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Fakultät für Naturwissenschaften und Technik
Facoltà di Scienze e Tecnologie
Faculty of Science and Technology

TECHPARK SÜDTIROL / ALTO ADIGE

Food Technology

Libera Università di Bolzano / Freie Universität Bozen
NOI Technology Park

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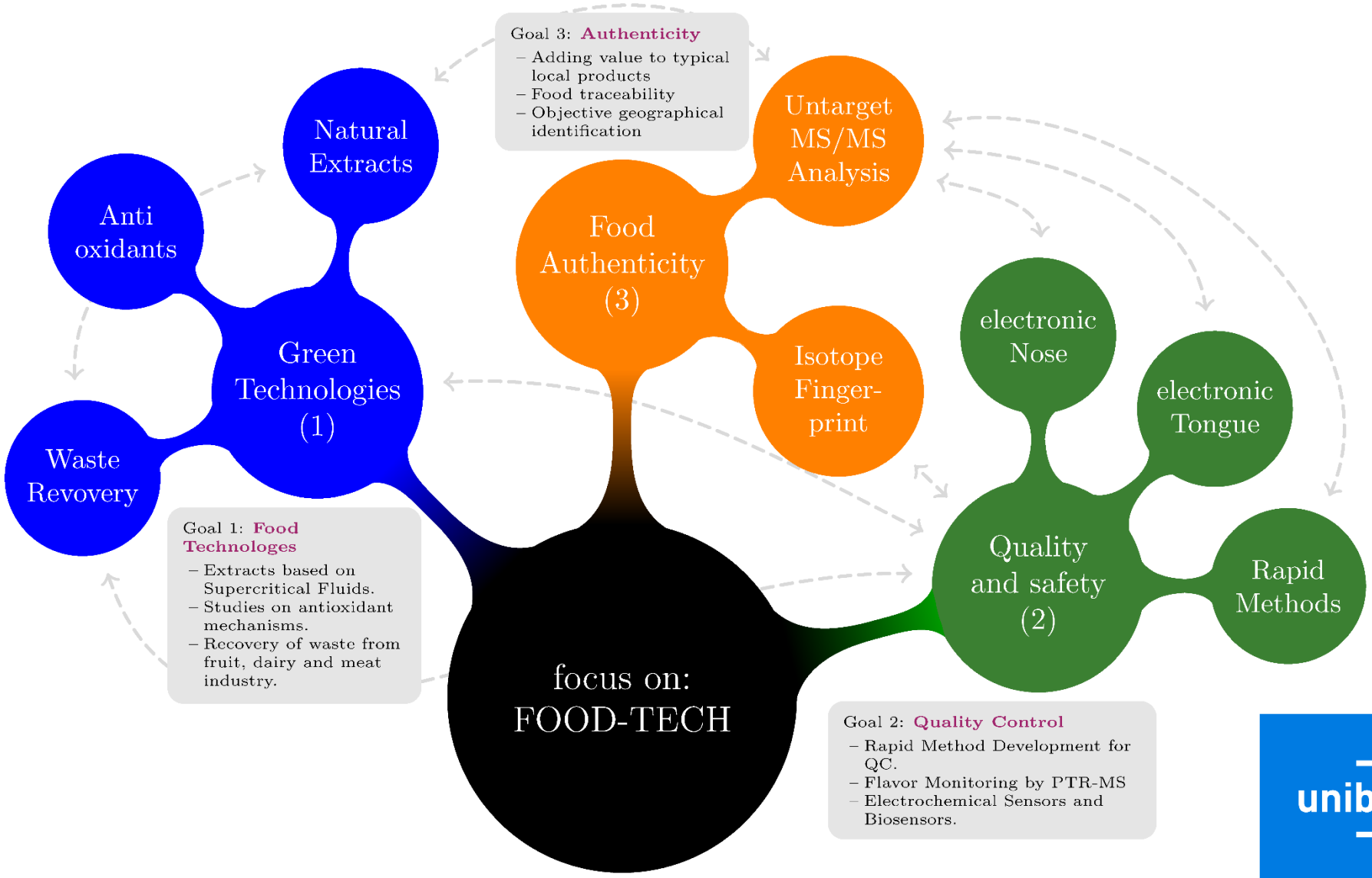
2020 – Bolzano

