

The supervisor statement on the doctoral thesis of Svatopluk Skoupý called:

Population genomics and biogeography of cyanobacteria. And its uses in current taxonomy.

Sváťa studied molecular biology and investigated crops during his master's studies, but he decided to pursue his passion for taxonomy and selected cyanobacteria for his doctoral studies. Although he was new to the cyanobacterial world, he adapted quickly to the specificities of the work with cyanobacteria.

I was happy that Sváťa joined my GAČR project focused on the evolutionary forces driving the speciation in cyanobacterium *Microcoleus*. He always has a positive attitude and extensive experience in wet lab molecular methods. Like most of the students of phycology, Sváťa started with the strain isolation and light microscope evaluation of strains. He isolated and sequenced hundreds of 16S rRNA and ITS sequences of cultured strains. He performed a morphological evaluation of 180 *Microcoleus* strains, the largest dataset of morphological observations within one cyanobacterial genus. Moreover, he was involved in a large whole-genome sequencing effort, which resulted in 202 genomes of *Microcoleus* strains, 8 herbarium genomes, 8 *Laspinema* genomes, and two *Argonema* genomes.

In his research, Sváťa took advantage of the population genomic framework we developed and population-level morphological characterization. He performed the most comprehensive taxonomic revision ever made among cyanobacteria including herbarium type material. Thus, he could identify the type of *Microcoleus* and connect the almost two-hundred-year-old herbarium with the present species. Sváťa found and carefully characterized the new Antarctic genus *Argonema* and two new species within the genus *Laspinema*. His taxonomic results included beautiful drawings of the new and revised taxa. Sváťa's four papers were published in high-quality journals which are included in this thesis. Additionally, outside of the thesis, Sváťa co-authored three papers, and one of them was published in Nature Communications.

During his Ph.D. studies, Sváťa spent three months at the lab of Annick Wilmotte at the University of Liège (Belgium; 1.9.2022 – 31.11.2022) working on further Antarctic strains. He passed exams in general botany, general mycology, and special algology. He regularly presented his results at the conferences as posters and oral presentations. He attended national conferences, such as the Conference of Czech Phycological Society and Chantransia, and international conferences, including the 8th European Phycological Congress. He won a prize for the best student oral presentation at the 41st International Conference of the Polish Phycological Society (2024, Poznań, Poland). Finally, Sváťa regularly taught the systematics of cyanobacteria and algae and popularized science at the Vědátor platform and at the faculty during the Night of Scientists and Science Fairs.

It was a great pleasure to work with Sváťa. He set a new direction in the taxonomy of cyanobacteria by application of large genome and morphological population datasets. I enjoyed reading Sváťa's Ph.D. thesis, and I am happy to recommend it for the defense.

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