

## Curriculum Vitae

### PERSONAL INFO

Name: Barbara Kramna  
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### EDUCATION

#### PhD

Charles University in Prague (2015 – till now); Faculty of Science; Department of Experimental Biology of Plants; PhD programme: Anatomy and Physiology of Plants; state exam fulfilled in 2016

**Subject:** Anatomy and Physiology of Plants

**PhD thesis:** The role of the antioxidant system in the responses to nutrient deficiency, abiotic and biotic stresses / (supervisor: associated professor Radomira Vankova)

#### Mgr.

Charles University in Prague (2013 – 2015); Faculty of Science; Department of Experimental Biology of Plants; Master programme: Biology

**Subject:** Experimental Biology of Plants

**Diploma thesis:** Oxidative damage to cellular components after oxidative stress induction by specific herbicides

#### Bc.

Charles University in Prague (2010 – 2013); Faculty of Science; Department of Experimental Biology of Plants; Bachelor programme: Biology

**Subject:** Anatomy and Physiology of Plants

**Bachelor thesis:** The role of NO in plant senescence

#### Grammar school

Slezské Gymnázium, Opava (2006-2010)

### WORK EXPERIENCE

**Institute of Experimental Botany, Czech Academy of Sciences (2010 – till now)**

**Laboratory of Hormonal Regulations in Plants (2015 – till now)**

#### Methods:

- native PAGE
- q-RT PCR for monitoring gene expression
- physiological measurements – RWC (relative water content); MSI (membrane stability index)
- antioxidant enzymes activity and abundance
- lipid peroxidation measurement (TBARS method)
- preparation of samples for UPLC-ESI-MS/MS
- hydroponic cultivation

## Laboratory of Stress Physiology (2010 – 2015)

### Methods:

- SCGE (single cell gel electrophoresis) – detection of DNA damage
- light microscopy
- spectrophotometry/measuring of antioxidant enzyme activities; lipid peroxidation

### ABROAD EXPERIENCES

- 2017 / (27.3 – 6.4.) - Exchange research fellowship, Hungarian Academy of Sciences, Martonvásár, Hungary
- 2018 / (12.2. – 1.6.) **ERASMUS+ Internship:** University of Antwerp; Integrated Molecular Plant Physiology Research  
Project 1: Functionality of UV-B gradients in Arabidopsis  
Project 2: Characterisation of somaclonal variation in Petunia sp.

### TRAINING COURSES

- 2016 – Microscopic course „Processing and analysis of microscopic images in biomedicine“, Institute of Molecular Genetics, AS CR, v.v.i.
- 1/2018 – Scientific Writing and Scientific Presentations workshop, Charles University, Prague
- 6/2018 – Scientific Writing 2: Improving your skills, Charles University, Prague
- 5/2019 – CEPLAS (Cluster of Excellence on Plant Sciences) Summer School; University of Cologne and Maria in der Aue, Germany

### TEACHING

- practical courses - Plant Anatomy (MB130P61), Department of Experimental Biology of Plants, Charles University, Prague
- Two-week course Pokročilé praktikum II (MC250C08), Department of Biochemistry, Charles University, Prague

### GRANTS

2017 – 2019; Charles University project GAUK (n. 1086217)

**Project:** Strigolactone and phosphate cross-talk – its impact on the antioxidant system and plant physiological state

### PC SKILLS

- Advanced - MS Office; work with databases (TAIR, NCBI, eFP Browser); PAST3; on-line applications (e.g. Sequence Manipulation Suite; Primer3Plus; Heatmapper)
- Basics - BioEdit; SigmaPlot; Genevestigator

## LIST OF PUBLICATIONS

**Kramna, B.**, Prerostova, S. & Vankova, R. (2019). Strigolactones in an experimental context. *Plant Growth Regulation*, 88(2): 113-128. <https://doi.org/10.1007/s10725-019-00502-5> (IF<sub>2017</sub>=2.081)

Prerostova, S., Dobrev, P., Konradyova, V., Knirsch, V., Gaudinova, A., **Kramna, B.**, ... & Vankova, R. (2018). Hormonal Responses to Plasmodiophora brassicae Infection in Brassica napus Cultivars Differing in Their Pathogen Resistance. *International Journal of Molecular Sciences*, 19(12), 4024. <https://doi.org/10.3390/ijms19124024> (IF<sub>2017</sub>=3,687)

