROTECT: Protecting regional food production in Austria by isotopic and multi-elemental fingerprinting

Summary

The Citizen Science project „IsoPROTECT: *Protecting regional food production in Austria by isotopic and multi-elemental fingerprinting"* is an extension of the Sparkling Science project CSI: TRACE your FOOD! and is conducted by the VIRIS Laboratory for Analytical Ecogeochemistry of the Department of Chemistry, University of Natural Resources and Life Sciences Vienna. The main goal of IsoPROTECT is the systematic extension of the database, which was developed during the main project. The results will allow for the creation of an isotopic landscape of Austria for the origin determination of local, regionally produced food. In addition, the statistical online tool for the assignment of food developed during the CSI-project will be optimized. To assure the sustainability of the created regional network and the cooperation, the formation of a non-profit association "Friends of Regional Food Production in Austria" is planned.

On the basis of contacts and results of the main project, regional producers, schools and all interested citizens are invited to participate as Citizen Scientists, register at the web-platform and collect samples and information ("crowdsourcing"). The goal is to achieve a good coverage of the main food production regions in Austria. All necessary materials, instructions and tools for cooperation, e.g. an ArcGIS Online App where Citizen Scientists can enter the collected data, will be provided by the VIRIS Laboratory. Information about the project will be distributed in the form of flyer, videos, live-webinars, initially existing local networks and social media. In addition, registered Citizen Scientists will receive a bi-monthly newsletter.

Subsequently, soil and water samples will be collected by the local producers, who will upload all related information (coordinates, soil type, exposition, production conditions, photographs, etc.) to the ArcGIS Online app and send the samples to the cooperating schools. There, pupils will conduct basic sample preparation steps (sieving, filtering) and measure fundamental chemical parameters (pH, water hardness). These data will be entered into the ArcGIS app as well.

The prepared samples will be sent to the VIRIS laboratory and analyzed there by means of mass spectrometric methods. In addition, Citizen Scientists will be engaged in the development of a rapid test for the determination of the concentration of strontium (Sr). This rapid test would allow for a significant facilitation of the sample preparation in the laboratory.

In order to optimize the chosen Citizen Science approach, citizens will provide feedback and accordingly new research questions and quality criteria will be developed ("collaborative science").

The gained data will be discussed together with local producers and schools ("distributed intelligence") and presented to the public at the end of the project in the frame of "Science Dinners".