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Polyphenols  
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September 19-20, 2024

► University of Milan, Italy

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Polyphenols  
APPLICATIONS

# 17<sup>th</sup> World Congress on Polyphenols Applications

September 19 – 20, 2024

Milan & Online

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# Welcome to Polyphenols Applications 2024

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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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# NATURAL DEEP EUTECTIC SOLVENTS – A PROMISING MEDIA TOWARDS SUSTAINABLE VALORISATION OF UNDERUTILIZED CROPS

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**Introduction:** Diversifying food resources through incorporation of crops with nutritional and health benefits present a promising strategy in sustaining nutraceutical security under climate change and biodiversity degradation. Buckwheat is such underutilized crop, known for the abundance of bioactive compounds that have a vast potential to support human health.

**Material & Methods:** Heat-assisted extraction supported with natural deep eutectic solvents (NaDES) was employed to extract polyphenols from the *Fagopyrum esculentum* Moench. Response surface methodology was used to optimize the extraction process, considering results obtained in the screening assay with nine different NaDES.

**Results:** In screening analysis, lactic acid-containing NaDES showed the highest extraction capacity for rutin, whereas total flavonoids were favourably extracted by choline chloride/propylene glycol (ChCl/PG) mixture. Systematic analysis of the studied process parameters revealed that the maximal content of rutin was obtained under the temperature of 60.7°C, during 119.04 min, with 27.32% of water. The optimal conditions for the highest flavonoid content in ChCl/PG extraction were 64.87°C, 112.61 min, and 30.92% of water.

**Conclusion:** Extracts obtained through implementation of green extraction procedures from buckwheat holds a great potential to contribute to the consumers' nutrient and health benefits and pave the way for incorporation into the new natural-based products.

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## References:

1. S.A. Sofi, et al. *Food Sci Nutr* 11 (2023) 2256–2276.
2. M. Radan, et al. *Sustain Chem Pharm* 35 (2023) 101220.