



Natural products application: Health, Cosmetic and Food

Provided by nature, adapted scientifically for industry



Book of abstracts
1st International Online Conference
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1st Natural products application: Health, Cosmetic and Food: book of abstracts

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1° Online Congress on Natural products application: Health, Cosmetic and Food

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The Mountain Research Center is one of the 5 research centers within the Polytechnic Institute of Bragança and is an RD unit of excellence. CIMO conducts research on the Mediterranean mountain systems following an interdisciplinary strategy that goes from Nature to Products.

In all these years, we have had the commitment of disseminating science around the world, creating solid and robust bonds and partnerships with both, academia and industry, and we are always looking for more challenging collaborations.

In this sense, the mountain research center gathers different ways to keep evolving in our main mission of science dissemination, especially now during this difficult pandemic situation, in which science dissemination has been extremely affected.

Therefore, one of our responses was the creation of the first edition of the Natural Product Applications Online Congress, which consists in the dissemination of research using natural products applied in 3 different areas: cosmetic, food, and health.

Thanks to all of you in less than a month the congress reached more than 483 registration from universities and important companies from different parts of the world, such as Algeria, Argentina, Brazil, Colombia, France, Greece, Italy, Mexico, Netherlands, Poland, Russia, Serbia, Slovenia, Spain, Ukraine, and USA.

The NPA congress received and processed more than 211 communications, from which the scientific committee has selected the most appropriate for each type of communication, considering the limited time we have for this conference.

All the submitted works were divided into three main categories, Oral, Pitch, and Poster communications, which will join 9 Keynote lectures and one invited oral communication, to which, we would also like to thank for their availability and for accepting this invitation.

We could not thank you more for your participation, and we hope to see you next year on the second edition of the Natural Product Applications Congress.

NPA Team.

Index

About	5
Keynotes Information	8
Congress Program	12
Keynote presentation	20
Oral communication	35
Pitch communication	59
Poster presentation	83

PCF-43

EXTRACTION OF CHLOROPHYLLS FROM NATURAL SOURCES

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The growing consumers' concern for possible long-term adverse effects of artificial molecules commonly used in food industry has led to an increased interest in natural products. At the same time, there is a demand for a more eco-sustainable use of natural matrices, which justifies the search for byproducts that have no other application to be explored in the development of novel food products [1,2]. In this context, the present study was designed to exploit natural pigments, more specifically chlorophylls, from bioresidues (aerial parts of carrot and tomato) for the development of food colorants. These are the most abundant pigments in plants and present, beyond their great coloring capacity, several bioactive properties, which corroborates the importance of their application in foodstuff. In this work, different extraction methodologies and techniques (maceration, ME, and ultrasound-assisted, USE) were applied to the lyophilized aerial parts of carrot and tomato to maximize the chlorophyll extraction yield. For the extraction, green solvents were prioritized, namely water, ethanol (90%), and hexane. The parameters affecting the pigments recovery were varied for each technique, namely the time, power, and solvent for USE, and the time and solvent for ME. The extractions were performed protecting the samples from light and the results were monitored through the implementation of a new chromatographic method, HPLC coupled to a diode array detector (DAD) and mass spectrometry (MS), to determine the concentration of chlorophylls and the best procedure to be performed. Both aerial parts presented chlorophylls and derivatives in significant concentrations and extraction yields up to 88% for the ethanolic extracts. The applied chromatographic method revealed to be appropriate for the analysis of this class of pigments, allowing a good peak resolution and separation, but also characteristic TIC spectrum for the tentative identification of the compounds. Therefore, the results of the present study can be explored for the development of chlorophyll-based colorants from these bioresidues, but also from similar byproducts.

References

- [1] L.A.V. Manoel et al., HU Revista, 45 (2019) 254.
[2] N. Streit, et al., Ciencia y Tecnologia, 8 (2015) 27.

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