Maraeva Gianella

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Date of birth: 30/11/1994
Nationality: Italian

Research Topics

I deal with seed longevity in crop wild relatives. I analyze the effects of seed heteromorphism on germination ecology and seed longevity. I complement data from germination tests and controlled ageing tests (CAT) with physiological and molecular assays. In particular, I use DPPH-Folin protocol to determine Specific Antioxidant Activity, phenolic compounds and antioxidant contents, and Comet Assay to evaluate nuclear damage. I perform qrt-PCR to assess gene expression in dry and imbibed seeds. I deal also l with *ex situ* plant conservation, with an in-depth knowledge of all the steps of seed processing and storage: from cleaning to viability testing.

Education

October 2018 to present

PhD in: Genetics, Molecular and Cellular Biology, XXXIV cycle
University of Pavia, Italy

Project title: "Molecular and physiological hallmarks of seed ageing"

Supervisor: Prof. Alma Balestrazzi[1]

October 2016 to September 2018

Master Degree in: Experimental and Applied Biology, *curriculum* "Environmental Biology and Biodiversity"

University of Pavia, Italy

Graduated with honors

Thesis: Correlation between longevity and antioxidant activity in dimorphic seeds in the *Aegilops L.* genus and in *Triticum urartu* Thumanjan ex Gandilyan

Supervisors: Prof. Alma Balestrazzi[1], Dr. Filippo Guzzon[2], Dr. Andrea Pagano[1]

[1] Molecular Biology and Genetics Department, Univ. of Pavia

[2] Environmental and Earth Sciences Department, Univ. of Pavia

October 2013 - October 2016

Bachelor Degree in: Biological Sciences, Environmental *curriculum*

University of Pavia, Italy

Graduated with a grade of 110 (out of 110)

Thesis title: Study on caryopsis longevity in the *Aegilops L*. genus Supervisors:

Prof Graziano Rossi[2], Dr. Filippo Guzzon[2]

Language skills Italian:
First Language English:

Listening	Reading	Speaking	Writing
Good	Good	Good	Good

Grants

March 2017 – July 2017: part-time job obtained through a competition published by the University of Pavia. Collaboration and technical support in the Plant Germplasm Bank of the University of Pavia: seed cleaning, characterization, drying and storage, support to research works

11th-22nd June 2018: technical training course with full bursary at the Millennium Seed Bank (Wakehurst Place West Sussex) on Seed Conservation

Laboratory and technical skills

- Use of seed bank equipment: cleaning machines, incubators, microscope
- Germinations testing: preparation of agar and agar + gibberellic acid media
- Accelerated ageing testing: preparation of Lithium Chloride solution for controlled ageing tests (CAT)
- Antioxidant activity assessment: seed extraction in acetone, use of spectrophotometer, preparation of DPPH-Folin protocol's solutions and calibration curves building
- Comet Assay for nuclear damage: microcutting of radicles and leaves (fresh or frozen in liquid nitrogen), preparation of Comet Assay's solutions and buffers (with use of pH meter), electrophoresis and fluorescence microscope (DAPI)
- Quantitative Real-time PCR: RNA extraction from dry and imbibed seeds in phenol-chloroform, electrophoresis on agarose gel, primer design (Primer3Plus, Oligoanalyzer), use of Rotor Gene 6000 for comparative quantitation of gene expression

Seed bank management and curation

During my experience at the Germplasm Bank of the University of Pavia, GBUP (2016-2017) and the technical training attachment at the Millennium Seed Bank, UK (2018) I learned almost every step of seed processing:

- Cleaning and counting: use of Agriculex© and Selecta© machines, manual cleaning and counting, use of X-rays and cut-tests to assess seed quality
- Drying and banking: moisture content equilibration, freezing and necessary viability tests during storage
- Germination tests and scoring: germination tests design (with different techniques for dormancy breaking), scoring + post-scoring cut tests
- Database and online resources: use of Excel and Brahms 7 for seed bank management, use of SID,
- Google Earth and other online tools for germination tests parameters
- Field collections and shipping: necessary equipment for seed collection and shipping, quarantine rules, field data forms
- Knowledge on seed bank design: seed cleaning and drying equipment, cold and dry rooms, incubators

Software skills

Good knowledge of: Microsoft Word, Microsoft Excel, Microsoft Powerpoint, Origin, Genstat, SPSS, Brahms 7

Publications

Guzzon F., Orsenigo S., **Gianella M.**, Müller J.V., Vagge L., Rossi G., Mondoni A. *Seed heteromorphy influences seed longevity and germination phenology in Aegilops*. Seed Science Research, 2018

Autorizzo il trattamento dei miei dati personali ai sensi del Dlgs 196 del 30 giugno 2003 e dell'art. 13 GDPR (Regolamento UE 2016/679) ai fini della ricerca e selezione del personale.
Pavia, 11/10/2018