Prerostova, S\*, **Kramna, B.\***, Dobrev, P. I., Gaudinova, A., Marsik, P., Fiala, R., ... & Vankova, R. (2018). Organ-specific hormonal cross-talk in phosphate deficiency. *Environmental and Experimental Botany*, 153, 198-208. <https://doi.org/10.1016/j.envexpbot.2018.05.020> (IF<sub>2017</sub>=3,666)

\* shared first author

## Presentations on Conferences

### *Oral presentations*

**Kramna B.**, Prerostova S., Knirsch V., Kobzova E., Vankova R.: The influence of synthetic strigolactone GR24 on the antioxidant system during plant response to phosphate deficiency. Presented at: The influence of abiotic and biotic stresses on properties of plants, 2016 September 12 – 14. Zvolen, Slovakia.

**Kramna B.**: Antioxidant system response induced by exogenous strigolactone GR24 during phosphate deficiency. 13th International Conference on Reactive Oxygen and Nitrogen Species, 2017 September 10-13. Kusadasi, Turkey.

### *Poster presentations – active participation*

**Kramna B.**, Dobrev P., Prerostova S., Gaudinova A., Knirsch V., Vankova R.: The impact of synthetic strigolactone GR24 on plant responses, cytokinin-related gene expression under phosphate deficiency. Plant Biology Europe EPSO/FESPB, 2016 June 26-30. Prague, Czech Republic.

**Kramna B.**, Prerostova S., Knirsch V., Kobzova E. Vankova R.: The influence of synthetic strigolactone GR24 on the antioxidant system during plant response to phosphate deficiency. In: Hnilicka F. (ed.): [brochure], The influence of abiotic and biotic stresses on properties of plants, Česká zemědělská Univerzita v Praze, ISBN: 978-80-813-2681-1. 2016 September 12-14, Zvolen, Slovakia, p. 62.

**Kramna B.**, Prerostova S., Gaudinova A., Knirsch V., Kobzová E., Vankova R.: The response of the antioxidant system to exogenous strigolactone GR24 during phosphate deficiency. VISCEA Plant Molecular Physiology, 2017 February 23-24, Vienna, Austria.

**Kramna B.**, Prerostova S., Kobzova E., Gaudinova A., Knirsch V., Vankova R.: The effect of GR24 on expression of strigolactone and antioxidant system-related genes in dependence on phosphate nutrition. Plant Biology Europe 2018, 2018 June 18-21, Copenhagen, Denmark.

**Kramna B.**, Prerostova S., Kobzova E., Gaudinova A., Knirsch V., Vankova R.: The effect of GR24 on physiological responses of *Arabidopsis thaliana* in dependence on phosphate nutrition. ACPD 2018 Auxins and Cytokinins in Plant Development, 2018 July 1-5. Prague, Czech Republic.

**Kramna B.**, Prerostova S., Kobzová E., Vankova R.: Strigolactone mediated age- and organ-specific gene expression in *Arabidopsis thaliana*. 9th Gene Quantification Event; qPCR dPCR & NGS 2019, 2019 March 18-22. Freising-Weihenstephan, Germany.

**Kramna B.**, Prerostova S., Kobzova E., Vankova R.: Strigolactone modulates the antioxidant response during phosphate starvation. CEPLAS (Cluster of Excellence on Plant Sciences) Summer School, 2019 May 27-31. Maria in der Aue, Germany.

## Co-author of Oral and Poster Presentations

### Oral presentations

Vankova R., Dobrev P., Ricanova V., Prerostova S., Knirsch V., Gaudinova A., **Kramna B.**, Kazda J.: Comparison of hormonal dynamics in *Brassica napus* cultivars Alister and Hornet during *Plasmidiophora brassicae* infection. Annual meeting on crop – arthropod – microorganism interactions, 2017 January 31- February 2. Ljubljana, Slovenia.

### Poster presentations

Vankova R., **Kramna B.**, Gaudinova A., Knirsch V., Dobrev P.: The hormonal cross-talk during phosphate deficiency response and its impact on antioxidant system. ASPB, 2017 June 24-28. Hawaii, USA.

Vankova R., **Kramna B.**, Prerostova S., Knirsch V., Gaudinova A.: Exogenous strigolactone GR24 influences the antioxidant system response to phosphate deficiency. Plant Biotechnology: Green for Good III, 2017 June 19-22. Olomouc, Czech Republic.

