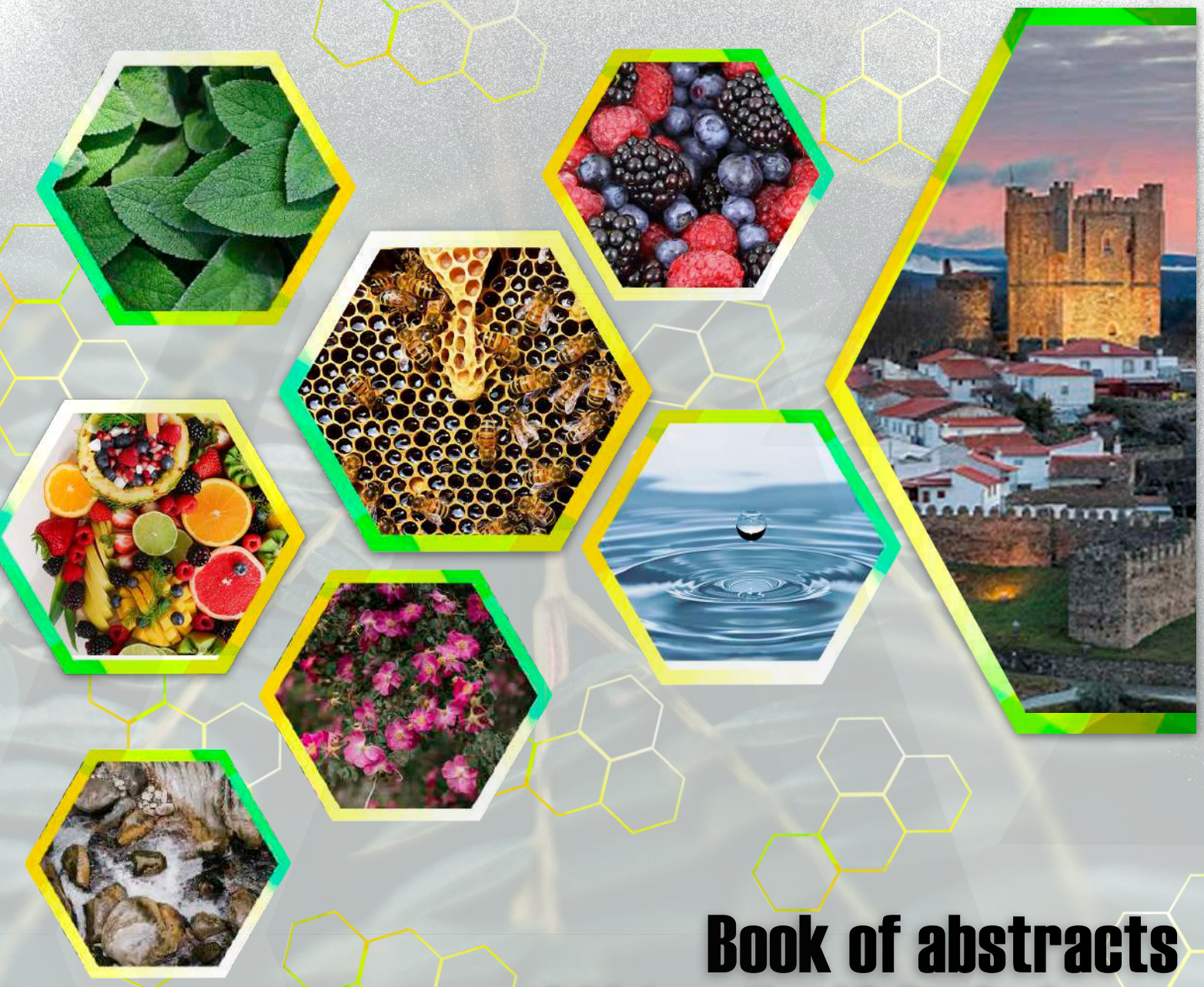
Natural products application: Health, Cosmetic and Food

Provided by nature, adapted scientifically for industry



Book of abstracts

1st International Online Conference

4th - 5th February 2021

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CIMO Centro de Investigação de Montanha

montanhas de investigação

AQUA VALOR

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

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About

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 inter-disciplinary 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 On-line 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.

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PCF-48

ANTHOCYANIN-RICH EXTRACT OBTAINED FROM *PRUNUS SPINOSA* L. BY ULTRASOUND ASSISTED EXTRACTION FOR COLORING PURPOSES

Maria G. Leichtweis,[1] Carla Pereira,[1*] Miguel A. Prieto,[1,2] Maria José Alves,[1] Ricardo C. Calhelha,[1] M. Filomena Barreiro,[1] Ilton J. Baraldi,[3] Isabel C.F.R. Ferreira,[1] Lillian Barros,[1]

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Anthocyanins are a group of natural pigments presenting a range of colours between red, blue, and violet that are characteristic of various fruits and vegetables. A complex profile of anthocyanins, predominantly cyanidin 3-rutinoside and peonidin 3-rutinoside, was previously identified in *Prunus spinosa* L. fruit, a bitter and astringent fruit from a wild shrub that is poorly commercially exploited [1]. In this sense, the objective of this work was to develop a natural food colourant based on anthocyanins extracted from the epicarp of *P. spinosa* fruits. For that purpose, a conventional extraction method, maceration, and a rapid and low-cost ultrasound procedure were applied for the extraction of anthocyanins from this matrix. To achieve the conditions that maximize anthocyanins' extraction, a response surface methodology was applied using a circumscribed central composite design with three variables and five levels, being the variables time, temperature, and ethanol content, in the case of maceration extraction, whereas for ultrasound assisted extraction, temperature was replaced by ultrasound power. The anthocyanins were identified and quantified by HPLC-DAD-ESI/MS. The optimized extract was assessed in terms of antioxidant and antimicrobial capacity, and hepatotoxicity.
Ultrasound assisted extraction was the most efficient method, under optimum conditions of 5.00±0.15 min, 400.00±32.00 W and 47.98±2.88% ethanol, where the extraction yield was 68.60±2.06% (v/v), with a total anthocyanin content of 18.17±1.82 mg/g of dry extract and 11.76±0.82 mg/g of dry epicarp. Regarding bioactivity, the optimized extract showed antioxidant and antimicrobial activity and it did not show hepatotoxic effects in a primary culture of porcine liver cells. To validate its coloring properties, the anthocyanin-rich extract was incorporated into a typical Brazilian confectionery product "beijinho", proving its applicability as food colorant.

References

[1] Rafaela Guimarães, Lillian Barros, Montserrat Dueñas, et al., Food Chemistry, 141 (2013) 3721.

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