

University of South Bohemia in České Budějovice,  
Faculty of Science  
Department of Ecosystem Biology

### Supervisor review

**Title:** Quantification of specific microbial functional guilds in Arctic soil

**Author:** Deborah Walter

The thesis of Deborah is part of the international project focused on arctic permafrost soils and specifically on abundance and diversity of soil microbial communities, which play crucial role in biogeochemical processes in permafrost soils. During several expeditions to the Siberian, Canadian and Greenland Arctic we collected hundreds of soil samples and started to understand what kinds of microorganisms live in permafrost and how active they are. One of our finding was that the decomposition of soil organic matter in permafrost soils and mainly in cryoturbated organic matter is highly retarded and the critical element causing it is probably the amount of available nitrogen.

Deborah obtained the DNA from permafrost from Disko Island in Greenland. She focused mainly on microbial groups involved in N and C (CH<sub>4</sub>) cycle which are connected with the amounts of N and C in the soil. With the supervision of my Ph.D. student Milankumar Varsadiya and lab assistant she learned the qPCR technique. She worked from the very beginning very precisely and almost independently. We regularly consulted the writing of the thesis. The finishing of the thesis was a bit complicated because Deborah was mostly in Linz but I think that even Deborah does not have ecological background, she tried to explain and connect the data she obtained with some ecological interpretation. It is always hard to see these connections even for experienced mentors and I think Deborah performed quite well. She compiled very important data, which have important ecological consequences and of course rise the new questions. She learned how to work with the literature, she was able to perform the qPCR, evaluate the results and perform all statistical test by herself in R (which is not common for bachelor thesis). I think these are the important goals of the bachelor thesis and Deborah performed very well.

I gladly recommend Deborah`s work for the defense of bachelor thesis.

In České Budějovice, 14.6.2019

Supervisor: Jiří Bárta

