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Abstracts Book

Polyphenols
APPLICATIONS

17th World Congress on Polyphenols Applications

September 19 – 20, 2024

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Welcome to Polyphenols Applications 2024

Dear Colleagues,

It is a great pleasure to welcome all of you to our 17th World Congress on Polyphenols Applications, which will be held on September 19-20, 2024, at Università degli Studi di Milano Statale, Milan, Italy.

Polyphenols Applications 2024 aims to bring together experts from academia and industry to discuss the latest scientific advancements in fundamental and applied research on polyphenols. This year the conference will feature a balanced mix of invited talks and short talks, based on suggestions from the audience at the previous year's conference.

The conference will cover various topics, including the latest advancements in polyphenol research, focusing on their health benefits, interactions with microbiota, and applications in food processing. Sessions will cover diverse topics, including the potential of anthocyanin-rich extracts in chemotherapy, the antiviral activity of polyphenols, and their impact on obesity and diabetes.

We would like to thank all the speakers and scientific committee members of Polyphenols Applications for their excellent contributions.

We also wish to thank the Local Organizing Committee: Sabrina Dallavalle, Andrea Pinto, Cristian Del Bo', and Daniela Martini from the University of Milan.

Finally, we are grateful for the support of our sponsor HealthTech Bioactives (HTBA).

We hope that you will enjoy the Polyphenols Applications 2024 Congress and that your interactions with colleagues from many countries will stimulate a creative exchange of ideas and challenges.

Prof. Jan Frederik Stevens
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NEW APPROACHES IN EXTRACTION AND PRESERVATION OF ULVA LACTUCA SEAWEED POLYPHENOLICS AND NATURAL PIGMENTS

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Introduction: New ways of utilizing the unexploited marine product, seaweed from the Adriatic Sea (*Ulva lactuca* L.) were established. Due to the benefits of this macroalga, the focus was to apply green and safe technologies for the extraction and preservation of seaweed's valuable bioactive compounds.

Material & Methods: The sampling of Ulva was performed in Boka Kotorska Bay (South Adriatic Sea). Optimization extraction protocol for the main bioactive compounds and their preservation through innovative microencapsulation techniques (spray and freeze-drying) methods were established.

Results: The extraction process was based on the principles of "green extraction". Ethanol-water mixture (50%, solid solvent ratio 1:20) was chosen as optimal extract conditions for polyphenols and flavonoids, and maceration as a superior extraction method. The Ulva extract possessed a high content of total polyphenols, chlorophyll A and B, and carotenoids (3.55 mg GAE/g, 84.53 mg/100g Chl A, 68.41 mg/100g Chl B, 5026.82 mg/100 g), respectively. The obtained microencapsulates improved Ulva's stability, limiting the inactivation of the sensitive polyphenolic compounds, achieving high encapsulation efficiency, and high antioxidant activities.

Conclusion: This valuable sea resource may be used as an uncostly bio-product rich in functional compounds, with commercial utilization and development of Ulva-based blue-biotech industries.

This research work has been performed by the frame of Cost Action CA20106 Tomorrow's Wheat of the Sea: Ulva, a model for innovative mariculture (SeaWheat). The experimental work was supported by the Ministry of Science and Technological Development and Innovation of the Republic of Serbia, contract numbers 451-03-66/2024-03/200003

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