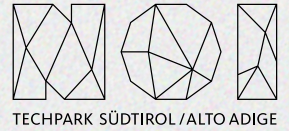


INTERNATIONAL
CONFERENCE
ON FERMENTED
FOODS



27–30TH
OF OCTOBER
2025

BOOK OF ABSTRACTS

● The 1st International Conference on Fermented Foods 2025 (ICFF 2025) is a unique worldwide opportunity that brings together leading experts, researchers, and industry professionals from all continents and many countries to delve into the latest advancements and innovations and future exploitation of the potential. Fermented foods, cornerstones of human nutrition for millennia, have witnessed a great resurgence of interest due to their profound impact on human health, food security and safety, nutrition, industrial business, and sustainability. Because of this importance, fermented foods still face evolving challenges, such as how to advance tradition into future foods with different perspectives; how to steer the processes and guide the microbiomes; how to develop innovative biotechnologies to impact human health, the global food safety, and security and precision; and how to exploit the potential for dignifying food waste and reducing food loss and create the next generation of sustainable foods, also responding to the need of using non-conventional protein sources. Sharing knowledge and best practices globally is vital for accelerating this transformative transition.

This dedicated conference on fermented foods is essential to address these challenges and capitalise on the growing opportunities. By bringing together researchers, industry professionals, and policy-makers, we can foster collaboration, advance scientific knowledge, and drive innovation in the production and consumption of fermented foods. We are committed to fostering a vibrant exchange of ideas and knowledge sharing among attendees from diverse backgrounds. Through keynote presentations, oral and poster sessions, and interactive workshops, we aim to create a stimulating environment for sharing knowledge, establishing synergistic collaboration, and supporting networking.

ICFF will become a recurring event held every three years, with its permanent locations at NOI Techpark, aiming to be the unique reference for researchers and professionals in this sector. Because of the great relevance of fermented foods in human tradition, society, well-being and economy, ICFF will be the recurrent meeting where scientific achievements will be presented and discussed, and results transferred to industry.



Marco Gobbetti
Chief Scientist, NOI Techpark

● Dear participants,

Fermentation is one of humanity's oldest biotechnologies. For millennia, it has enabled us to preserve food, nourish communities, and create flavours that define cultures. Across the world – and especially here in South Tyrol – traditional dishes are rich with fermented ingredients, from cheeses and breads to cured meats and fermented vegetables. These foods are not only a testament to our heritage, but also to the ingenuity of generations who harnessed natural processes to ensure sustenance and safety.

Today, fermentation stands at the threshold of new opportunities. Thanks to advances in biotechnology, we can now understand and control fermentation processes with unprecedented precision. This opens the door to foods that are healthier, tastier, longer lasting, and more sustainable. By valorising by-products and optimising microbial activity, we are able to create products that meet the demands of modern consumers while respecting the environment.

Bozen/Bolzano has become renowned for its expertise in food fermentation. Our region's research centres and companies are at the forefront of innovation, blending tradition with cutting-edge science. It is therefore a great honour for us to host the very first ICFF Conference here in Bozen / Bolzano. With this new initiative, we are bringing together the world's leading experts in the field of fermented foods to share knowledge, spark new ideas, and build lasting collaborations in our region.

What awaits you at ICFF? Inspiring lectures from leading scientists and practitioners, engaging discussions on the future of fermented foods, and the chance to discover new approaches and solutions. The conference is not only a forum for exchanging expertise, but also a unique opportunity for networking – whether during the sessions, in informal conversations, or on our joint excursion, where you can experience South Tyrol's landscapes.

We hope you enjoy your time in South Tyrol, find inspiration in the diversity of perspectives, and leave with new connections and ideas that will shape the future of fermented foods.

With best wishes for a successful and memorable conference,



Philipp
Achammer
Provincial Minister
responsible for NOI



Helga
Thaler Ausserhofer
NOI President

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Monitoring the effect of raw milk refrigeration on milk kefir fermentation: implications for quality and food safety

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● Fermented dairy products are valued for their sensory and functional properties. Kefir is gaining interest as a model for the complex microbiomes involved in fermented dairy beverages. In Italy, a raw milk distribution network targets end consumers, but refrigerated raw milk poses microbial stability challenges. This study, within the OnFoods project, explored how refrigeration affects psychrotrophic growth and the use of such matrices in milk kefir preparation.

Refrigerated raw milk (8°C, 0-48h) and UHT milk were fermented with milk kefir grains (commercial starter, Bionova, Italy). Volatile organic compounds (VOCs) produced during fermentation were sampled automatically every 3h for 96h at 26°C by Proton-transfer-reaction, coupled with Time-of-Flight Mass Spectrometer (PTR-ToF-MS) and identified via Gas Chromatography Mass Spectrometry (GC-MS). Metabolomic profiling was conducted through Nuclear Magnetic Resonance (NMR), while microbiological analyses assessed psychrophilic flora during storage and fermentation.

Kefir from refrigerated raw milk showed greater compositional diversity than that from UHT milk, with higher levels of fatty acids, carbohydrates, and microbial metabolites. VOCs like acetaldehyde, diacetyl, and acetoin highlighted active fermentation and enhanced sensory properties. Organic acids from lactic acid bacteria dominated, suggesting lower sugar content and improved digestibility. Bioactive compounds like GABA, purines, and butanol were also detected. Microbiological analysis confirmed a richer native microbiota, supporting raw milk kefir's superior fermentative potential.

The metabolomic approach, integrated with microbiological evidence, enabled monitoring of psychrotrophic microflora in cold-stored raw milk and variations in kefir starter dominance across samples with different storage times. Advanced techniques like PTR-ToF-MS and NMR proved effective for quality assessment.

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