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**Supervisor's evaluation of the PhD thesis of Laura Ávila Robledillo
"Evolutionary dynamics of satellite DNA in plant genomes"**

During her PhD studies, Laura focused on the investigation of satellite DNA in plant genomes using a combination of bioinformatic and cytogenetic approaches. The main aim of her work was to elucidate sequence diversity, genome organization and evolution of satellite repeats in the legume tribe *Fabeae* that includes species with contrasting genome sizes and chromosome morphology. A special emphasis was given to investigating an association and eventual co-evolution of the satellite repeats with plant centromeres.

Laura's work yielded a wealth of novel data in all particular research topics mentioned above. She has demonstrated that most of the satellite repeat diversity, even in the long-studied model species, may have been hidden until the recent application of the NGS-based approaches. In addition, the utilization of a sequencing platform generating ultra-long reads enabled elucidation of the origin of several satellite repeat families. The most valuable part of the thesis is the study of centromeric repeats, providing the most detailed account of their evolution among related plant species reported so far and yielding data that challenged some of the established models of the evolution of centromeric repeats.

Laura's results were published as three research articles in peer-reviewed journals. She contributed substantially to all three papers, being the lead author in two of them and the first co-author in the third one. Her contribution was mainly in the experimental and cytogenetic parts, while taking advantage of the sequence data and bioinformatic expertise provided by the other members of our team. However, she still had to learn how to handle the massive amounts of sequence data and analyze them meaningfully, for example, to generate reference databases or design probes for her wet-lab experiments. Regarding the experimental part of her work, she has mastered an impressive set of advanced molecular and cytogenetic methods, including various modifications of the FISH and immuno-FISH protocols and CHIP-seq experiments. She has always been a curious student with a deep interest in the experiments she was conducting and in the biological significance of their results.

Considering Laura's performance during her studies and the excellent results she has achieved, I am fully supporting her successful graduation.

RNDr. Jiří Macas, Ph.D.

Head of the Laboratory
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