

Comments of the supervisor on the student and the thesis:

I have offered to Elisa to participate in our project: Origin of resistance to desiccation and cryoinjuries in biological soil crust microalgae of High Arctic, 22-08680L, Deutsche Forschungsgemeinschaft (DFG) and GAČR. She has participated with us in the first field expedition (2022). The main task in her study was to test and modified, if necessary, the method of vital staining for soil crust algae (Tashyreva, et al. 2013), we previously developed and tested in laboratory cultures and field populations (Pichrtová et al. 2014, Tashyreva et Elster 2015, Tashyreva et Elster 2016, Pichrtová et al. 2016, Hejduková et al. 2019, Hejduková et al. 2020, Jimel et al. 2021). With several modifications, it has been shown that this method does not work for complicated soil environment together with algae adaptation (production of mucilage and thick cell walls) to persist in very unstable soil environment. Field soil crust samples were transported to laboratory and studied in detail (light microscopy and fluorescent measurements). With help of these methods was possible to describe morphological diversity of soil microalgae and using measurements of growth rate (photosynthetically active area and minimum fluorescence, derived from fluorescence imaging were considered for growth tracking, as they serve as chlorophyll a, and hence, biomass proxies). The modified method has shown that soil algae vitality could be measured with help of introduced laboratory growth test. This summer evaluation and method development of soil crust algae is followed by the winter vitality growing laboratory test which is provided by ongoing bachelor thesis by Paul Geroldinger. Results of both this BSc thesis will be published together as an original research paper.

In conclusion, I am very glad that Elisa did great diel of excellent work. She has been very hard-working person in the field experiments in the Arctic as well in laboratory measurements. In her thesis she also introduced the project and aim of our present research very satisfactory.

Conclusion:

In conclusion, I am recommending the thesis for the defense.

In České Budějovice, date August 22, 2023

Prof. Josef Elster

² Enter the number of points awarded.