

# Elžbieta Jankovska-Bortkevič

## CONTACT INFORMATION

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## EDUCATION AND ACADEMIC DEGREE

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- 2015 – 2022      Doctoral degree in the field of biological sciences (Biology – N 010) (Vytautas Magnus University).  
Dissertation topic: “Winter oilseed rape cold resistance characteristics and their alteration after treatment with polyamines and proline”, supervisor – dr. S. Jurkonienė.  
Field of research: plant physiology; plant response to abiotic stress; biologically active substances; growth regulators.
- 2007 – 2009      Vilnius Gediminas technical university, Bioengineering / Master degree.  
Master thesis: „Search for promising anthocyanin producers in biotechnology“.  
The work was carried out at the Institute of botany, Laboratory of plant physiology.  
Field of research: plant physiology; biotechnology.
- 2003 – 2007      Vilnius pedagogical university, Biology / Bachelor degree.  
Bachelor thesis: "Indolyl-3-acetic acid in chloroplast: the problem and ways to solve it"  
The work was carried out at the Institute of botany, Laboratory of plant physiology.  
Field of research: plant physiology; determining the localization of the phytohormone auxin in the plant cell.

## PROFESSIONAL EXPERIENCE

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- 2021 06 – 2023 07      **Postdoc, Researcher**  
Nature research centre, Laboratory of molecular ecology
- 2020 09 – now      **Researcher**  
Laboratory of plant physiology
- 2017 03 – 2020 09      **Biologist**  
Laboratory of plant physiology
- 2010 03 – 2017 02      **Specialist**  
Laboratory of plant physiology
- 2010 01 – 2010 02      **Junior researcher**  
Laboratory of plant physiology
- 2009 07 – 2010 01      **Engineer**  
(since 2010 01 01 – Nature research centre, Laboratory of plant physiology)
- 2006 03 – 2009 06      **Senior assistant of laboratory**  
Laboratory of plant physiology, Institute of botany

## RESEARCH INTERESTS

Field of research: the study of the plant's physiological reaction to abiotic environmental factors and the search for ways to modify this reaction. Investigations are carried out using microscopic, biochemical and molecular analysis.

## PUBLICATIONS

*Scientific articles published in journals (books), indexed in „Clarivate Analytics Web of Science“ database (with citation index):*

1. Gavelienė V., Jurkonienė S., **Jankovska-Bortkevič E.**, Švegždienė D. 2022. Effects of elevated temperature on root system development of two lupine species. – *Plants*, 11 (2): art. no. 192. <https://doi.org/10.3390/plants11020192>.
2. Mockevičiūtė R., Jurkonienė S., Gavelienė V., **Jankovska-Bortkevič E.**, Šocik B., Armalytė G., Budrys R. 2022. Effects induced by the agricultural application of probiotics on antioxidant potential of strawberries. – *Plants*, 11 (6): art. no. 831. <https://doi.org/10.3390/plants11060831>.
3. Gavelienė V., Šocik B., **Jankovska-Bortkevič E.**, Jurkonienė S. 2021. Plant microbial biostimulants as a promising tool to enhance the productivity and quality of carrot root crops. – *Microorganisms*, 9 (9): art. no. 1850. <https://doi.org/10.3390/microorganisms9091850>.
4. Jurkonienė S. Jankauskienė J., Mockevičiūtė R., Gavelienė V., **Jankovska-Bortkevič E.**, Sergiev I., Todorova D., Anisimovienė N. 2021. Elevated temperature induced adaptive responses of two *Lupine* species at early seedling phase. – *Plants*, 10 (6): art. no. 1091. <https://doi.org/10.3390/plants10061091>.
5. Jurkonienė S., Mockevičiūtė R., Jankauskienė J., **Jankovska-Bortkevič E.**, Armalytė G., Gavelienė V. 2021. Application of commercial plant probiotics improves the berry yield and quality of field-grown blackcurrant. – *ACS agricultural science & technology*, 1 (6): 615–622. <https://doi.org/10.1021/acsagscitech.1c00115>.
6. **Jankovska-Bortkevič E.**, Gavelienė V., Šveikauskas V., Mockevičiūtė R., Jankauskienė J., Todorova D., Sergiev I., Jurkonienė S. 2020. Foliar application of polyamines modulates winter oilseed rape responses to increasing cold. – *Plants*, 9 (2): 117–126. <https://doi.org/10.3390/plants9020179>.
7. **Jankovska-Bortkevič E.**, Gavelienė V., Koryznie D., Jankauskienė J., Mockevičiūtė R., Jurkonienė S. 2019. Response of winter oilseed rape to imitated temperature fluctuations in autumn-winter period. – *Environmental and experimental botany*, 166: art. no. 10380. <https://doi.org/10.1016/j.envexpbot.2019.103801>.
8. Koryznie D., Jurkonienė S., Žalnierius T., Gavelienė V., **Jankovska-Bortkevič E.**, Bareikienė N., Būda V. 2019. *Heracleum sosnowskyi* seed development under the effect of exogenous application of GA3. – *Peerj*, 7 (5): art. no. e6906, p. 570–578. <https://doi.org/10.7717/peerj.6906>.
9. Sergiev I., Todorova D., Shopova E., Jankauskienė J., **Jankovska-Bortkevič E.**, Jurkonienė S. 2019. Exogenous auxin type compounds amend PEG-induced physiological responses of pea plants. – *Scientia horticultrae*, 248: p. 200–205. <https://doi.org/10.1016/j.scienta.2019.01.015>.

