Supervisor's Evaluation of the Diploma Thesis of Eliška Krtilová

The diploma thesis by Bc. Eliška Krtilová titled "Genome duplication in Stellaria genus – the more, the merrier? Link between ploidy levels and sexual polymorphism" thematically partially linked to the topic of her defended bachelor thesis, specifically concerning the model system (genus *Stellaria*) and the association of sexual polymorphisms and ecological factors. The main goal of the submitted diploma thesis was to explore the variability of the endangered highly polyploid species *Stellaria palustris* in Central and Northern Europe. The specific tested hypotheses concerned the potential correlation between ploidy level and latitude. We hypothesized that cytotype diversity and ploidy level would increase towards the north. The second central hypothesis dealt with the relationship between ploidy and sexual polymorphisms. We expected that the expression of sexual polymorphisms would become more complex with increasing ploidy.

It is essential to mention that this highly polyploid complex had been almost entirely unexplored until now. Thus, the thesis brought a considerable amount of new, very interesting, and often unexpected findings regarding morphological, karyological, and genetic variability, as well as diversity in sexual polymorphisms expression.

The thesis revealed significant cytotype variability of the species, confirming very high ploidy levels from 12x to 16x, a rare phenomenon in vascular plants, especially within a single species. On the other hand, the unusually high number of chromosome sets in the given species substantially impacted the genetic data and significantly complicated their interpretation. Similarly complex was the pattern found in the expression of sexual polymorphisms, where Eliška identified perhaps all combinations and transitions from hermaphroditism to gynodioecy. The complexity of the topic eventually far surpassed the originally planned scope of the diploma project. Nevertheless, Eliška faced this challenge head-on and persistently tackled the constantly emerging problems until the thesis was successfully submitted.

At this place, I would like to highlight Eliška's enthusiasm, passion for the topic, and independence, which she demonstrated throughout her whole master's studies. I greatly appreciate her ability to plan and conduct field research, even though it involved distant areas of Northern Europe. I also greatly appreciate her work in the laboratory, including the cultivation of experimental plants and the evaluation of data. Eliška diligently prepared for all presentations of her project, both at domestic and international scientific events, where she successfully and honorably represented our department. In preparing and writing the thesis, she continuously consulted and discussed with me and her consultant, Clement Lafon Placette. Nevertheless, like most students, she only partially avoided the common issue of insufficient timing for finalizing the data, especially when it came to writing the diploma thesis. Despite making the final adjustments at the last possible moment, she persevered, working almost nonstop in the final weeks and days. This dedication is something I really appreciate and admire. I am convinced that this timing issue did not significantly impact the overall quality of the final thesis.

In conclusion, I would like to say that I consider the collaboration with Eliška Krtilová to be highly successful, and I am very proud to have supervised such a talented and motivated student. I believe that Eliška will continue her scientific journey in her doctoral studies and am convinced that she has all the prerequisites to become an excellent young scientist. I recommend the diploma thesis for defense.

Marek Slovák