



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

Title

1st Natural products application: Health, Cosmetic and Food: book of abstracts

Editors

¹Lillian Barros

¹Bruno Melgar Castañeda

¹Carlos Seiti Hurtado Shiraishi

Suport

Eletronic

Format

PDF

Edition

Instituto Politécnico de Bragança (IPB)

<http://www.ipb.pt>

5300-253 Bragança, Portugal

Tel. (+351) 273 303 382

ISBN

978-972-745-286-6

URL

<http://hdl.handle.net/10198/22068>



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

Organizing Committee

Lillian Barros^{1,2,3} - Instituto Politécnico de Bragança

Alexandre Gonçalves² - MORE

Maria José Alves² - Instituto Politécnico de Bragança

Rui Abreu² - Instituto Politécnico de Bragança

Ricardo Calhella² - Instituto Politécnico de Bragança

Soraia Falcão² - Instituto Politécnico de Bragança

Bruno Melgar^{3,4,5} - Instituto Politécnico de Bragança

Bruna Mara Machado Ribeiro² - Universidade Federal do Ceará

Carlos Seiti Hurtado Shiraishi⁵ - Instituto Politécnico de Bragança

¹ Congress Chair

² Keynotes curation

³ Planning, Conceptualization, Execution

⁴ Graphic design, Digital Strategy, Streaming

⁵ L^AT_EX Formatting



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

Scientific Committee

Rosane Peralta - State University of Maringa

Manuela Pintado - Catholic University of Portugal

Jesús Simal - University of Vigo

Paola Perugini - University of Pavia

Eliana Souto - University of Coimbra

Joana Amaral - Instituto Politécnico de Bragança

Lillian Barros - Instituto Politécnico de Bragança

Maria José Alves - AquaValor

Ricardo Calhella - Instituto Politécnico de Bragança

Alexandre Gonçalves - MORE





Morning - 5 February

Cosmetic

Oral Presentations (10:30 - 11:30)

Anna Szemik-Hojniak

Biomimetic short peptides in medicine and cosmetology

Celso Afonso Ferraz

Contributions towards the ecotoxicological evaluation of plant extracts and essential oils

Javier Echave Álvarez

Fatty acid comp., antioxidant and antibacterial act. of ethanolic PLE extracts of 4 macroalgae species from Galicia

Paula Plasencia

Bioactive properties of different extracts obtained from the aerial parts of blueberry and raspberry raw materials

Sara Gonçalves

Evaluation of cosmetic properties of natural ingredients in the Trás-os-montes area: a PhD project

Silena Silva Delgado Alves

Humulus lupulus L.: cosmetic application of extracts obtained from cones and vegetative parts

Pitch Presentations (11:40 - 12:00)

Ana Costa

From garbage to glamour: assessing the organoleptic prop. of formulations containing lycopene-enriched extracts from tomato waste

Ana Rita Silva

Optimization of a tannin-rich extract using response surface methodology

Bruno Melgar Castañeda

Time dependency on bioactive compounds UAE extractions

Diana Andreia Tavares Pinto

Castanea sativa shells: from an undervalued agro-residue to a valuable raw material for cosmetic industry

Maria Aurora Soares da Silva

Bioactive properties of six macro-alga from the iberic peninsula sea

Patrycja Brudzyńska

Application of plant-derived colorants in cosmetic products

OCH-01: UNVEILING THE PROTECTIVE ROLE OF NATURAL BIOACTIVE COMPOUNDS TOWARDS COLORECTAL CANCER	
Ana teresa Serra	38
OCH-02: ANTI-AGING AND NEUROPROTECTIVE ACTIVITY OF THYMUS CARNOSUS AQUEOUS AND HYDROETHANOLIC EXTRACTS	
Carlos Martins-Gomes	39
OCH-03: ANTI-INFLAMMATORY EVALUATION OF A LIBRARY OF NATURAL COMPOUNDS IDENTIFIED IN MUSHROOMS USING IN SILICO STUDIES AGAINST COX ENZYMES	
Carlos Seiti Hurtado Shiraishi	40
OCH-04: SILVERBRAIN: NEUROPROTECTIVE POTENTIAL OF SEAWEEDES SUBCRITICAL WATER EXTRACTS	
Clara Grosso	41
OCH-05: HELICHRYSUM ITALICUM INFUSION STIMULATES ENERGY EXPENDITURE AND FAT OXIDATION AFTER ACUTE INGESTION IN HUMANS: A PILOT STUDY	
Katja Kramberger	42
OCH-06: CHITOSAN BASED FILMS LOADED WITH CYNAROPICRIN ENRICHED EXTRACT FROM CYNARA CARDUNCULUS: ANTI-INFLAMMATORY POTENTIAL	
Teresa Brás	43
OCF-01: Effect of pressurized liquid extraction (PLE) on the lipid composition of <i>Fucus vesiculosus</i>	
Antón Soria Lopez	45
OCF-02: TOOLS TO DEVELOP DAIRY INGREDIENTS: BIOACTIVE AND PRESERVATIVE PURPOSES	
Filipa Fernandes	46
OCF-03: PHENOLIC COMPOSITION AND BIOACTIVE PROPERTIES OF CARDOON BRACTS: INFLUENCE OF THE GROWTH CYCLE	
Filipa Mandim	47
OCF-04: A NEW GENERATION OF FOODS FOR THE PREVENTION OF DIABETES	
Ingrida Kraujutienė	48
OCF-05: NATURAL FOOD PRESERVATIVES: APPLICATION OF ROSEMARY, BASIL AND SAGE IN YOGURTS AS AVIABLE ALTERNATIVE TO ARTIFICIAL ONES, USING SUSTAINABLE, LOW COST AND EFFICIENT PROCESSES	
Jonata M. Ueda	49
OCF-06: THE EFFECT OF HIGH-PRESSURE PROCESSING AND THERMAL PASTEURIZATION ON THE MICROBIAL AND PHYSICAL- CHEMICAL PROPERTIES OF 3 VARIETIES OF OPUNTIA <i>Texto</i> FICUS-INDICA	
Ricardo Ferreira	50

