UNIVERSITÀ POLITECNICA DELLE MARCHE

Supervisor: Prof. Gianfranco Romanazzi

Dept. of Agricultural Food and Environmental Sciences https://www.d3a.univpm.it/en

Project idea: Innovative compounds in plant protection to reduce food loss and waste of fresh fruit and vegetables

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Research Group Description

SUN RISE SMALLER (STRATEGIC) UNIVERSITIES NETWORK FOR REGIONAL INNOVATIVE AND SUSTAINABLE EVOLUTION

HR EXCELLENCE IN RESEARCH

Prof. Gianfranco Romanazzi, Professor of Plant Pathology

Description of the professor expertise

Past job positions: PostDoc at University of Bari (1999-2002), PostDoc at UNIVPM (2002-2004), Researcher at UNIVPM (2004-2010), Associate Professor at UNIVPM (2010 to 2024), Full Professor at UNIVPM (2024 to today)

Research interests: He is interested in setting up innovative approach for plant disease management, both in the field and postharvest, to reduce loss and waste of fresh fruit and vegetables. Most investigated crops: grapevine, table grapes, peach, strawberry, vegetable seed-bearing crops

Teaching activity: Teaching of 'Plant pathology' at BSc in Agricultural Science and Technology (since 2001) and 'Plant disease management' at MSc in Agricultural and Land Sciences (since 2010). He also taught in International courses in Turkey (2009) and at CIHEAM in Bari (since 2020), with the course 'Induced resistance in plant disease management'

Research grants: Prof. Romanazzi coordinates a list of national and international projects, including PRIMA "Innovative Sustainable technologies TO extend the shelf-life of Perishable MEDiterranean fresh fruit, vegetables and aromatic plants and to reduce WASTE – StopMedWaste", MAECI Italy-China "Biosynthesis regulation of metabolic markers and correlation with quality safety during fruit decay (BioQuaSA), the Euphresco Network "Basic substances as an environmentally friendly alternative to synthetic pesticides for plant protection (BasicS)", and the COST FA22134 Action "Sustainable Network for agrofood loss and waste prevention, management, quantification and valorisation (FoodWaStop)"

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Academic duties: He Coordinated the BSc in Agricultural Science and Technology and the MSc in Agricultural and Land Sciences since November 2015 to October 2021. Since 2020, He is Past President of Italian Association for Plant Protection (AIPP), that he chaied from 2020 to 2026. Since 2024 he is Chair of ISPP Seed Pathology Committee.

Research Unit: Prof. Gianfranco Romanazzi (https://orcid.org/0000-0003-0390-4008), Dott. Marwa Moumni (https://orcid.org/0000-0003-3201-2105), Dott. Sarah Makau (https://orcid.org/0000-0003-4598-1968), Dott. Simone Piancatelli (https://orcid.org/0009-0005-6104-7894), Dott. Lucrezia D'Ortenzio (https://orcid.org/0009-0003-4596-7653)

Most recent publications:

- Prusky D., Romanazzi G. 2023. Induced resistance in fruit and vegetables: a host physiological response limiting postharvest disease development. Annual Review of Phytopathology, 61, 279-300, doi: https://doi.org/10.1146/annurev-phyto-021722-035135
- Moumni M., Brodal G., Romanazzi G. 2023. Innovations in seedborne pathogen management. Food Security, 15, 1365-1382, doi: https://doi.org/10.1007/s12571-023-01384-2
- Álvarez-García S., D'Isita I., Pistillo O.M., Moumni M., Germinara G.S., Romanazzi G., 2025. Volatile organic compounds released by chitosan formulations present diverse chemical composition and produce differential effects on postharvest pathogens. Postharvest Biology and Technology, 228, 113619. doi: https://doi.org/10.1016/j.postharvbio.2025.113619
- Prusky D., Bi Y., Li Y., Guillen F., Romanazzi G., 2025. Inducing resistance in fruit, delays ripening and reduces postharvest decay. Postharvest Biology and Technology, 230, 113817. DOI: https://doi.org/10.1016/j.postharvbio.2025.113817
- 142. Di Francesco A., Ippolito A., Romanazzi G., 2026. Heat treatments for the control of postharvest decay of fresh fruit: Case studies of peach brown rot, kiwifruit gray mold and citrus green and blue molds. Postharvest Biology and Technology, 231, 113868. DOI: https://doi.org/10.1016/j.postharvbio.2025.113868

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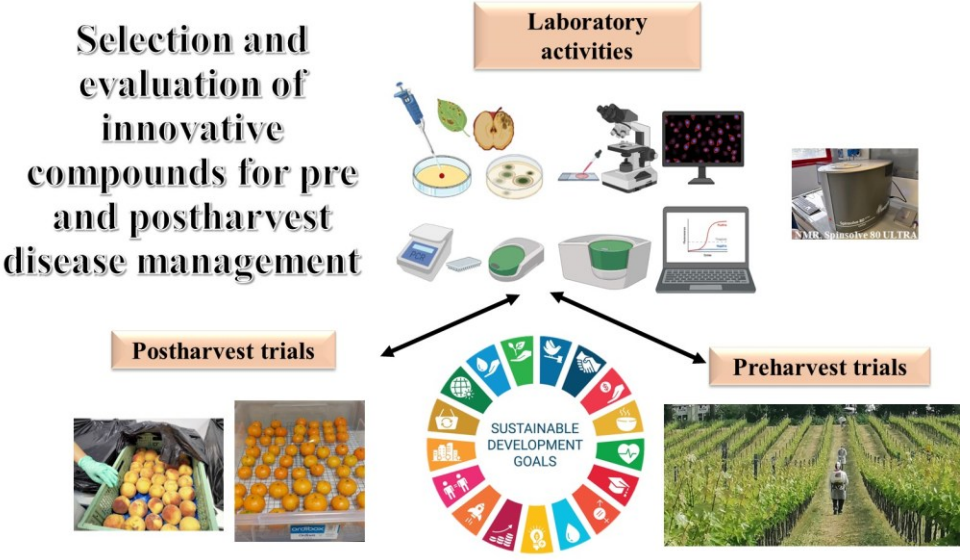
Background: More than half of fresh fruit and vegetables is lost moving from the growers to the retailer, or wasted from the retailer to the consumer home, so it is mandatory to set up strategies to half this amount, to meet sustainable development goals (SDGs) where numbers 2 and 12 relate to 'Zero Hunger' and 'Responsible Consumption and Production', respectively. These SDGs, and in particular Target 2.4 sustainable food production and resilient agricultural practices and target 12.3 halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including postharvest losses by 2030.

Project objectives: The project have the aims to set up lab and field trials to i) test in the lab *in vitro* the effectiveness of natural compounds (chitosan, essential oils, biocontrol agents) toward plant pathogens; ii) verify in postharvest trials the effectiveness of selected compounds on fresh fruit; iii) apply in the field (e.g. vineyard) selected strategies to control main diseases (downy mildew, powdery mildew, gray mold)



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