RESEARCH CONCEPTS



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Technology Park in Bolzano (Italy)

Research contracts

(contracts already signed with unibz)


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Our current approach

EXTRACTION OF NATURAL ANTIOXIDANTS AND BIOACTIVE COMPOUNDS

FORMULATION INTO STABLE INGREDIENTS

PROCESSING INTO NEW FOODS/FORMULATIONS

STABILITY/SHELF LIFE

EXTRACTION

- Supercritical CO_2 Extraction
- Soxhlet Extraction
- Solvent maceration
- Enzyme assisted extraction
- Ultrasounds assisted extraction

FORMULATION

- Freeze-dried formulations of natural antioxidants
- Freeze-dried formulations of vitamins
- Emulsion of lipid soluble vitamins
- Extruded pellets
- Protein isolates
- Meat-like analogue with vegetable proteins

PROCESSING

- Hot Melt Extrusion
- High Pressure Homogenizer
- Freeze Drying
- Cold Pasteurization with CO2

STABILITY AND SHELF LIFE

- Colloidal stability of emulsions and dispersions
- Oxidative stability kinetics
- Antioxidant capacity and control of lipid autoxidation
- Evolution of volatile organic compounds during storage or processing

Example of researches

Innovative Food Science and Emerging Technologies 64 (2020) 102428

Contents lists available at ScienceDirect

Innovative Food Science and Emerging Technologies

journal homepage: www.elsevier.com/locate/ifset

Supercritical fluid extraction of oils from apple seeds: Process optimization, chemical characterization and comparison with a conventional solvent extraction

Giovanna Ferrentino[a,*], Sebastiano Giampiccolo[b], Ksenia Morozova[a], Nabil Haman[a], Sara Spilimbergo[b], Matteo Scampicchio[a]

Phenolic compounds extracted from spruce (*Picea abies*) by supercritical carbon dioxide as antimicrobial agents against gram-positive bacteria assessed by isothermal calorimetry

Giovanna Ferrentino[1] · Nabil Haman[1] · Ksenia Morozova[1] · Giustino Tonon[1] · Matteo Scampicchio[1]