OCC-01: BIOMIMETIC SHORT PEPTIDES IN MEDICINE AND COSMETOLOGY Anna Szemik-Hojniak	52
OCC-02: CONTRIBUTIONS TOWARDS THE ECOTOXICOLOGICAL EVALUATION OF PLANT EXTRACTS AND ESSENTIAL OILS Celso Afonso Ferraz	53
OCC-03: FATTY ACID COMPOSITION AND ANTIOXIDANT AND ANTIBACTERIAL ACTIVITIES OF ETHANOLIC PRESSURIZED LIQUID EXTRACTION (PLE) EXTRACTS OF 4 MACROALGAE SPECIES FROM GALICIA (NW SPAIN) Javier Echave Álvarez	54
OCC-04: BIOACTIVE PROPERTIES OF DIFFERENT EXTRACTS OBTAINED FROM THE AERIAL PARTS OF BLUEBERRY AND RASPBERRY RAW MATERIALS Paula Plasencia	55
OCC-05: EVALUATION OF COSMETIC PROPERTIES OF NATURAL INGREDIENTS IN THE TRÁS-OS-MONTES AREA: A PHD PROJECT Sara Gonçalves	56
OCC-06: <i>HUMULUS LUPULUS</i> L.: COSMETIC APPLICATION OF EXTRACTS OBTAINED FROM CONES AND VEGETATIVE PARTS Silena Alves	57

oCC
Oral
Communications
in Cosmetic area



***HUMULUS LUPULUS* L.: COSMETIC APPLICATION OF EXTRACTS OBTAINED FROM CONES AND VEGETATIVE PARTS**

Silena Alves,¹ Andrea F. Afonso,² Susana M. Cardoso,² Maria João Sousa,³ and Olívia R. Pereira,^{3*}

¹Instituto Politécnico de Bragança, Av. D. Afonso V, 5300-121, Bragança, Portugal;

²LAQV-REQUIMTE, Department of Chemistry, University of Aveiro, 3810-193 Aveiro, Portugal;

³Centro de Investigação de Montanha (CIMO), Instituto Politécnico de Bragança, Campus de Santa Apolónia, 5300-253 Bragança, Portugal;

*Correspondence: oliviapereira @ipb.pt Tel.: +351-273-330-950

Nowadays there is an increasing interest in the search for bioactive compounds obtained from aromatic and medicinal plants. Hop (*Humulus lupulus* L.) is known worldwide as an essential raw material for the beer industry [1], however, recent studies have revealed health benefits [2]. In the beer production process, only the cones of hop are used, while the vegetative part of the plant is discarded and not valorized albeit its richness in interesting compounds. In this work, we have studied the phytochemical profile of polar extracts of hop and of the essential oil of *T. zygis* subsp. *zygis*, and further evaluated their antibacterial and antifungal capacities. Moreover, gel formulations incorporating distinct levels of hop extracts (1.25%, 2.5% and 5%) from cones and vegetative parts of the varieties Nugget and Polaris of hop and spontaneous hop, combined with essential oil of *Thymus zygis* subsp. *zygis*, were developed and the stability of the new cosmetic products was evaluated.

UHPLC-DAD-ESI-MS² analysis was used for phytochemical study of hydroalcoholic hop extracts [3]. The antimicrobial properties of these extracts and of the essential oil of *T. zygis* subsp. *zygis* were determined by microdilution broth method and the diffusion in agar test. Additionally, the stability of the gel formulations was evaluated through a series of physical-chemical tests such as the pH, density, texture evaluation, mechanical vibration, centrifugation, relative humidity, light test, consecutive extreme temperature variation and evaluation of organoleptic characteristics.

The stability tests did not reveal phase separation or liquefaction of the prepared gel samples. There were no changes recorded in vibration test, in the organoleptic characteristics of the formulations, the relative humidity test, as well as in the extreme temperature variation test. The formulations showed an acid pH, between 5.93±0.047 and 6.16±0.047. The apparent density of the formulations were between 1.08±0.00 Kg/m⁻³ and 1.12±0.00 Kg/m⁻³. Although hop extracts had no antimicrobial effect, the essential oil of *T. zygis* subsp. *zygis* showed antibacterial and antifungal activities against all strains of bacteria and fungi tested, with higher potency against *S. aureus* (MIC = 0.031%) than for *P. aeruginosa* (MIC = 1.25%). The study of the phenolic profile of cones and vegetative parts of the polar extracts of hop, allowed the identification of thirty compounds, of which alpha and beta acids, phenolic acids and flavonoids. In conclusion, the study explored the vegetative part of hop that remain poorly studied allowing propose them as ingredient in cosmetic area.

References

- [1] Tedone, L., Staskova, L., Yan, D., Whittock, S., Shellie, R., & Koutoulis, A. American Society of Brewing Chemists, (2020) 114-125.
 [2] Lou, H., Zhang, F., Lu, L., Dingc, Y., & Hao, X. RSC Advances, (2020) 13223–13231.
 [3] Afonso, A. F., Pereira, O. R., Neto, R. T., Silva, A. M., & Cardoso, S. M. Molecular Sciences, (2017) 1-14.

Acknowledgments

Thanks to FCT (Portugal) and the ERDF under the PT2020 Program for financial support to CIMO (UIDB/00690/2020) and LAQV-REQUIMTE (UIDB/50006/2020). SMC acknowledges the research contract under the project AgroForWealth (CENTRO-01-0145-FEDER-000001).