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 (DC2) – SpoilControl – Eliminating the Oxygen Requirement - Improving Yeast Robustness in Anaerobic Bioprocesses

- **Main Location:**

  Department of Biotechnology - Delft University of Technology (TUD) (Delft, Netherlands - NL)

- **Application Deadline:** **31/05/2025**

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

- **Context:**

The Biotechnology Department at the Delft University of Techonology 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 **eliminating the oxygen requirement for growth to enhance yeast robustness in anaerobic bioprocesses.**

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

  - Developing robust *Saccharomyces* chassis strains with enhanced resistance and competitiveness against spoilage organisms in anaerobic environments.
  - Assessing the impact of genetic engineering strategies on anaerobic growth factor requirements, cellular resilience, and the production of alcoholic beverages using full malt wort and grape must.
  - Transferring optimization strategies by developing protocols for implementing improved phenotypes across diverse *Saccharomyces* lineages for biocontrol applications.
  - Investigating microbial biofilms in real-world fermentation settings (wine and cider production) through the analysis of surface and equipment samples.

This PhD will involve collaborations with:

- Work Package 2 (WP2) "Monitor microbial communities" in relation with DC4 and DC7 (in exploration of spoiling and antagonistic flora respectively), and conversely.
- WP1 "Understand Spoilers" with DCs for training/dissemination activities

- **Planned Secondments**

6 months at the lab unit **SPO** (University of Montpellier - FR) to evaluate performance of engineered strains in anaerobic wine fermentation (grape must)
Between 3-4 months at **Lallemand** (Montreal Center - CA) to evaluate performance of yeast isolates selected for specific class B vitamin prototrophy under industrial brewing conditions

- **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. The candidate will be embedded in the Faculty Graduate School of Applied Sciences (FGS) and will be monitored according to the PhD regulations of Delft University of Technology. This supervision consists of:

1. **A thesis committee** consisting of 6 to 8 members, including the Rector Magnificus or a member of the Doctoral Examination Working Committee as chairperson, the 2 promotors, 4 independent members, and an optional additional member, such as a co-supervisor from an associated partner hosting a secondment.

Supervisors:

- Jean Marc Daran (main supervisor - TUD)
- Jack T. Pronk (TUD)
- Carole Camarasa (co-supervisor - SPO)
- Tobias Fischborn (co-supervisor - Lallemand)

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. At the latest, one year after the registered start date of the Doctoral Program, a **Go/No-Go meeting will take place between the doctoral candidate and the intended promotor**. Following this meeting, the intended promotor will clearly communicate their expectations regarding the successful completion of the Doctoral Programme within a reasonable timeframe.

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

6. **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.

7. 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: Microbiology, Biotechnology, Molecular Biology, Biochemistry, Bioinformatics, Chemical Engineering.

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

- **Conditions and Benefits:**
  - Doctoral contract for 48 months
  - Salary in accordance with MSCA funding and Dutch regulation
  - Tuition fees and visa-related fees are covered by the consortium
  - Access to Delft University of Technology 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 **May 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
Name-Lastname, position and e-mail contact of 2 academic references			Name.Lastname_RC
Copies of academic diplomas & transcripts		In English	Name.Lastname_Grades
Copies of English language proficiency certificate (**test TOEFL iBT**)		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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TU Delft
Delft University of Technology

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LALLEMAND