

Oponentský posudek na disertaci

Pavly Urbánkové

Genetic diversity within pennate diatoms: Implications for taxonomy and ecology

The thesis is based on set of three published papers and one manuscript under consideration of co-authors. Pavla is a first author in all cases and her contribution is clearly specified. She contributed to the sampling, isolation, cultivation, molecular work and ms writing. Three papers are published in respected diatomological journals and went through reviewing process in these journals. First paper is from 2013, which means, that Pavla's study took more then standard 4 years, but it is evident that with benefit of higher quality of PhD. theses.

The most important issues connected with research presented in this thesis (diatom species concept, life cycle, DNA –based delimitation, ecology and biogeography) are introduced in part „Background“ . This part is well balanced, although more attantion should be given to biological species concept.

Both aims of this study – diatom diversity and ecology are addressed in all four papers. In paper I, they used *Frustulia* clones to examine molecular markers suggested as diatom barcodes. The results of their molecular work lead to description of new species for science (paper II) and examination the diversity of the genus *Frustulia* in northern Europe (paper III). Two different point of view were applied to investigate autecology of famous species complexes within genera *Frustulia* and *Eunotia* – ecology (pH preferences) of natural populations (paper III) and physiological optima of clonal cultures under laboratory conditions (paper IV).

Questions and comments

1 – Why did you use p-distances and NJ tree instead of tree constructed directly from sequences using MP or ML methods?

2 – What is the percentage/representation of *Frustulia* sp. complexes within assemblages at investigated sites? Do you expect that your results can significantly help in routine biomonitoring?

3 – Do you think that *Eunotia* complex under study is able to uptake bicarbonates ?

In my opinion, PhD. thesis of Pavla Urbánková represent a strong base for receiving PhD. degree and I reccommend it for defence.

Prof. RNDr. Aloisie Poulíčková, CSc.

Dept. of Botany, Faculty of Sciences

Palacký University in Olomouc

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