50th National Congress on Magnetic Resonance

6-8 September 2023

Sapienza Università di Roma
Dip. di Chimica e Tecnologie del Farmaco
Città Universitaria, Building CU019

ISB | CNR | Spc

Facoltà di Farmacia e Medicina
Sapienza Università di Roma
Dipartimento di Chimica e Tecnologie del Farmaco

GIDRM
Gruppo Italiano Discussione Risonanze Magnetiche

In Rome

50th *NATIONAL CONGRESS on MAGNETIC RESONANCE*

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GENERAL INFORMATION

VENUE

Sapienza University of Rome
Department of Chemistry and Technology of Drugs, Building: CU019
Piazzale Aldo Moro 5, 00185 Roma (RM)

INVITED SPEAKERS

The following speakers have agreed to give plenary lectures at the meeting:

Søren Balling Engelsen (University of Copenhagen)
Marco Geppi (University of Pisa)
Mathilde Hauge Lerche (Technical University of Denmark)
Giovanna Musco (IRCCS San Raffaele Hospital, Milano)
Janez Plavec (National Institute of Chemistry, Ljubljana)
Paola Turano, Winner of the GIDRM/GIRM Gold Medal 2023 (University of Florence)

The following speakers have agreed to give lectures at the meeting:

Fabio Arnesano (University of Bari)
Lucia Calucci (ICCOM-CNR, Pisa)
Daniela Delli Castelli (University of Torino)
Valeria Di Tullio (ISPC-CNR, Roma)
Mariapina D'Onofrio (University of Verona)
Moreno Lelli (University of Firenze)
Giuseppe Pileio (University of Southampton)
Valeria Righi (University of Bologna)

NMR SPECTROSCOPY IN ANALYSIS OF ORGANIC SAUERKRAUT FERMENTATION

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Keywords: solution NMR, small molecules, biomolecules, metabolomics, food.

Sauerkraut is a product derived from malolactic fermentation of cabbage and it is currently the most fermented product in Europe. Some scholars have linked consumption of such foods to increased immune functions, anti-inflammation activity, decreased fasting glycemia and other health beneficiary effects [1]. This multidisciplinary study was focused on characterizing the sauerkraut brine from two different producers with ^{1}H NMR-based metabolomics in combination with examination of its microbial diversity (see Fig. 1). The metabolite profiles changed significantly during the process of fermentation, and such components as lactic and acetic acid, as well as amino acids, amines, and uracil, were among the dominant metabolites [2].

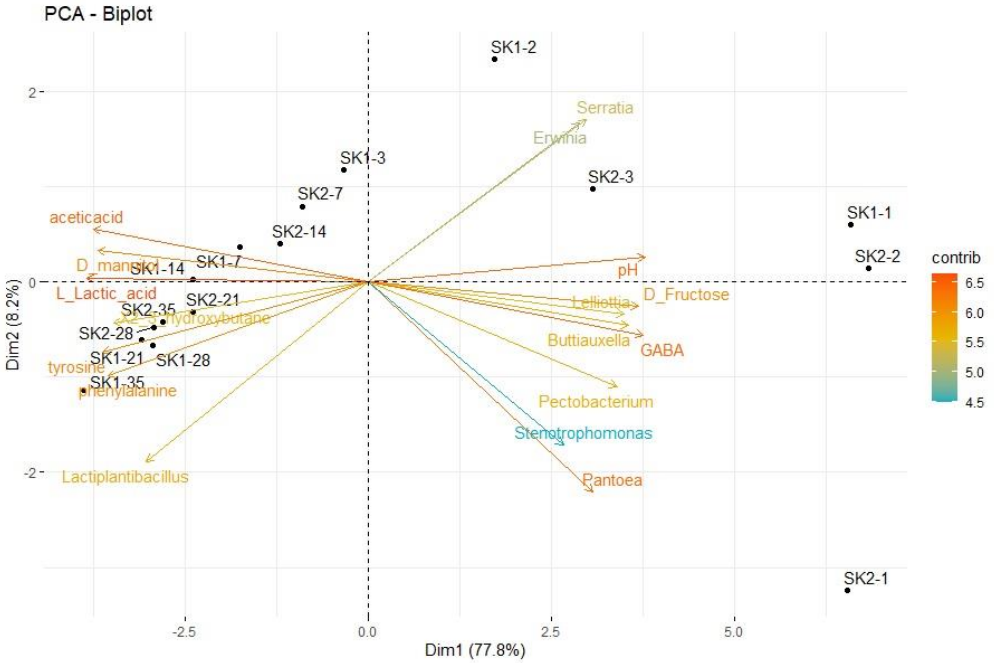

Fig. 1. PCA biplot showing correlations between bacterial genera and metabolites at different stages of sauerkraut fermentation).

From the microbiological point of view, a robust inflammatory response to endotoxin was detected which could indicate positive effect on inflammation and supporting the potential of sauerkraut brine to regulate intestinal immune function.

References:

[1] F. Higashikawa, M. Noda, T. Awaya, K. Nomura, H. Oku, M. Sugiyama, M. *Nutrition* **26**, 367–374 (2010). doi: 10.1016/j.nut.2009.05.008
[2] G. Gaudioso, T. Weil, G. Marzorati, P. Solovyev, L. Bontempo, E. Franciosi, L. Bertoldi, C. Pedrolli, K. M. Tuohy and F. Fava. *Front. Microbiol*. **13**, 929738 (2022)