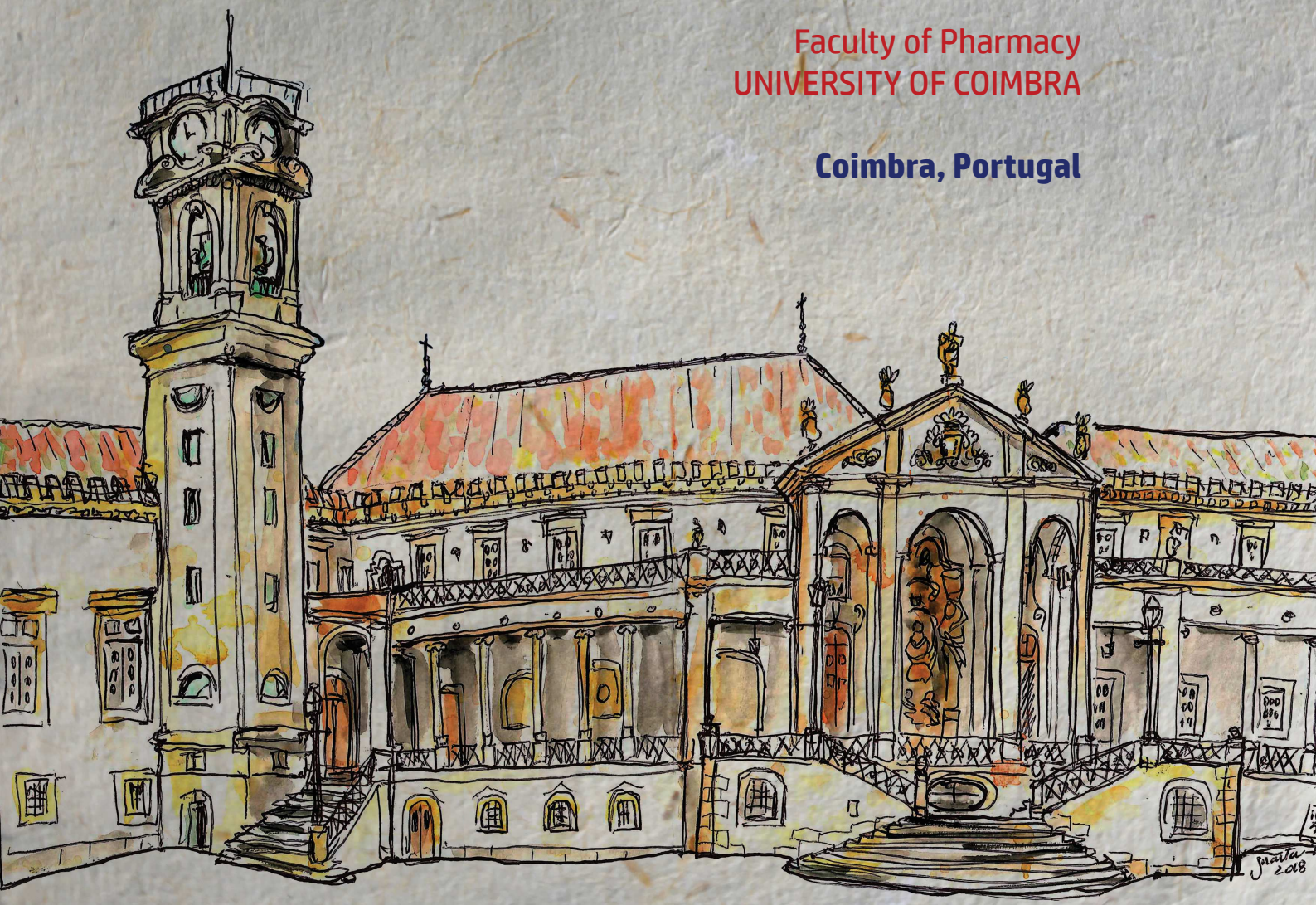
iberPhenol International Conference

Advances in the role of phenols in health effects and other uses

5-6 November 2020

Faculty of Pharmacy
UNIVERSITY OF COIMBRA

Coimbra, Portugal



BOOK OF ABSTRACTS

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Interreg España - Portugal
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Project 0377_Iberphenol_6_E

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PREFACE

The Iberphenol International Conference "Advances in the role of phenols in health effects and other uses" to be held in the Faculty of Pharmacy of the University of Coimbra, was initially scheduled for 2020 March, 26-27, being postponed for a more convenient date due the COVID-19 pandemic situation. Unfortunately, the current sanitary conditions do not allow foreseeing when a physical attendance conference can happen.. Thus, considering

(i) the expectations of the authors that intended to contribute for the conference by submitting their studies for presentation;

(ii) that the program of the conference is established and closed since March;

(iii) that the IBERPHENOL R&D project "Red cooperativa de investigación en el ámbito de polifenoles y sus aplicaciones industriales/Research cooperative network in the field of polyphenols and their industrial applications" will finish in December, 2020;

it was decided to carry out the conference, remotely on the dates of 2020 November, 5-6.

