PERSONAL INFORMATION

Dip. Agriculture and Forest Sciences (DAFNE), University of Tuscia, Via San Camillo de Lellis snc, Viterbo, ITALY

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CURRENT POSITION

Assistant Professor in Agricultural Genetics, Genomics and Plant Breeding

RESEARCH TOPICS / EXPERIENCES

- Wheat genetics and breeding – heritability, allele mining, comparative genomics, bioinformatic analysis and sequencing of genes for traits affecting wheat productivity;
- Chromosome engineering – creation, selection and characterization of wheat-*Thinopyrum* spp. recombinant lines with useful alien genes (e.g. disease resistances, grain quality, yield traits);
- Wheat wild relatives – over 10-year experience in exploitation of genetic variability from tertiary gene pool in wheat pre-breeding by classical, molecular and cytogenetic approaches;
- Wheat yield – over 10-year experience in studying genetic and physiological factors involved in the control of yield under controlled and field conditions e.g. spike fertility, tillering, root and shoot morpho-physiological traits, allocation of assimilates (source-sink relations);
- Fusarium head blight resistance – introduction of resistance QTL from wild *Thinopyrum* species in wheat by chromosome engineering and analysis of the associated morpho-physiological and metabolic changes;
- Abiotic stresses – drought, heat and salt stress effects on wheat growth, spike fertility, plant water status and related gene expression, ABA associated mechanisms, metabolic profile and yield.

EDUCATION

2011	PhD in Plant Biotechnologies, University of Tuscia, Viterbo (Italy)
2008	MSc in Horticultural Genetics and Biotechnology, Mediterranean Agronomic Institute of Chania, Chania (Greece)
2006	DSPU (Specialized Post-University Diploma) in Horticultural genetics and Biotechnology, Mediterranean Agronomic Institute of Chania, Chania (Greece)
2005	Certificate of advanced studies in Sustainable Agriculture in the Countries with a Mediterranean Climate, Mediterranean Agronomic Institute of Bari, Bari (Italy)
2003	B.Eng. Agriculture in Field and Vegetable Crop Production, University of Novi Sad, Faculty of Agriculture, Novi Sad (Serbia)

WORK EXPERIENCE

2022 -	Assistant Professor in Agricultural Genetics, DAFNE, Univ. of Tuscia, Italy
2020 - 2022	Researcher, DAFNE, Univ. of Tuscia, Italy
2010 - 2020	Research fellow (Post-Doc), DAFNE, Univ. of Tuscia, Italy

RESEARCH PROJECTS

2022-2025	Researcher at the national AGRITECH National Research Center - European Union Next-GenerationEU (PIANO NAZIONALE DI RIPRESA E RESILIENZA PNRR) – MISSIONE 4 COMPONENTE 2, INVESTIMENTO 1.4 – D.D. 1032 17/6/2022, CN00000022: Plant, animal and microbial genetic resources and adaptation to climatic changes;
2019-2023	**Co-coordinator** of international project IMPRESA ("IMProving RESilience to Abiotic stresses in durum wheat: enhancing knowledge by genetic, physiological and "omics" approaches and increasing Mediterranean germplasm biodiversity by crop wild relatives-based introgressiomics"), financed by the PRIMA Foundation;
2018-2022	Researcher under the research contract between the DAFNE Department and the Italian seed company ISEA srl: development and characterization of innovative wheat genotypes, equipped with resistance to the most important pathogens, high content of carotenoid pigments, quality of seed proteins and improved yield;
2018-2019	Researcher in the Italian scientific unit of the ECOBREED international project ("Increasing the efficiency and competitiveness of organic crop breeding", https://ecobreed.eu/project/), funded by the Horizon 2020 research and innovation program of the European Union, grant agreement No 771367;
2015-2018	Researcher in the regional MIGLIORA project ("Technological innovations for improvement of production processes and nutraceutical and health qualities of plant products from the Latiumo region"), funded by FILAS Lazio Innova (Latium Region, Italy);
2014-2017	Researcher in the Italian unit of the Premier's Research and Industry Fund (PRIF) international project ("A molecular diversity drive for precision-engineered wheat").

TEACHING

2021-2022	*Genetics and principles of plant breeding* [in Italian; 8 CFU; SSD AGRI-06/A (ex. AGR/07)], Batchelor degree in Seed Production and Nursery Management (L25), DAFNE, Univ. of Tuscia, Italy
2023-	*Genetics and principles of plant breeding* [in Italian; 6 CFU; SSD AGRI-06/A (ex. AGR/07)], Batchelor degree in Seed Production and Nursery Management (P-02), DAFNE, Univ. of Tuscia, Italy
2024	*Génétique et principes d'amélioration des plantes* [in French ; 7 CFU ; SSD AGRI-06/A (ex. AGR/07)], Batchelor degree in Agricultural and Environmental Sciences (L25), DAFNE, Univ. of Tuscia, Italy
2024-	*Plant genomes and chromosome manipulations* [in English: 6 CFU; SSD AGRI-06/A (ex. AGR/07)], Master's degree in Plant Biotechnology for Food and Global Health (LM-7), DAFNE, Univ. of Tuscia, Italy
2024-	*Agricultural genetics* [In Italian: 6CFU; SSD AGRI-06/A (ex. AGR/07)], Batchelor degree in Agricultural and Environmental Sciences (L25), DAFNE, Univ. of Tuscia, Italy
2020-2024	*Genetics and physiology of yield of relevant crop species and climate changes* (In English; 1CFU), PhD school in Plant and Animal Production Sciences, DAFNE, Univ. of Tuscia, Italy
2025-	*Integrative breeding for climate-smart crops* (In English; 1CFU), PhD school in Plant and Animal Production Sciences, DAFNE, Univ. of Tuscia, Italy

OTHER RELEVANT EXPERIENCES

2019 **Founder**, together with Prof. Carla Ceoloni, of a new cultivar of durum wheat (*Triticum durum* Desf.) named GENIALE, with the following main characteristics: resistance to leaf rust and powdery mildew, high tolerance to Fusarium head blight, high gluten and yellow (> 30) index.

