

# Elena Grosu

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## EDUCATION

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**2019 – 2023 PhD**, Walsh Scholarship Programme with Teagasc and South East Technological University, Carlow, Ireland

**2016 – 2018 MSc**, Molecular Genetics with “Alexandru Ioan Cuza” University, Iasi, Romania

**2013 – 2016 BSc**, Biochemistry with “Alexandru Ioan Cuza” University, Iasi, Romania

**February 2015 – July 2015 BSc**, Biochemistry Erasmus+ Grant with Barcelona University, Barcelona, Spain

## RESEARCH EXPERIENCE

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### Postdoctoral Fellowship (March 2024 – March 2025)

*“Understanding winter-hardiness traits and photoperiod adaptation in oats (*Avena sativa* L.): a future food/feed crop for East Africa/Ethiopia”*

- Conduct controlled growth cabinet trials at various stages of growth to investigate the impact of cold temperatures on oat development.
- Assess the gene expression profiles of select cold-tolerant and non-cold-tolerant lines and evaluate the findings through RNAseq analysis.
- Engage with the sister project in East Africa.

### PhD (October 2019 – December 2023)

*“Characterising the biostimulant activity of the soil bacterium strain *Ensifer adhaerens* OV14 to support plant development and stress resilience.”*

- As a new research initiative within the Crop Science Department of Teagasc, this project allowed me to develop and establish the methodology for OV14 seed delivery.
- Quantified the plant growth-promoting activity of OV14 under controlled environmental conditions, with beneficial effects recorded for oilseed rape and wheat.
- Investigated and confirmed the biocontrol activity of OV14 against the crop pathogens *Zymoseptoria tritici*, *Rhynchosporium commune*, and *Phytophthora infestans*.
- Through gene expression studies, I identified a systemic response in *Arabidopsis thaliana* shoots in response to root application of OV14.

### Research Assistant with NIRDBS Romania (October 2016 – September 2019)

- Conducted research in the area of environmental molecular biology (plant and insect sample collection, DNA/RNA isolation, PCR, qPCR).
- Compiled reports in conformity with the national and EEA regulations.
- Compiled technical reports and ordered new chemicals and laboratory equipment.
- Kept chemical and biological stocks, equipment and laboratory running in conformity with EEA regulations.
- Contributed to digitalising the local institutional archives.

## **MSc (June 2017 – April 2018)**

*“The study of Arabidopsis thaliana genes involved in the Ensifer mediated transformation”*

- Identifying homozygous *A. thaliana* mutant lines through PCR genotyping.
- Established the efficiency of *E. adhaerens* supplemented with the vector pCambia5105 to transform *A. thaliana* mutants.
- Standardised an enzymatic method (MUG) to quantify the transformation efficiency.
- Quantified the expression profiles of *FLS2*, *BTI1*, and *EFR* genes involved in the transformation process.

## **BSc (June 2015 – May 2016)**

*“Physiological and biochemical responses of Raphanus varieties to various growing conditions”*

- Evaluated the activity of stress enzymes (SOD, CAT, POX) in radish seedlings exposed to heavy metals (Pb, Fe, Ni, Sn), the PGR Atonik, and 2,4-dinitrophenol.
- Quantified the impact of the treatments on the chlorophyll and carotenoid content and DNA integrity in leaves.

## **TEACHING EXPERIENCE / MANAGEMENT**

### **Supervisor of intern students with Teagasc (2021-2023)**

- Coordinated the practical work of 5 intern students from Ireland and France for a duration of 3 months each. Through continuous feedback, their research skills and understanding of science improved, as was proved through their thorough reports.

### **Teaching (2019)**

- Within SETU, I delivered the Biology laboratory practicals to a group of 20 first-year students. Marked the assignments and reports.

### **Crop Science Seminar Coordinator (2021-2022)**

- Organised 34 seminars delivered in a hybrid format by students, research officers, and academics in Teagasc, Crop Science Department.

## **OUTREACH ACTIVITIES**

**2023 · Women in Crop Science Coffee Morning – organiser**

**2020 and 2023 · BT Young Scientist – stall operator**

**2019-2022 · National Science Week – organised activities for primary school pupils**

**2022 · National Sustainable Development Goals (SDG) campaign – encouraged participation in STEM research for primary school girls**

## **LEADERSHIP**

**2022-2023 · Walsh Scholars (PhD Students) Representative**

## **SKILLS**

### **Technical**

- Microbiology (aseptic protocols for inoculum preparation, bacteria seed application, tissue culture) and Molecular biology (DNA/RNA isolation, PCR, qPCR, digital PCR)

- Plant physiology and pathology; Abiotic stress plant studies
- Field studies (experimental design, establishment, management and harvest)
- Chemical and operational risk assessment, occupational health and safety training

### Transferable

- Standard operating procedures development
- Data handling and statistical analysis with R programming language in RStudio
- Scientific writing, oral presentations, science communication

### Behavioural

- Self-awareness, assertive yet empathetic communication
- Task prioritisation and objective communication of research responsibilities

### PUBLICATIONS

- Grosu, E., Rathore, D.S., Cabellos, G.G., Enright, A.M. and Mullins, E., (2024) "*Ensifer adhaerens* strain OV14 seed application enhances *Triticum aestivum* L. and *Brassica napus* L. development". *Heliyon*, p.e27142. <https://doi.org/10.1016/j.heliyon.2024.e27142>
- Grosu, E. and Ichim C. (2020) "*Turning Meadow Weeds Into Valuable Species for the Romanian Ethnomedicine While Complying With the Environmentally Friendly Farming Requirements of the European Union's Common Agricultural Policy*" *Frontiers in Pharmacology*, 11, 4. <https://doi.org/10.3389/fphar.2020.00529>
- Ciornea E., Grosu E., Bucur DE., Lobiuc A. (2018) "*Biochemical and Physiological Effects of Some Organic and Inorganic Chemical Agents in Capsicum spp*" *Revista de chimie*, 69, 10. <https://doi.org/10.37358/RC.18.10.6606>
- Ciornea E., Grosu E., Dumitru G., Bucur D., Gorgan L. (2018) "*Evaluation of the Raphanus Sativus Varieties Response to the Application of Dinitrophenol in Terms of Oxidative Stress Enzymes and DNA Amplification*" *Revista de Chimie*, 69, 12. <https://doi.org/10.37358/RC.18.12.6780>

### AWARDS

- **Runner-up for the Walsh Scholar of the Year 2023**

Date

07<sup>th</sup> April 2024

Signature