The Organizing Committee thanks the FEDER-Interreg España-Portugal program for its financial support, stressing out that this conference is part of the project 0377_Iberphenol_6_E. A special acknowledgment is also due to the LaborSpirit company for supporting the best poster and best oral communication awards.

Finally, even thought the traditional warm welcome of Coimbra cannot be felt by the participants it is with pleasure that we bring forward the e-book of abstracts of the Conference summarizing all the contributions to the Iberphenol International Conference.

From Coimbra, with wishes for good Health,

The Organizing Committee

SCIENTIFIC PROGRAM

Thursday, 5th November

Opening Ceremony

15.00 - 15.30 Prof. Fernando Ramos - Chairperson
Prof. Amílcar Falcão - Rector of the University of Coimbra
Prof. Francisco Veiga - Director, Faculty of Farmacy, University of Coimbra
Prof. M. Teresa Escribano Bailón - IBERPHENOL coordinator

Session 1 | Chairperson: Eduardo Rosa

Phenolics in plants and food products and their valorization as co-products

15.30 - 16.00	Giovanna Ferrari	**PL01**: Phenolic compounds and Food Industrial Engineering: let them living together
16.00 - 16.15	Ana Barros	**OC01**: Biological activities of grape stems for potential application in the cosmetic and pharmaceutical industries
16.15 - 16.30	Antia Pereira	**OC02**: Design of new functional foods based on new additives obtained from algae by treatments with high hydrostatic pressures
16.30 - 16.45	Filipa Fernandes	**OC03**: Chemical profile of nutraceutical formulations with natural preservatives
16.45 - 17.00	João Bernardo	**OC04**: Extraction of phospholipid-rich fraction from egg yolk and development of phenolics-nanoliposomes with neuroactive potential
17.00 - 17.15	Marcelo Catarino	**OC05**: *Fucus vesiculosus* phlorotannins as potential anti-inflammatory and antitumor agents

17.15 - 17.45 Coffee Break and Poster session 1 (P1 to P26)

17.45 - 18.00	Catarina Andrade	**OC06**: Antidiabetic screening of plant species from Thailand: Phenolic profile and *in vitro* antidiabetic activity of *Caryota urens* L. inflorescences
18.00 - 18.15	Maria Lopes	**OC07**: Antioxidant activity and phenolic content of *Salicornia ramosissima* and *Sarcocornia perennis alpine*
18.15 - 18.30	Mariana Monteiro	**OC08**: Complexation of resveratrol with γ-cyclodextrin toward lemon juices supplementation
18.30 - 18.45	Paula García-Oliveira	**OC09**: The hidden link between medicinal plants and their therapeutic uses
18.45 - 19.00	Tiane Finimundy	**OC10**: *Sanguisorba officinalis* L., an alternative source of phenolic compounds and remarkable bioactivities

Friday, 6th November

Session 2 | Chairperson: Carlos Cavaleiro

Studies of bioavailability of phenolics

09.00 - 09.30	Isabel Ferreira	(Secretary of State for the Improvement of the Interior) **Special Invited Conference**: Border-Cross Cooperation
09.30 - 09.45	Carla Varela	**OC11**: Discovery and optimization of new phenolic cinnamic acid derivatives as selective COX-2 inhibitors. Chemistry and structure-activity relationships

09.45 - 10.00	Daniela Correia	**OC12**: Polyphenolic modulators of endoplasmic reticulum stress as anticancer agents
10.00 - 10.15	Daniela Ribeiro	**OC13**: 2-styrylchromones versus flavonoids: which have the best anti-inflammatory activity?
10.15 - 10.30	José Pedro Baptista	**OC14**: Biological Activity of *Brassica* By-products in Cell Models of Lipid Toxicity

10.30 - 11.15 Coffee Break and Poster session 2 (P27 to P52)

Session 3 | Chairperson: Nuno Mateus

Health effects of phenolics

11.15 - 11.45	Artur Figuerinha	**PL02**: FFUC, phenolic compounds and health
11.45 - 12.00	Rosa Direito	**OC15**: Reduction of inflammation and colon injury by a *Satureja hortensis* L. (Savory) phenolic extract in experimental inflammatory bowel disease in mice
12.00 - 12.15	Patrícia Correia	**OC16**: Skin health and wellness promoting effects of anthocyanin derivatives
12.15 - 12.30	Paula Oliveira	**OC17**: Therapeutic properties of *Tilia platyphyllos* Scop. in K14HPV16 mice
12.30 - 12.45	Romeu Videira	**OC18**: Pursuing a proficient polyphenol-based nanoformulation to address the challenge of the degenerative brain diseases
12.45 - 13.00	Sónia Pedreiro	**OC19**: *Crepis vesicaria* L. *subsp. taraxacifolia (Thuill.) Thell*: Phenolic profile and biological activities
13.00 - 14.30	Lunch	

