

REDMARS

The goal of this project is to establish an experimental protocol to remove perchlorate from soil samples and allow farming on Mars.

Laboratory:	Soil chemistry section (UNIL)
Number of students:	1-2 (Master)
Section:	CGC, SIE, SV or other section from UNIL
Status:	Available (Spring 2021)



Description of the project

Creating a sustainable colony on Mars would require astronauts to grow their own food using Martian soil. However, the Martian soil is very rich in chlorine, especially under the form of perchlorate salts which is completely improper for agriculture as we know it on earth soil. Therefore the goal of the RedMars experiment is to develop and implement the perchlorate removal protocol designed by Gustavo Jamanca Lino in the context of a space mission. This process is separated into 3 phases that include: testing, optimization and finally performing the experiment during the analog mission. After that the result will be reviewed and the experimental process will be discussed regarding what could have been done by the astronauts themselves. The goal would be to publish the results of this experimental procedure.

Description of the student work and mission

- Working alongside Gustavo to test the protocol,
- Performing further analysis to evaluate the real efficiency of the process,
- Using this analysis of the results to optimize the protocole with Gustavo,
- Teaching the astronauts how to perform the experiment,
- Performing the experiment in real conditions to evaluate the potential of the method.

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