*Scientific articles published in journals (books), indexed in „Clarivate Analytics Web of Science“ database (without citation index):*

1. Jurkonienė S., Mockevičiūtė R., Jankauskienė J., **Jankovska-Bortkevič E.**, Armalytė G., Gavelienė V. 2021. Application of commercial plant probiotics improves the berry yield and quality of field-grown blackcurrant. – *ACS agricultural science & technology*, 1 (6): 615–622. <https://doi.org/10.1021/acsagscitech.1c00115>.

2. Sergiev I., Todorova D., Shopova E., Jankauskienė J., Jankovska-Bortkevič E., Jurkonienė S. 2018. Effects of auxin analogues and heat stress on garden pea. – *Žemdirbyste-Agriculture*, 105 (3): 243–248. <https://doi.org/10.13080/z-a.2018.105.031>.

**Other reviewed scientific publications (books, books' chapters, collections of articles, articles, textbooks and etc.):**

1. **Jankovska-Bortkevič E.**, Gavelienė V., Jurkonienė S. 2022. Physiological roles and signaling of polyamines in plants under stressed conditions. – *Emerging plant growth regulators in agriculture: Roles in stress tolerance* / ed. M. Naem, T. Aftab. London : *Academic Press*, 2022. ISBN 9780323910057. p. 303–316.

## **PARTICIPATION IN INTERNATIONAL AND NATIONAL SCIENTIFIC PROGRAMMES AND PROJECTS**

- 2022 – 2023 **implementer** of the Lithuanian Science Council funded Lithuania-Ukraine program project “Investigation of the impact of proline and  $\gamma$ -aminobutyric acid on plant tolerance to water deficit” (leader S. Jurkonienė).
- 2021 – 2023 **implementer** of the project “The effect of increasing cold on the dynamics of polyamine biosynthesis in winter oilseed rape and the scope its control” under Research Council of Lithuania (Funding instrument – European Social Fund) of the measure 09.3.3-LMT-K-712 "Development of Scientific Competences of Scientists, other Researchers and Students through Practical Research Activities", project No. 09.3.3-LMT-K-712-23-0166 (leader P. Prakas).
- 2019 – 2021 **implementer** of the joint research project “Assessment of ability of synthetic auxin type compounds to counteract herbicide stress in crop plants” under Agreement of scientific collaboration between Lithuanian academy of sciences and Bulgarian academy of sciences (leaders: J. Jankauskienė (Lithuania) ir D. Todorova (Bulgaria)).
- 2016 – 2020 **implementer** of the project under European Innovation Program “Soil structure and quality improvement (reconstruction) using microorganisms. Mitigation of nitrogen compounds emission to maintain plant productivity by using new generation microelements” (leader V. Gavelienė).
- 2015 – 2018 **implementer** of the joint research project “Plant growth regulators – tools for increasing plants tolerance to temperature stress” under Agreement of scientific collaboration between Lithuanian academy of sciences and Bulgarian academy of sciences (leaders: J. Jankauskienė (Lithuania) ir D. Todorova (Bulgaria)).