Received: 24 February 2020 / Accepted: 18 July 2020

Food and Bioprocess Technology
https://doi.org/10.1007/s11947-019-02392-x

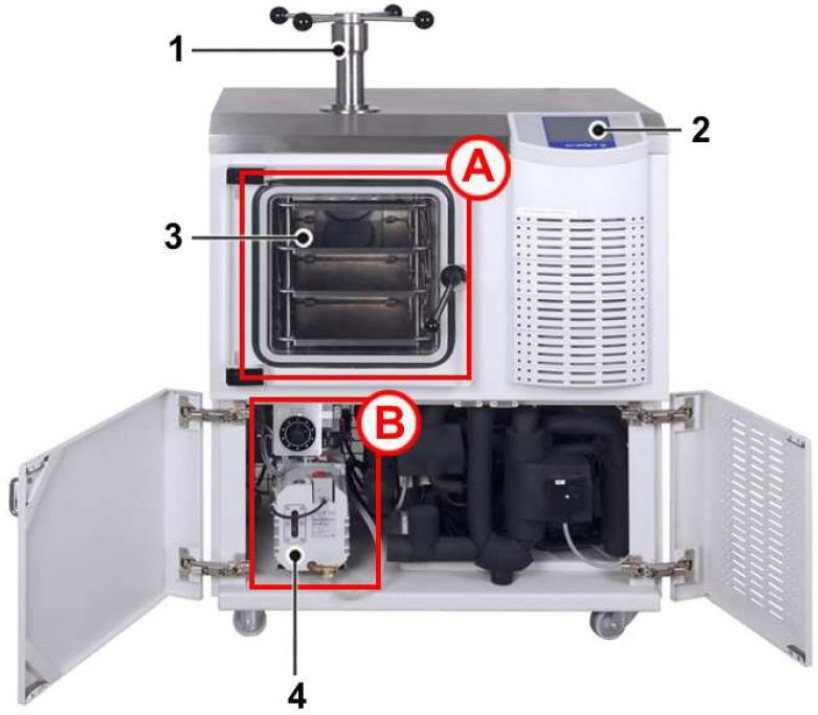
ORIGINAL PAPER

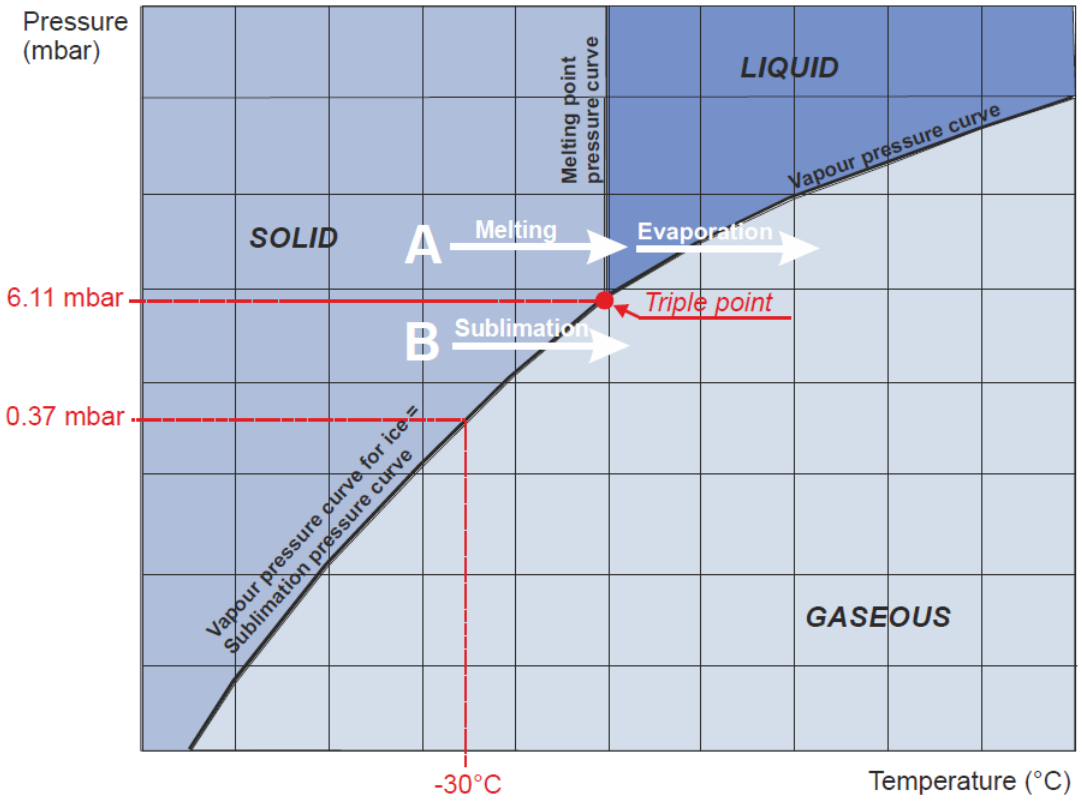
Encapsulation of Oils Recovered from brewer's Spent Grain by Particles from Gas Saturated Solutions Technique

John Ndayishimiye[1] · Giovanna Ferrentino[1] · Haman Nabil[1] · Matteo Scampicchio[1]

