SPOIL CONTROL

management and control
of spoilage microorganisms
in the production
of fermented beverages

International PhD Program SpoilControl Project

Marie Sklodowska-Curie Actions Doctoral Networks (DNs)

Horizon Europe MSCA

Funded by the European Union

Call for PhD Position

- **Position Title:**
  Doctoral Candidate (DC1) – SpoilControl – Managing Spoilage Potential of Acetic Acid Bacteria in the Beverage Industry: Facing Complexity through an Integrated Approach
- **Main Location:**
  Consiglio Nazionale delle Ricerche (CNR) – Istituto di Scienze delle Produzioni Alimentari (ISPA) - (Institute of Sciences of Food Production – National Research Council of Italy-ITA)

- **Application Deadline:** **31/07/2025**

*The application deadline may be extended as needed, according to each beneficiary institution, until the position is filled.

- **Context:**

The **Institute of Sciences of Food Production – National Research Council of Italy** is proposing applications for a PhD position within the **SpoilControl project**, funded by the **Horizon Europe Marie Sklodowska-Curie Actions (MSCA) program**.
SpoilControl aims to train the next generation of polyvalent researchers in the field of sustainable fermentation technologies, addressing microbial spoilage to improve the quality and safety of fermented beverages.

Europe is the historical leader in fermented drinks, but its competitiveness is increasingly challenged. Microbial spoilage in fermented food is a growing concern, both financially (economic losses) and from a health perspective (increased presence of pathogens, particularly in artisanal and homemade products). These issues are exacerbated by societal and environmental changes, such as the trend toward low-input products, sustainable practices, small-scale productions, and climate change. The fermentation sector also lacks a global framework, leading to duplication of efforts and partitioned investments.

SpoilControl will implement a novel strategy encompassing multiple beverages (wine, spirits, beer, cider, kombucha, kefir), disciplines (environmental and life sciences, engineering, economics), and solutions (sustainable biological, chemical, and physical treatments).

With 34 partners—including universities, SMEs, large companies, innovation clusters, startups, analysis laboratories, technical institutes, and homebrewers' groups—SpoilControl covers the entire fermentation chain from fermentation to glass.

The project aims to generate scientific, societal, and economic impact by improving public awareness of safety issues, developing innovative treatments, and promoting best practices for industry and consumers alike.

Spoilcontrol will recruit a total of 15 PhD candidates across 12 of our partner institutions in Europe.

- **PhD position description and responsibilities:**

The recruited PhD candidate for this research project will focus on **managing spoilage potential of acetic acid bacteria in the beverage industry: facing complexity through an integrated approach.**

- **Main responsibilities of the recruited student will include:**

- Collection of empirical information from end-users regarding the biotic/ abiotic factors that may underlie AAB spoilage
- Adaptation of large-scale tools (culturomics, metagenomics, genomics) for the integrative study (e.g. to unravel the inter- and intra-specific diversity of AAB in different processes)
- Identification of the biotic/abiotic factors affecting AAB spoilage potential (with a specific focus on microbial interactions)
- Development of new tools (e.g. culturomics, whole genome sequencing, culture conditions) to explore acetic acid bacteria (AAB) diversity
- Development of new tools (e.g. culturomics, whole genome sequencing, culture conditions) to study unconventional AAB species
- Collection and analysis of samples from different fermented food industries (e.g. wine, beer, cider, kombucha, kefir)
- Definition of a collection of strains (i.e. >200 AAB strains) from five processes (wine, beer, cider, kombucha, kefir)

- Screening and characterization of the strains to describe AAB diversity (intra-/inter-specific), also in terms of spoilage potential
- Investigation of AAB contamination/development in real samples
- Understanding the origins and dynamics of AAB contamination/development in fermented beverages
- Evaluation of the impact of beverage matrix characteristics on AAB diversity and development
- Assessment of different microbial resource management strategies in the beverage matrix to limit the spoilage potential of acetic acid bacteria in the beverage industry
- Study of AAB adaptation to environmental conditions, including existing treatments (e.g. antimicrobial) to limit contamination/development.
- Testing of innovative hypotheses on AAB contamination/development and microbial adaptation
- Evaluation of the impact of beverage matrix components/compounds on AAB contamination/development
- Formulation of hypotheses on the management of the spoilage potential of acetic acid bacteria in the beverage industry through an integrated approach.
- Assessment of protocols for the detection and management of AAB (including biocontrol strategies) at lab-scale and industrial scale
- Development of guidelines for rapid detection and biocontrol strategies for end-users.

This PhD will involve collaborations with:

- Work Package 4 (WP4) “Develop Solutions and Treatment” in relation with DC12 and DC15 (in the development of AAB diagnostic tools, assessment of innovative treatments on AAB family)
- WP3 “Characterize spoilage’s impact” with DC8 and DC10 (in the assessment sensory & economic impact of spoilage).