## **INTERNSHIP AND TRAINING**

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- 2021 06 – 2023 07 Postdoc internship “The effect of increasing cold on the dynamics of polyamine biosynthesis in winter oilseed rape and the scope its control” at Laboratory of molecular ecology of Nature research centre (Vilnius, Lithuania).
- 2021 09 – 2021 10 ”Molecular biology methods and techniques” internship at Institute of plant genetics and physiology of Bulgarian academy of sciences (Sofia, Bulgaria).
- 2018 m. 11 Internship at Institute of plant genetics and physiology of Bulgarian academy of sciences (Sofia, Bulgaria).

2018 m. 09	Internship at Franciszek Gorski institute of plant physiology of Polish academy of sciences (Cracow, Poland).
2018 m. 03	Qualification improvement courses "Soil quality improvement (restoration) and maintaining of plant productivity by reducing nitrogen fertilizers" (Kaunas, Lithuania).
2017 m. 11	"Modern thin layer chromatography (TLC/HPTLC)" training at the manufactuter „Camag“ (MuttENZ, Switzerland).
2017 m. 07	"High performance thin layer chromatography (HPTLC)" internship at Berlin technical university (Berlin, Germany).
2017 m. 01	"Report preparation training according to the Stanford Science Institute report preparation methodology NABC" at Visoriai park of technology (Vilnius, Lithuania).
2016 m. 11	"Statistical analysis and econometrics for scientific research" training at Mykolas Romeris university (Vilnius, Lithuania).
2016 m. 10	"General competency skills training" at Vilnius university (Vilnius, Lithuania).

## **PARTICIPATION IN SCIENTIFIC CONFERENCES**

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### **International scientific conferences:**

1. **Jankovska-Bortkevič E.**, Jurkonienė S., Gavelienė V., Mockevičiūtė R., Šveikauskas V., Jankauskienė J., Todorova D., Prakas P. 2022. Effect of exogenous polyamines on winter wheat and oilseed rape cold stress response under field conditions. – *The 3rd International Conference on the Scientific Actualities and Innovations in Horticulture (SAIH2022)*, September 26–28, Vilnius, Lithuania.
2. Mockevičiūtė R., Jurkonienė S., Gavelienė V., **Jankovska-Bortkevič E.**, Jankauskienė J. 2022. Effect of microbial biostimulants on growth, antioxidant activity and productivity of fruits and vegetables. – Cemepe and secotox conference 2022, June 5–9, Myconos, Greece.
3. Jankauskienė J., Jurkonienė S., Gavelienė V., **Jankovska-Bortkevič E.**, Mockevičiūtė R. 2022. Microbial biostimulant counteracts herbicide Galera negative effects on rapeseed growth. – Cemepe and secotox conference, June 5–9, Myconos, Greece.
4. **Jankovska-Bortkevič E.**, Jurkonienė S., Gavelienė V., Mockevičiūtė R., Jankauskienė J., Todorova D., Sergiev I., Viluckas V., Prakas P. 2021. Effect of exogenous putrescine on winter oilseed rape response to low temperature. – *XII International Scientific Agriculture Symposium „Agrosym 2021“*, October 7–10, Jehorina, Bosnia and Herzegovina.
5. Jankauskienė J., Jurkonienė S., Gavelienė V., Mockevičiūtė R., **Jankovska-Bortkevič E.**, Todorova D., Sergiev I. 2021. Exogenously applied putrescine effects on endogenous hormone levels in kidney bean and pea under low temperature stress conditions. – *XII International Scientific Agriculture Symposium „Agrosym 2021“*, October 7–10, Jehorina, Bosnia and Herzegovina.
6. Šocik B., Jurkonienė S., Gavelienė V., **Jankovska-Bortkevič E.** 2021. Effect of probiotic compositions on growth, antioxidant activity and productivity of beetroot. – *XII International Scientific Agriculture Symposium „Agrosym 2021“*, October 7–10, Jehorina, Bosnia and Herzegovina.
7. Jurkonienė S., Gavelienė S., Mockevičiūtė R., Jankauskienė J., **Jankovska-Bortkevič E.**, Šveikauskas V. 2021. Effects of probiotics on antioxidant potential of blackcurrant berries. – *XII International Scientific Agriculture Symposium „Agrosym 2021“*, October 7–10, Jehorina, Bosnia and Herzegovina.
8. **Jankovska-Bortkevič E.**, Jurkonienė S., Gavelienė V., Sergiev I., Jankauskienė J., Koryznieienė D., Šimulevič T. 2018. Cold acclimation impact on oilseed rape plasma membrane H<sup>+</sup>-ATPase

