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Abstracts Book

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APPLICATIONS

17th World Congress on Polyphenols Applications

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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.

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INSIGHTS INTO WILD POMEGRANATE PEEL ENCAPSULATES: PHENOLIC COMPOSITION, ANTIOXIDANT AND ANTIMICROBIAL POTENTIAL

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Introduction: Pomegranate peel (P) proved a broad range of biological activities and health-promoting effects. Considering the great therapeutic potential of a P extract, this study aims to establish an encapsulation process, using biocompatible carriers to obtain preserved encapsulates with highly potent bioactive components. The phenolics content, antioxidant and antimicrobial activities of pomegranate peel encapsulates were determined.

Materials & Methods: Microencapsulation method was performed by freeze drying technique. The content of total phenols, flavonoids, flavonols, flavan-3-ols and total and monomeric anthocyanins were determined spectrophotometrically in pure freeze-dried extract PPE (FPE), and its encapsulates, with whey protein (FPE+WP), maltodextrin (FPE+MD) and polydextrose (FPE+PD). Antioxidant activities were measured using DPPH, ABTS and hydroxyl radical tests. Antimicrobial effects of samples were evaluated. FTIR analysis was performed to examine the efficient encapsulation process inside the carries.

Results: Among encapsulates, the FPE+WP showed the highest content of all investigated components, except FPE+PD which demonstrated the highest flavonoids content. FPE+WP showed the highest antioxidant activity by DPPH (IC50=13.81µg/ml), while FPE+MD by ABTS (IC50=3.15 µg/ml) and OH (IC50=18.88 µg/ml) tests. Samples exhibited high antimicrobial potential. FTIR analysis demonstrated successful encapsulation process, without negative interactions.

Conclusions: All obtained wild pomegranate peel encapsulates proved good multifunctional properties with potential as food and pharmaceuticals.

References:

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