Biological and integrated control of plant pathogens
From single microbes to microbiomes targeting One Health
June 11-14, 2025 Università degli Studi di Torino (Italy)

Characterization of *Stemphylium vesicarium* isolates from pear orchards in Emilia Romagna (Italy) and assessment of potential microbial biocontrol agents

Alessandro Montorsi[1], Marina Cortiello[1], Fares Bellameche[1], Massimiliano Menghini[2], Chiara Nasuti[1], Francesco Modica[3], Riccardo Baroncelli[2], Marina Collina[2], Lisa Solieri[1], Emilio Stefani[1], Davide Giovanardi[1]

[1]Department of Life Science, University of Modena and Reggio Emilia, 42122 Reggio Emilia, Italy; [2]Department of Agricultural and Food Sciences (DISTAL), University of Bologna, 40127 Bologna, Italy; [3]Department of Agriculture, Food and Environment (Di3A), University of Catania 95123, Catania, Italy.

Abstract: Brown spot of pear caused by *Stemphylium vesicarium* is one of the most important fungal diseases in Europe, as it may cause more than 90% yield losses. A set of ten *S. vesicarium* isolates from diseased pear fruits cv. Abbé Fétel, collected in Emilia-Romagna orchards, was molecularly identified, showing high genetic similarity. At pathogenic level, *S. vesicarium* isolates showed two main degrees of virulence (*i.e.,* "low" and "high"). The most virulent *S. vesicarium* isolate was then used for assessing the biocontrol of six bacterial isolates, by means of *in vitro* tests and detached pear fruit assays. The two most promising bacteria, belonging to the genera *Bacillus* and *Pseudomonas,* highlighted their potential as putative microbial biocontrol agents for implementing a sustainable control of *S. vesicarium*.

Key words: brown spot of pear, bacterial antagonists, biological control

Acknowledgements

This study was funded by the Emilia Romagna region within Reg. Law 17 del 27/10/2022. Type of operation "Urgent interventions to support the agricultural, agri-food, fishing and reclamation sectors" Art. 1 "Interventions for innovation in the agricultural and agri-food sector" – Project "A.MA.PERO - Approcci innovativi indirizzati a contrastare la Maculatura bruna del Pero". Research was conducted in collaboration with the framework of the EU-COST action CA22158 (MiCropBiomes: Exploiting Plant-Microbiomes Networks and Synthetic Communities to improve Crops Fitness).