

UNIVERSITY OF SOUTH BOHEMIA IN ČESKÉ BUDĚJOVICE  
FACULTY OF SCIENCE  
DEPARTMENT OF ECOSYSTEM BIOLOGY

Review of supervisor on bachelor thesis

**Name of thesis:** The importance of Actinobacteria in Arctic soil

**Author:** Dagmara Vašková

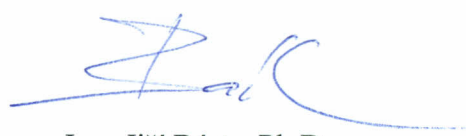
Bachelor thesis of Dagmara Vašková deals with important topic of microbial life in the Arctic. Concern of many microbial ecologists is recently focused on arctic regions because they are predicted to be the most vulnerable ecosystems in future climate change including substantial increase in GHG emissions. Most of the studies in past were focused preferentially on the arctic regions in America. Recently new projects focus on the arctic in Siberia, where the information about microbial life is very sparse. One of the recent international polar projects CryoCARB composed of scientists from 8 European countries (including Czech republic) has the main goal to describe activity, quantity and diversity of microbial communities in Siberian arctic. For this purpose we were part of the 3 extensive expeditions into different Siberian arctic regions. Soil samples from these regions were transported to Europe and in simulated laboratory conditions incubated at different temperatures, moistures and oxygen levels. These laboratory experiments are of high value because they help us predict the changes in abundance, composition and activity of microorganisms under different future scenarios of climate change. The study of these extremely cold environments also helps us better understand adaptation of microorganisms to cold and freezing, which can direct us in the search of life on the other planets of our solar system or even far on terrestrial exoplanets...

Dagmara joined the international project CryoCARB last year and her goal was to quantify the specific microbial phylum Actinobacteria, which we found highly abundant in this part of Siberian arctic. This high abundance contrasts with results from American arctic, therefore the detailed studies of this ecologically (but also medically) important group is very important.

Dagmara worked very well during the theoretical and experimental part of her thesis. She learned quickly the technique of quantitative PCR, electrophoresis and other molbiol. techniques. She regularly discussed the progress of her thesis, including theoretical part and also the interpretation of the results.

I was very happy with her progress and I believe that she has very high potential to improve her scientific writing in the future based on both reviewers recommendations and mine. Dagmara's results will help us better understand the part of puzzle of microbial life in the arctic.

I gladly recommend theses of Dagmara Vašková for defense.



Ing. Jiří Bárta, Ph.D.

In České Budějovice,  
17.6.2014