

SUPERVISOR'S REVIEW OF DIPLOMA THESIS ŠKOLITELSKÝ POSUDEK NA DIPLOMOVOU PRÁCI

Student: Dovilé BARCYTÉ

Title: Taxonomic position, phylogenetic relationships and metal resistance of green algae dominating in phytoplankton of two acid lakes

Zelené řasy dominující ve fytoplanktonu dvou kyselých jezer: taxonomické postavení, fylogenetické vztahy a odolnost vůči kovům

Anthropogenically acidified lakes are an example of extreme habitats, where organisms have to cope with various adverse impacts connected with low pH. In the Czech Republic, the Bohemian Forest lakes including Plešné Lake have been the subject of an intense hydrobiological research since many decades. In contrast, the study of the extremely acid Hromnice Lake started only recently. However, the taxonomic identity of the coccoid green alga dominating in both lakes remained unclear. Green algae are a successful group of photoautotrophic organisms in acid environments and they play there a key role as primary producers. They have to be resistant to the extreme conditions that include low pH itself and high concentrations of toxic metals and therefore provide a valuable model for the study of adaptive strategies required to survive in such habitat.

The diploma thesis of Dovilé had two main aims:

- 1/ To assess taxonomic and phylogenetic status of the dominant planktonic alga isolated from Hromnice and Plešné lakes
- 2/ To compare the tolerance to toxic metals of the isolates from both lakes with closely related strains and published data on other species to see if this feature can explain their success in acid habitats

Despite the recent paper of Darienko et al. (2015), the link between phylogeny, ecophysiology and ecology of the ubiquitous genus *Coccomyxa* remain largely underexplored, and this thesis represents a good starting point for further studies of strains from extreme habitats.

Dovilé was a very good student, independent, but always coming with many questions. She was ready or even asking to learn new things. She also spent one term at the University of Göttingen (laboratory of prof. Friedl), where she learned the fundamentals of green algal phylogenetics. Her thesis is a multidisciplinary one that required an extensive study of relevant literature and will serve as a baseline for the planned paper(s).

In my opinion, the thesis fulfills all the criteria necessary for obtaining the M.Sc. degree at the Department of Ecology of our faculty, and it is my pleasure to recommend it for the public defense.

Prague, 26 August 2015

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Linda Nedbalová
supervisor