Session 4 | Chairperson: Lígia Couto

Circular economy and phenolic compounds

14.30 - 15.00	Jesús Simal	**PL03**: Circular economy and phenolic compounds
15.00 - 15.15	Catarina L.-Lopes	**OC20**: Optimization of microwave-assisted extraction conditions for antioxidant compounds from *Undaria pinnatifida* using response surface methodology
15.15 - 15.30	Filipa Mandim	**OC21**: Study of the bioactive properties and phenolic composition in different plant parts of *Cynara cardunculus* L. var. *altilis*
15.30 - 15.45	Ignacio G.-Estévez	**OC22**: Effect of yeast mannoproteins on the interaction between flavanols and salivary proteins
15.45 - 16.00	Licinio G.-Ferreira	**OC23**: Phenolic compounds recovery from wastewaters through micellar enhanced ultrafiltration
16.00 - 16.15	Tânia Martins	**OC24**: Phytochemical composition of broccoli inflorescences, stalks and leaves: comparative study as a resource of bioactive compounds for human diet

16.15 - 17.00 Coffee Break and Poster session 3 (P53 to P76)

Session 5 | Chairperson: Fernando Ramos

17.00 - 17.30	Patrícia Valentão	**PL04**: Approaching phlorotannins bioavailability: challenges and opportunities
17.30 - 17.45	Awards for best poster and oral presentations and final words	

Therapeutic properties of *Tilia platyphyllos* Scop. in K14HPV16 mice

Tiago Ferreira[a], Elisabete Nascimento-Goncalves[a], Adelina Gama[b], Rui Gil da Costa[a], M.J. Neuparth[c], Germano Lanzarin[a], Carlos Venâncio[a], Luís Félix[a,d], M.J. Pires[a], António Nogueira[e], Lillian Barros[g], Isabel C.F.R. Ferreira[e], Eduardo Rosae, **Paula A. Oliveira**[a]

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Tilia platyphyllos Scop. is a popular broad-leave tree, native to central and southern Europe. Hydroethanolic extracts rich in phenolic compounds obtained from *T. platyphyllos* Scop. showed in vitro antioxidant, anti-inflammatory and antitumor properties [1]. The aim of this work was to evaluate the therapeutic properties of an hydroethanolic extract obtained from *T. platyphyllos* in HPV16-transgenic mice.

The phenolic composition was evaluated by HPLC-DAD-ESI/MS and the compounds stability was determined in the drinking water during 5 days. Animals were kept according to European Guidelines (approval by UTAD's Ethics Committee (10/2013) and the DGAV (n° 0421/000/000/2014). Forty-one FVB/n male and female mice [21 wild-type (WT, homozygous HPV16$^{-/-}$) and 20 transgenic (hemizygote, HPV16$^{+/-}$)] with 8 weeks of age were randomly divided in eight groups: group I (HPV$^{+/-}$, female, n=6), group II (HPV$^{+/-}$, female, n=4), group III (HPV$^{-/-}$, female, n=5), group IV (HPV$^{-/-}$, female, n=4), group V (HPV$^{+/-}$, male, n=5), group VI (HPV$^{+/-}$, male, n=5), group VII (HPV$^{-/-}$, male, n=5) and group VIII (HPV$^{-/-}$, male, n=7). Animals from groups I, III, V and VII were administered linden extract in drinking water at a dose of 4.5 mg/mL/animal daily changed (calculated taking into account previous in vitro cytotoxic data [1]). After 33 days, all animals were sacrificed by anaesthetic overdose and blood was obtained from cardiac punction. A necropsy exam was performed and organs were collected, weighted and either frozen for oxidative parameters evaluation or fixed in 10% neutral formaldehyde for histological analysis.

The hydroethanolic extract of *T. platyphyllos* presented protocatechuic acid and (-)-epicatechin as the most abundant phenolic acid and flavonoid, respectively, and revealed to be stable during the studied period. There were no significant differences between experimental groups concerning haematological and biochemical parameters, as well as in mean final body weight. Although there were no statistical differences between groups, HPV$^{+/-}$ female group not exposed to linden extract (group II) showed more epidermal dysplasia than HPV$^{+/-}$ female exposed to linden extract (group I) (100 vs. 83.3%, respectively). A similar pattern was observed in HPV$^{+/-}$ male mice exposed to linden extract, which showed less epidermal dysplasia than animals not exposed (80% vs. 100%, respectively). There were no significant changes concerning liver and kidney histology as well as no significant alterations in oxidative parameters after linden extract treatment.

The consumption of *T. platyphyllos* was well tolerated by K14HPV16 mice and our results suggest a slight efficacy of linden extract treatment against HPV16-induced spontaneous skin lesions.

References: 1. Jabeur et al. Food Funct., 2017, 8, 975, 975-984

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