

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

Supervisor review

Title: De novo genome assembly of *Arthrobacter sp.* isolated from arctic permafrost soil

Author: Mariana Šatrová

The thesis of Marina is part of the international project focused on arctic permafrost soil and specifically on activity and diversity of soil microbial communities, which play crucial roles in biogeochemical processes in these specific ecosystems. During several expeditions to the Siberian Arctic we collected hundreds of soils samples and started to understand what kinds of microorganisms live in permafrost and how active they are. Our data showed that the significant proportion (more than 50% of annotated sequences) were taxonomically assigned to the phylum of Actinobacteria. We, therefore, started to isolate bacteria from this large phylum using selective media to better understand their physiology. One of my previous master students obtained pure culture, isolated DNA and based on 16S rDNA gene sequencing we identified several isolates as *Arthrobacter* species, which belong to the Actinobacteria.

The next step was to sequence genome of selected *Arthrobacter* isolate which might answer the questions how these microbes can survive in these very tough conditions and what metabolic capabilities they have. This is the first genome sequenced from the Siberian permafrost and also the first genome sequenced in our project and also in the department. Mariana was therefore the pioneer in this area. Mariana obtained raw sequencing data and started to test several assemblers to get the best assembly of this bacterium. She worked from the very beginning very precisely and almost independently. She very quickly learned how to set up several assemblers and test their advantages and disadvantages. We regularly consulted the progress of the data processing and writing of the thesis. I must say that Mariana was one of my best students I had the opportunity to supervise.

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

In České Budějovice, 24.5.2017

Supervisor: Jiří Bárta

