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BOOK OF ABSTRACTS





Spirulina crostini: a new sourdough bakery product

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About the author:

Msc degree in 2013 in Agricultural Sciences and Technologies. PhD in 2017 in Agriculture and Environmental Sciences, with a thesis on “Microalgae as source of innovative foods and nutraceuticals”. Post-Doc Researcher at the Department of Agrifood Production and Environmental Sciences (DISPAA) of the University of Florence, in the group led by Prof. Mario Tredici. He is working on the use of microalgae for the production of new food products, on bioactive molecules from microalgae and cyanobacteria for agro-industry and for cosmetic and pharmaceutical applications, and on the utilization of microalgae as biostimulants in the agricultural field. He is participates in NoMorFilm, an H2020 EC funded project.

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The Department of Agrifood Production and Environmental Sciences of the University of Florence includes seven sections, among which the Microbiology Section, to which the group on microalgae biotechnology belongs. The main topics of the group are: design and realisation of pilot and industrial photobioreactors (in collaboration with F&M S.r.l., a spin-off of the University of Florence); microalgae and cyanobacteria culture for food/feed and bioactives production; selection of PUFA- and carotenoid-rich microalgae; live and preserved microalgae as feed for fish and mollusks.

Abstract:

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The aim of this work was to evaluate the influence of the integration of *Arthrospira platensis* F&M-C256 (commonly known as spirulina) on the nutritional and functional properties of “crostini”, a leavened bakery product largely consumed in Italy and Europe.

Sourdough as leavening and fermentation agent was used. Three percentages of *Arthrospira platensis* F&M-C256 were tested: 2% (w/w), typically used in algal-based products, and two higher levels, 6% and 10% (w/w), to supplement with substantial contents of algal proteins and bioactives the final product. No significant differences in lactic acid bacteria and yeast cell concentrations between “spirulina crostini” and the control were observed at the end of the fermentation. Despite a lower volume increase compared to the control, the “spirulina crostini” dough reached a technological appropriate volume after fermentation. All the “spirulina crostini” showed higher protein content compared to the control. Six and ten percent integrated “crostini” also presented significantly higher total phenolic content and *in vitro* antioxidant capacity. A significantly lower value of *in vitro* dry matter digestibility between “spirulina crostini” and the control was found. Also crude protein digestibility decreased with increasing *A. platensis* F&M-C256 integration levels.

In order to evaluate “spirulina crostini” in terms of colour, smell, taste, texture, global consumers' appreciation (6 levels from “very pleasant” to “very unpleasant”) sensory analysis assays were performed. The buying intention was also assessed, from “would certainly buy” to “certainly wouldn't buy” (5 levels). The result of the sensory analysis will be presented.