- activity during increasing cold stress treatment. – *International Scientific Conference Kliment's Days 2018*, November 8–9, Sofia, Bulgaria.
9. Jankauskienė J., Jurkonienė S., Gavelienė V., Mockevičiūtė R., **Jankovska-Bortkevič E.**, Todorova D., Sergiev I. 2018. The role of polyamines on IAA metabolism in legume plants under the field conditions. – *International Scientific Conference Kliment's Days 2018*, November 8–9, Sofia, Bulgaria.
  10. Koryznienė D., Jurkonienė S., Žalnierius T., Gavelienė V., Jankauskienė J., **Jankovska-Bortkevič E.**, Bareikienė N. 2018. The effect of GA3 treatment on the development of *Heracleum sosnovskyi* Manden. seeds. – *International Scientific Conference Kliment's Days 2018*, November 8–9, Sofija, Bulgarija.
  11. **Jankovska-Bortkevič E.**, Koryznienė D., Jurkonienė S., Gavelienė V., Jankauskienė J., Mockevičiūtė R. The response of winter oilseed rape to putrescine and low temperature treatment – *The 11th International "Plant Functioning Under Environmental Stress"*, September 12–15, Cracow, Poland.
  12. **Jankovska-Bortkevič E.**, Koryznienė D., Jankauskienė J., Mockevičiūtė R., Gavelienė V., Todorova D., Jurkonienė S. 2018. Effects of polyamines on cold stress resistance of common bean. – *The 2nd International Conference on the Scientific Actualities and Innovations in Horticulture (SAIH2018)*, June 4–6, Kaunas, Lithuania.
  13. Sergiev I., Todorova D., Shopova E., Jankauskienė J., **Jankovska-Bortkevič E.**, Jurkonienė S. Exogenous auxin-type compounds amend PEG-induced physiological responses of pea plants. – *The 2nd International Conference on the Scientific Actualities and Innovations in Horticulture (SAIH2018)*, June 4–6, Kaunas, Lithuania.

## **PARTICIPATION IN THE STUDY PROCESS**

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### ***Supervision of bachelor and master students:***

Romina Matesovičiūtė	Bachelor thesis: „The effect of putrescine and cold on the content of endogenous proline in oilseed rape varieties of different cold tolerance“	2017-2019
Valdas Viluckas	Master thesis: „Cold influence on polyamine accumulation in winter rapeseed“	2021-2022

## **OTHERS**

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1. Presenter of presentation "Capabilities of HPTLC for rapid and accurate qualitative and quantitative analysis of plant hormones" at the seminar "Modern thin-layer chromatography and application possibilities" held in the Conference Hall of the Natural Research Center (Akademijos str. 2, Vilnius) on October 19, 2017.
2. Supervision of Erasmus+ student internships at the Laboratory of plant physiology of Nature research centre.
3. Reviewer in the journals of the international scientific publisher *MDPI (Agronomy Research, Plant cell biotechnology and molecular biology, IJMS, Horticulturae, Plant cell biotechnology and molecular biology, etc.)*.
4. Subject editor of journal *Agronomy (MDPI publisher)*.
5. Member of the editorial board of the journal *Frontiers in Plant Science*.
5. Secretary of the Lithuanian Society of Plant Physiologists.
6. Member of the Lithuanian Society of Biochemists.
7. Member of the Science dissemination group of the Nature Research Center.