Received: 21 September 2019 / Accepted: 3 December 2019

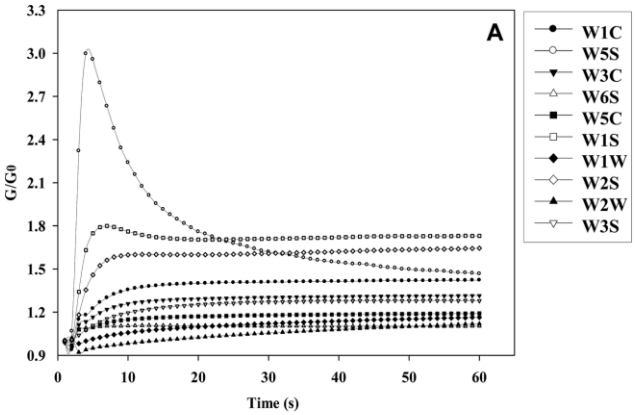
Example of products by Freeze drying

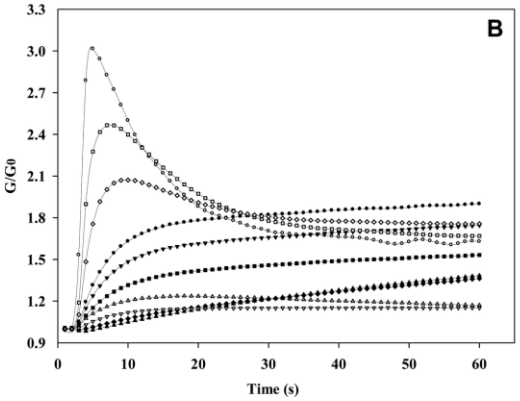




Example of analysis: Electronic Noses

Metal Oxide Sensor (MOS)



