
Palacky University

Faculty

Faculty of Science
Botany

Applicant

Ing. Petr Smýkal, Ph.D.
Faculty of Science, Palacky University, Olomouc

Habilitation thesis

Genetic diversity of genus *Pisum*, its exploration and pea domestication

Referee

Assoc. Prof. Eduard Kejnovský, PhD.
Institute of Biophysics, ASCR, Brno

Evaluation of habilitation thesis:

Petr Smýkal, PhD. is a well-recognized scientist in the genetics of leguminosae. His thesis is on the genetics of the domestication of the pea (*Pisum sativum*). He has applied a wide range of the methods current in today's genomics and molecular biology. He has achieved a number of important results that make a significant contribution to botany, genetics and plant breeding.

The Habilitation thesis is a dense and informative text that is difficult to follow in parts, especially where there are many abbreviations. I would appreciate it if chapters were more focused and had a clear line leading readers through the story. Separation of the text into more paragraphs in some chapters would help. I appreciate that the readability of text is improved by nicely chosen and selected figures. The text is a comprehensive introduction to the attached papers and has value in itself. The candidate is the first or corresponding author of eleven out of twenty two papers that clearly testify to his significant contribution to realized experiments and his ability to prepare manuscripts for publication. His papers have been published in respected journals with good impact factor like *Theoretical and Applied Genetics*, *BMC Evolutionary Biology* and *BMC Bioinformatics*. It is clear that the applicant is able to produce results of sustained high quality and can ably communicate his knowledge to students.

I have been in the audience of Dr. Smýkal's lectures several times and I can confirm that his talks reflect wide scope, an ability to present results clearly and a gift for attracting audiences. These are good characteristics for a successful career in teaching.

Questions of referee:

Since all the papers presented have undergone strict peer review, my role is limited here. I would rather raise a few questions as a good basis for the discussion that will form the substance of the respectable defense.

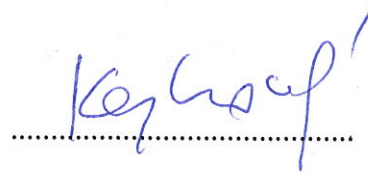
1. Pea (*Pisum sativum*) has interesting extended centromeres. Do you have any explanation for this phenomenon?
2. My field of research is repetitive DNA in genomes, I would like to know if pea domestication, or domestication of related species, has any influence on the content of

repetitive DNA? We know that speciation is often preceded by destabilization of a genome which is caused by amplification of transposable elements. Can we see anything like that in crops that undergo breeding over the long term? Are there genome size differences between various populations of pea?

Conclusion:

The Habilitation thesis of Dr. Petr Smýkal clearly shows that he is a mature and respected scientist with teaching ability. His thesis entitled „*Genetic diversity of genus Pisum, its exploitation and pea domestication*“ fulfills the standard requirements of a habilitation thesis in Botany.

Brno, November 2, 2016



Eduard Kejnovský