PROFESSIONAL SERVICES

Guest Associate Editor of the article collection "*Source-Sink Balance in Crops: Where does Carbon go?*" of the peer-reviewed journal Frontiers in Plant Science (eISSN: 1664-462X). Mar – Oct 2022. https://www.frontiersin.org/research-topics/35596/source-sink-balance-in-crops-where-does-carbon-go

Guest Associate Editor of the Special Issue entitled "*Fungal disease management and mycotoxin prevention in cereals*" of the peer-reviewed journal Agronomy (ISSN 2073-4395). Sep 2020 – Jan 2022. https://www.mdpi.com/journal/agronomy/special_issues/fungal_disease_management.

Review Editor on the Editorial Board of Plant Abiotic Stress and Plant Biotechnology, specialty sections of the *Frontiers in Plant Science* journal – 2021-present.

PUBLICATION RECORD

https://orcid.org/0000-0003-1629-0666
https://www.researchgate.net/profile/Ljiljana-Kuzmanovic

Relevant pubblications :

1. Tounsi S, Giorgi D†, **Kuzmanović L†,** Jrad O, Farina A, Capoccioni A, Ben Ayed R, Brini F, Ceoloni C. 2024. Coping with salinity stress: segmental group 7 chromosome introgressions from halophytic *Thinopyrum* species greatly enhance tolerance of recipient durum wheat. *Front. Plant Sci.* 15:1378186.
2. Fanelli G†, **Kuzmanović L**†, Giovenali G, Tundo S, Mandalà G, Rinalducci S, Ceoloni C. 2023. Untargeted metabolomics reveals a multi-faceted resistance response to Fusarium head blight mediated by the Thinopyrum elongatum Fhb7E locus transferred via chromosome engineering into wheat. *Cells* 12 (8):1113.
3. Giovenali G, **Kuzmanović L*,** Capoccioni A, Ceoloni C. 2023. The response of chromosomally engineered durum wheat-Thinopyrum ponticum recombinant lines to the application of heat and water-deficit stresses: effects on physiological, biochemical and yield-related traits. *Plants* 12 (4), 704.
4. **Kuzmanović L**, Giovenali G, Ruggeri R, Rossini F, Ceoloni C. 2021. Small "nested" introgressions from wild *Thinopyrum* species, conferring effective resistance to Fusarium diseases, positively impact durum wheat yield potential. *Plants* 10 (3): 579.
5. **Kuzmanović L***, Rossini F, Ruggeri R, Pagnotta MA, Ceoloni C. 2020. Engineered Durum Wheat Germplasm with Multiple Alien Introgressions: Agronomic and Quality Performance. *Agronomy 10* (4), 486.
6. **Kuzmanović L**, Mandalà G, Tundo S, Ciorba R, Frangella M, Ruggeri R, Rossini F, Gevi F, Rinalducci S, Ceoloni C. 2019. Equipping durum wheat-*Thinopyrum ponticum* recombinant lines with a *Thinopyrum elongatum* major QTL for resistance to Fusarium diseases through a cytogenetic strategy. *Front. Plant Sci.* 10: 1324.
7. **Kuzmanović L***, Ruggeri R, Able JA, Bassi FM, Maccaferri M, Tuberosa R, De Vita P, Rossini F, Ceoloni C. 2018. Yield of chromosomally engineered durum wheat-*Thinopyrum ponticum* recombinant lines in a range of contrasting rain-fed environments. *Field Crops Res*. 228: 147-157.
8. Ceoloni C, Forte P, **Kuzmanović L**, Tundo S, Moscetti I, De Vita P, Virili ME, D'Ovidio R. 2017. Cytogenetic mapping of a major locus for resistance to Fusarium head blight and crown rot of wheat on *Thinopyrum elongatum* 7EL and its pyramiding with valuable genes from a *Th. ponticum* homoeologous arm onto bread wheat 7DL. *Theor. Appl. Genet.* 130 (10): 2005-2024.

9. Forte P, Virili ME, **Kuzmanović L**, Moscetti I, Gennaro A, D'Ovidio R, Ceoloni C. 2014. A novel assembly of *Thinopyrum ponticum* genes into the durum wheat genome: pyramiding Fusarium head blight resistance onto recombinant lines previously engineered for other beneficial traits from the same alien species. *Mol. Breeding*, 34 (4): 1701–1716.
10. **Kuzmanović L**, Gennaro A, Benedettelli S, Dodd IC, Quarrie SA, Ceoloni C. 2014. Structural-functional dissection and characterization of yield contributing traits originating from a group 7 chromosome of the wheatgrass species *Thinopyrum ponticum* after transfer into durum wheat. *J. Exp. Bot.* 65 (2): 509–525.
11. Ceoloni C, **Kuzmanović L**, Forte P, Gennaro A, Bitti A. 2014. Targeted exploitation of gene pools of alien Triticeae species for a sustainable and multifaceted improvement of the durum wheat crop. *Crop Pasture Sci.*, 65 (1): 96–111.