- **Planned Secondments**

4 months (M1-M4) at **UNIMORE** (in Italy-ITA) to set up strain collection and to adapt culturomic approach

2 months (M5-M6) at **Microbion** (in Italy-ITA) to develop LAMP PCR, design of challenge tests, understanding of industrial needs & planning industrial-scale assays
2 months (M7-M9) at **UBx (Oenology Lab)** (in France-FR) to start whole genome sequence activity & develop a transdisciplinary perspective in oenology
Short-stays (20 days) in **ENOAGRIMM** (in Italy-ITA), mainly during M10-M12 & M34-M36, to collect samples from end-users, industrial-based critical evaluation of the trials/results, and to plan industrial-scale assays

- **Supervision and Progress Monitoring:**

  The selected DC will benefit from a structured progress monitoring and evaluation system to ensure smooth implementation and timely completion of the research project. This will include:

  1. **A thesis committee** composed of a main supervisor and co-supervisor(s) from associated partners hosting the secondments, including at least one industrial supervisor:

  - Vittorio Capozzi (main supervisor - ISPA)
  - Maria Lucia Valeria de Chiara (co-supervisor - ISPA)
  - Antonio Del Casale (co-supervisor - Microbion)
  - Fabio Fracchetti (co-supervisor - Microbion)
  - Maria Gullo (co-supervisor - UMORE)
  - Warren Albertin (co-supervisor - UBx)
  - Patrick Lucas (co-supervisor - UBx)

  2. **Monthly formal meetings** with the supervisory team to track research progress, training activities, and dissemination efforts.

  3. A **six-month review of the Career Development Plan (CDP)** with supervisors to assess scientific advancements, training milestones, and employability.

  4. Submission of **periodic reports** on training achievements and scientific results.

5. Oversight of the **WP5 "Recruitment, Training and DC support"** by the training leader and the Project Coordinator, who will provide additional support in case of scientific or logistical challenges.

6. External evaluation from an **Advisory Board (AB)** during annual meetings, ensuring high-quality research and alignment with project objectives.

- **Eligibility Criteria:**

  - Applicants can be of any nationality as long as they satisfy the **MSCA mobility rule:**

"No residence or main activity (work, studies, etc.) in the country of the recruiting beneficiary for more than 12 months in the 36 months before their recruitment date. Country of main activity = not only where the fellow was physically based but also the country of the institution for which the main activity was performed".

  - Candidates must hold a **Master's degree or equivalent** (e.g., engineering degree) or be in the process of obtaining it by the start of the PhD project.

Related fields: Food Microbiology, Food Biotechnology, Food Technology, Food Chemistry, Oenology

  - Candidates may submit a ranked list of up to three research projects from Spoil control.

- **Conditions and Benefits:**
  - Doctoral contract for 36 months
  - Salary in accordance with MSCA funding and Italian regulation
  - Tuition fees and visa-related fees are covered by the consortium
  - Access to Institute of Sciences of Food Production – National Research Council of Italy infrastructure and resources
  - Supervision by experienced researchers
  - Opportunities for mobility and international collaborations within the SpoilControl consortium.
  - Language courses from the hosting country
  - Training opportunities in food and fermentation technology careers

Application Procedure

Applicants must submit the following documents by e-mail specifying the title of the PhD position: **spoil.control@u-bordeaux.fr** before **July 31st, 2025**.

Document	Size	Comments	Name of the file
Detailed CV	1-2 pages	In English	Name.Lastname_CV
Personal statement	1 page	Free writting	Name.Lastname_PS
2 Reference Letters		In English	Name.Lastname_RL
Copies of academic diplomas & transcripts		In English	Name.Lastname_Grades
Copies of English language proficiency certificates		For non-native English speakers	Name.Lastname_Lang

- **Selection Procedure:**

  SpoilControl will guarantee a genuinely independent, transparent, and professional evaluation of exceptional quality. The selection process will include the following steps:

  - **Eligibility Check:** The Project Manager (PM) will carry out an initial eligibility check for all applicants.
  - **Application Review:** Future academic supervisors, in accordance with the MSCA Green Charter, will review applications based on key evaluation criteria.

  /!\ The 4-5 highest-ranked proposals for the PhD project will be shortlisted for the next stage.

  - **Interviews:** Remote interviews will be conducted by the recruiting beneficiary and future supervisors, including non-academic members. These interviews will adhere to the MSCA Green Charter and the HR policies of the relevant institute.

- **Ranking List:** After the interviews, a ranking list will be generated for each DC project. The list will be sent to the Selection Board (SB) along with the applications and evaluation marks.
- **Selection:** The Supervisory Board (SB) will review the ranking list and endorse the final selection. They will establish the final shortlist and reserve list, which will consist of 15 applications for both categories (top selection and reserve).

- **Notification of Results:**

  The PM or main supervisors will notify applicants of the final results by e-mail

EVALUATION CRITERIA FOR APPLICATIONS AND INTERVIEW:

	Max. Score	Criteria
Application	30	Experience
	20	Leadership Potential
	10	Career development
Interview	20	Presentation
	40	Research ability
	40	Leadership potential

For further information, please contact : Camila Martinez - SpoilControl Project Manager
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