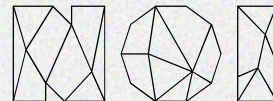


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BOOK OF
ABSTRACTS

Nut-based fermented products as cheese-alternatives: exploitation of lactic acid bacterial consortia

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● The increasing interest in plant-based products has stimulated the development of cheese surrogates obtained through Lactic Acid Bacteria (LAB) fermentation of nuts or legumes. These products can pose safety (pathogens, spoilage microbiota) and quality (texture, aroma) challenges. This study, part of the InnoSol4Med project, evaluated the potential of autochthonous LAB strains as starter cultures for the fermentation of different nuts (cashews, almonds, hazelnuts, Macadamia nuts) to obtain spreadable cheese-like food. Five LAB strains belonging to *Lactiplantibacillus plantarum*, *Lactiplantibacillus paraplantarum*, *Pediococcus acidilactici*, *Latilactobacillus sakei*, *Leuconostoc lactis* species, isolated from artisanal fermented products, were tested for growth performances, alone or in combinations. The process was also optimized to inhibit spoilers. The results showed that one strain failed to outcompete the wild microbial population and that hazelnuts were unsuitable for obtaining a spreadable cream. Based on these findings, a hot water bath pre-treatment was introduced before nut soaking and the most promising LAB were used in combination to enrich the aroma profile and optimize the acidification rate. The results highlighted the potential of different LAB consortia to ferment raw materials reaching a safe pH value (<4.4). Moreover, aroma profiles were characterized by the presence of compounds able to confer cheese-notes (acetoin and diacetyl) that enrich sensorial appeal and favor sensory acceptability. This work provides valuable insights for developing innovative plant-based foods using microbial diversity from traditional fermented products.

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