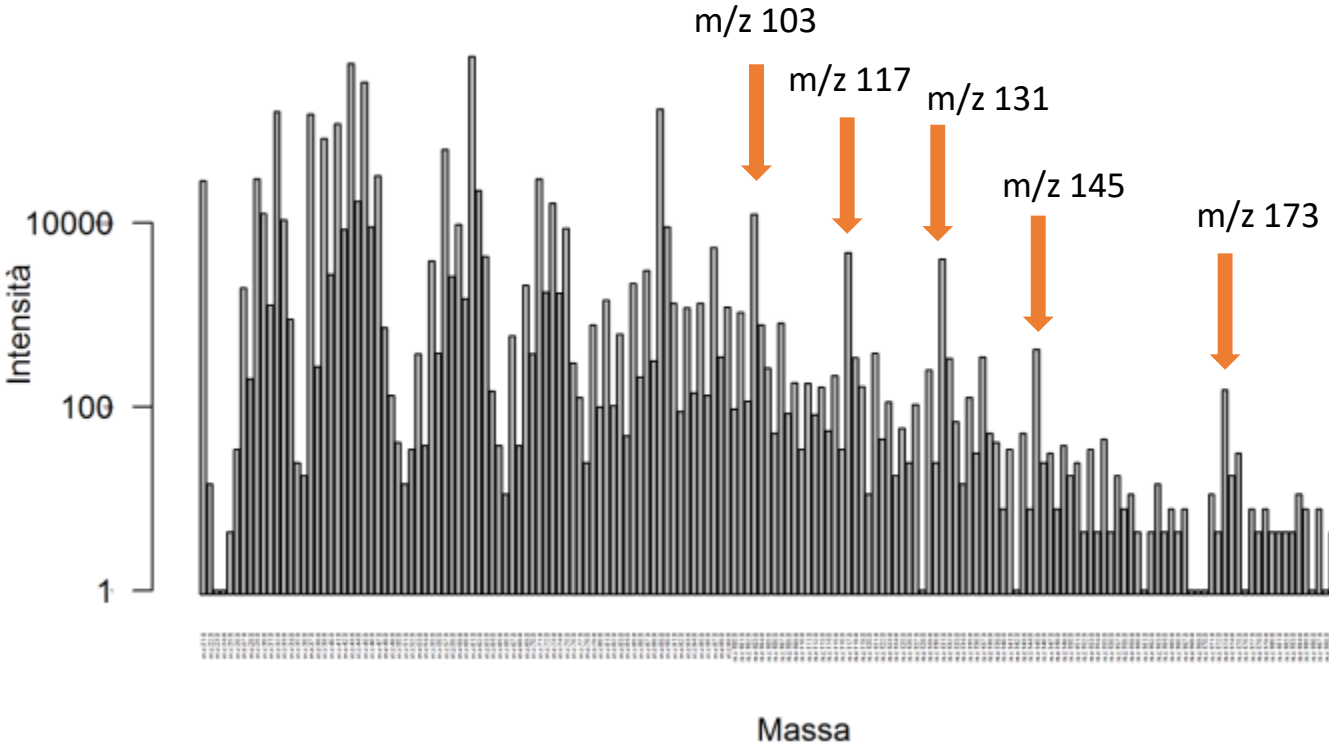


- Milk freshness
- Volatile profile
- Shelf-life monitoring
- Yogurt fermentation
- Cheese production
- Different process effects on the product

Proton-Transfer-Reaction Mass Spectrometry (PTR-MS)

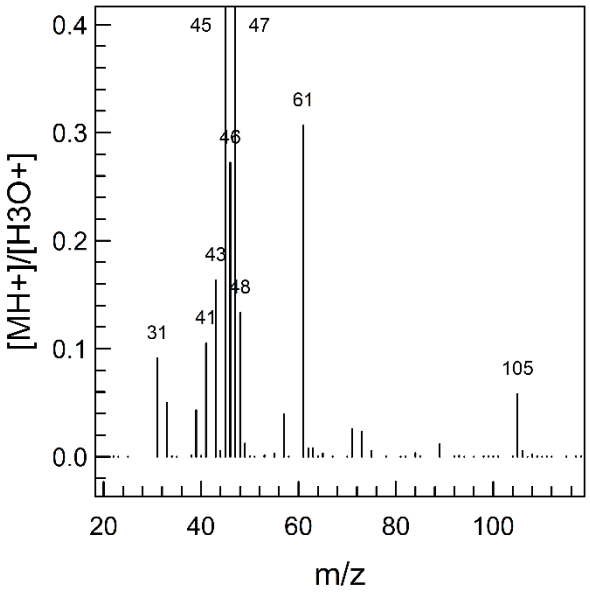
Sample: fermented apricot fruit

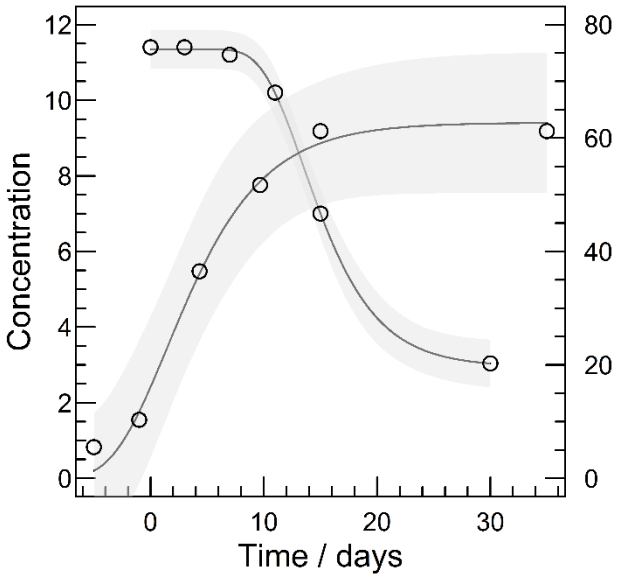
Esters = composti responsabili di note fruttate (mela, banana, ananas, albicocca *etc. etc.*)



Milk fermentation monitoring

Mass Spectrometry (PTR-MS)





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Gompertz model: $$y = As * \exp[-\exp\left(\mu max * \frac{e}{As}(\lambda - t) + 1\right)]$$

Many thanks

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