



DEPARTMENT OF PLANT SCIENCES / MS1

Section of Crop and Ecosystem Sciences

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Dr. Martin Kubala, Ph.D.
Dean of the Faculty of Sciences
Palacký University
Olomouc, CZ

Dear Dr. Kubala,

It is an honor for me to provide this evaluation of the scientific performance of doc. Ing. Petr Smýkal, PhD. I have known of Dr. Smýkal's research for several years as a fellow grain legume geneticist, interested in processes of biological diversification, adaptation, and domestication of plants. Although we have interacted in the normal scientific channels of scientific meetings and manuscript reviews for journals, we have not collaborated in formal scientific projects nor have we been co-authors on articles. Thus, I can provide this evaluation with the necessary impartiality.

From the outset, let me state that I hold Dr. Smýkal in high regard. He is an accomplished, highly productive, and versatile scientist conducting a high quality research program, which is competitive internationally. In the following paragraphs, I discuss several aspects of Dr. Smýkal's research to support of my statement.

There is no doubt that Dr. Smýkal's research program is highly productive. At his relatively early stage of his career, his citation record has achieved an h-index of 20 (Web of Science) or 30 (Google Scholar). He has published in international, rigorously peer-reviewed plant journals, like *Frontiers in Plant Science*, *International Journal of Molecular Sciences*, *Annals of Botany*, and *Scientific Reports*.

A striking feature of the co-authors of Dr. Smýkal is their international origin. These include scientists from the European Union (e.g., France), the U.K., the U.S., Canada, Argentina, India, and Australia. This clearly reflects the high esteem Dr. Smýkal is held in by his colleagues and their eagerness to collaborate with him; it also heightens the prestige of your University as a research institution.

Another feature of Dr. Smýkal's research program is his versatility. To study physical seed dormancy (i.e., seed coat impermeability, the mechanism present in grain legumes), he has adopted a wide range of approaches, including anatomy, genetics, analytical chemistry, geoinformatics, and the latest genomic tools, including next-generation sequencing and

transcriptomics. A recent example of this versatility is the article by Renzi et al. *Plants* (2020), which combines geoinformatics, ecology, and genetics (genome-wide association analysis, GWAS), to identify the role of higher alternating temperatures in lifting dormancy, especially of accessions originating in arid climates. Furthermore, this articles identified potential genes involved in seed physical dormancy, namely genes for secondary metabolite synthesis, cell wall modification, and hormone regulation. Another, earlier noteworthy article addressing seed dormancy but also seed/pod dehiscence is Hradilová et al. *Frontiers Plant Sci* (2017).

Dr. Smýkal also considers the practical, crop improvement applications of his research, such as the use of wild progenitors in plant breeding. Examples of this are the articles by Coyne et al. *Legume Sciences* (2020) and Gali et al. *Frontiers Plant Sci* (2019).

Finally, I note that Dr. Smýkal has been able to garner several international fellowships, from the OECD, the Royal Society of Edinburgh, and the U.S. Fulbright program. He is very active in the scientific community. He is an associate or guest editor in highly cited journals like *Frontiers in Plant Science*, *BMC Plant Biology*, and the *International Journal of Molecular Sciences*, among others.

To summarize, Dr. Smýkal's research performance is outstanding. We can expect more interesting results, both basic and applied in the years to come. I look forward to interacting with Dr. Smýkal and exchanging scientific information with him.

Yours truly,

Paul Gepts
Distinguished Professor in Plant Sciences