Prerostova S., **Kramna B.**, Dobrev P., Gaudinova A., Knirsch V., Vankova R.: Effect of strigolactone GR24 on phytohormonal cross-talk during phosphate deficiency. VISCEA Plant Molecular Biology, 2017 February 23-24, Vienna, Austria.

Prerostova S., **Kramna B.**, Kobzova E., Knirsch V., Gaudinova A., Prasil I., Skalak J., Brzobohaty B., Vankova R.: Low light mitigate cold stress response of *Arabidopsis*. ACPD 2018 Auxins and Cytokinins in Plant Development, 2018 July 1-5. Prague, Czech Republic.

Gaudinova A., Dobrev P., **Kramna B.**, Prerostova S., Knirsch V., Kieber J., Vankova R.: Characterization of the impact of stress targeting and acclimation on heat shock response. ACPD 2018 Auxins and Cytokinins in Plant Development, 2018 July 1-5. Prague, Czech Republic.

Prerostova S., **Kramna B.**, Kobzova E., Knirsch V., Gaudinova A., Prasil I.T., Skalak J., Brzobohaty B., Vankova R.: The impact of light quality on cold stress tolerance of *Arabidopsis thaliana*. ACPD 2018 Auxins and Cytokinins in Plant Development, 2018 July 1-5. Prague, Czech Republic.

Prerostova S., **Kramna B.**, Simura J., Gaudinova A., Knirsch V., Novak O., Vankova R.: Combination of hormone and transcriptome analyses in the study of cold and freezing stress in grass *Lolium perenne*. 9th Gene Quantification Event; qPCR dPCR & NGS 2019, 2019 March 18-22. Freising-Weihenstephan, Germany.

Prerostova S., **Kramna B.**, Simura J., Gaudinova A., Knirsch V., Novak O., Vankova R.: The Impact of Acclimation on Hormonal Dynamics during the Frost Response in Ryegrass. Climate Change-Linked Stress Tolerance in Plants, 2019 May 13-16. Hannover, Germany.

## SUMMARY OF PUBLISHED RESULTS

### 1<sup>st</sup> article

#### **Organ-specific hormonal cross-talk in phosphate deficiency**

Prerostova, S\*., **Kramna, B.\***, Dobrev, P. I., Gaudinova, A., Marsik, P., Fiala, R., ... & Vankova, R. (2018). Organ-specific hormonal cross-talk in phosphate deficiency. *Environmental and Experimental Botany*, 153, 198-208. <https://doi.org/10.1016/j.envexpbot.2018.05.020> (IF<sub>2017</sub>=3,666)

\* shared first author

The article was published in 2018, and I am the shared first author with Sylva Prerostova. I substantially participated in the sampling of material, in the measurement of RNA content by RT-qPCR and the analysis of phosphate acquisition from hydroponics. I participated in the evaluation of the phosphate acquisition and gene expression results. I participated in the revision of the manuscript, and I did both summary schemes of results for the paper.

### 2<sup>nd</sup> article

#### **Strigolactones in an experimental context**

**Kramna, B.**, Prerostova, S. & Vankova, R. (2019). Strigolactones in an experimental context. *Plant Growth Regulation*, 88(2): 113-128. <https://doi.org/10.1007/s10725-019-00502-5> (IF<sub>2017</sub>=2.081)

The review article was published in May 2019, and I am the first and the corresponding author of the publication. I studied relevant literature and prepared the manuscript.

### 3<sup>rd</sup> article

#### **Hormonal responses to *Plasmodiophora brassicae* infection in *Brassica napus* cultivars differing in their pathogen resistance**

Prerostova, S., Dobrev, P., Konradyova, V., Knirsch, V., Gaudinova, A., **Kramna, B.**, ...& Vankova, R. (2018). Hormonal Responses to Plasmodiophora brassicae Infection in Brassica napus Cultivars Differing in Their Pathogen Resistance. *International Journal of Molecular Sciences*, 19(12), 4024. <https://doi:10.3390/ijms19124024> (IF<sub>2017</sub>=3,687)

This article was published in December 2018 in Special Issue: Auxins and Cytokinins in Plant Development. I participated in the sampling of the material and the measurement of RNA content by RT-qPCR. I participated in the revision of the manuscript, and I did the graphical scheme of hormone results.