

## NICOLA BOSCO – CURRICULUM VITAE

### NICOLA BOSCO

Born in Milan (MI), 20 December 1997

Nationality: italian



### Education

**04/10/2021 – 14/12/2023** Master's Degree in Advanced Biotechnologies (LM-8), University of Pavia. Thesis: Role of Reactive Oxygen Species in processes regulating germination and methods for their detection. Final grade: 110/110 cum laude

**03/10/2016 – 17/12/2019** Bachelor's Degree in Biotechnology (L-2), University of Milan. Thesis: Characterization of a "dwarf" mutant of *Zea mays* through a candidate gene approach. Final grade: 101/110

### Experience

**07/09/2022 – 30/06/2023** Laboratory Technician at IZO-Vaxxinova Italy, Research and Development Laboratory

### Research Activities

Nicola Bosco's research focused on the role of Reactive Oxygen Species (ROS) in processes regulating seed germination and on the mechanisms that determine the production and degradation of these molecular species in seeds of different plant species subjected to "hydropriming" treatment. To study these mechanisms, an experimental system was developed in which seeds of different species were subjected to different hydropriming treatments. Subsequently, the treated seeds were analyzed both for their germination efficiency by calculating various germination indices (T50, MGT, Peak Value) and for their ROS content and release (DCFH-DA, FOX-1, and fluorescence microscopy). Finally, the expression of different genes responsible for the production and degradation of ROS was analyzed in Glycine max (soybean) seeds using qRT-PCR. Further research involved consulting databases in a "reverse genetics" approach to identify the gene in the *Zea mays* genome whose mutation was responsible for the onset of the "dwarf" phenotype in plants belonging to this species.

### Technical Skills

- **Molecular Biology and Bioinformatics:** DNA/RNA extraction/purification, PCR techniques (standard, quantitative), titration of the hemagglutinating activity of viral and bacterial antigens, titration of the hemagglutination inhibition activity of animal sera, ELISA assays, agarose gel electrophoresis, use of databases (DNA, RNA), software for oligonucleotide design, sequence alignment. Software for statistical analysis (univariate, multivariate).
- **Animal and Plant Cell Biology:** Production of animal cell cultures, ROS detection (FOX-1), use of fluorescent probes (2',7'-dichlorofluorescein diacetate), seed quality analysis: germination curves, phenotypic analysis, seed priming.

- **Microbiology:** Titration of viral antigens on animal cell cultures and embryonated eggs, production of bacterial cultures, titration of bacterial cultures using the CFU method and spectrophotometry, Gram staining.

## **Publications**

- Griffo A\*, **Bosco N\***, Pagano A, Balestrazzi A, Macovei A. (2023). Noninvasive methods to detect Reactive Oxygen Species as a proxy of seed quality. *Antioxidants* 12(3), 626. (\*, equal contribution, first-coauthors).

## **Conference Presentations**

- Griffo A, **Bosco N**, Pagano A, Balestrazzi A, Macovei A. Determination of reactive oxygen species (ROS) during seed priming and germination. XVI Federazione Italiana Scienze della Vita, Reggio di Portici, September 14-16, 2022.

## **References**

### **Prof.ssa Anca Macovei**

Department of Biology and Biotechnology 'L. Spallanzani' (DBB), University of Pavia  
Via Ferrata 9, 27100 Pavia

### **Prof.ssa Gabriella Consonni**

Department of Agricultural and Environmental Sciences (DISAA), University of Milan  
Via Celoria, 2 20133 Milano

## **Declaration**

I authorize the processing of personal data contained in my CV in accordance with art. 13 of Legislative Decree 196/2003 and art. 13 of EU Regulation 2016/679 regarding the protection of natural persons with regard to the processing of personal data.

Pavia, 18 November 2024  
Nicola Bosco

