

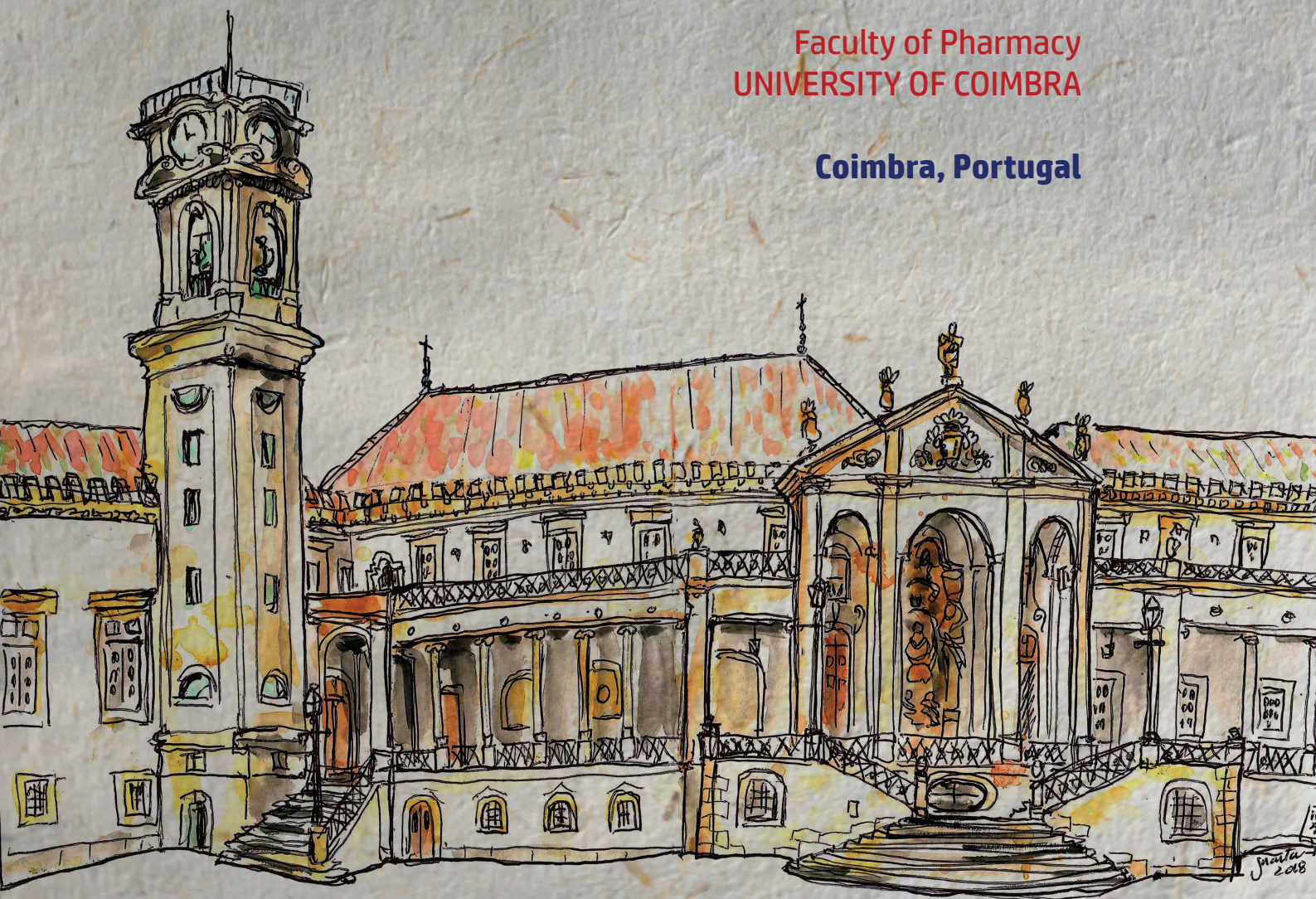
iberPhenol International Conference

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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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 though 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

The antioxidant effect of spearmint (*Mentha spicata*) in a HPV-16-transgenic mouse model

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The Human Papillomavirus (HPV) is the prime cause of cervix cancer in women. Although there are vaccines available, there is still a constant struggle to mitigate the illness' effects. Therefore, it is important to study compounds that have the potential to slow down viral activity, reduce lesions or relieve symptoms. The aromatic herb spearmint (*Mentha spicata*) (MS) has anti-inflammatory and anti-viral properties. Thus, this study aimed to evaluate the effects of an hydroethanolic extract obtained from spearmint in HPV16-transgenic mice.

The extract was obtained from a maceration with ethanol/water (80:20, v/v), and the phenolic composition was determined through HPLC-DAD-ESI/MS. Furthermore, the stability of the phenolic compounds present in the drinking water was measured during 5 consecutive days. Thirty-three female mice (16 wild-type and 17 transgenic) were randomly divided into six groups: Group (G) I – HPV^{-/-} w/o Mentha (n=5); GII – HPV^{-/-} w/ Mentha (0.5 mg/ml; n=6); GIII – HPV^{-/-} w/ Mentha (0.55 mg/ml; n=5); GIV – HPV^{+/-} w/o Mentha (n=6); GV – HPV^{+/-} w/ Mentha (0.5 mg/ml; n=6); GVI – HPV^{+/-} w/ Mentha (0.55 mg/ml; n=5). The spearmint extract was given dissolved in water for 28 days. During the study, water and food intake as well the animals' weights were recorded on a weekly basis. After the assay, the animals were sacrificed, and their organs were collected, weighed and frozen for oxidative stress analysis.

A total of thirteen compounds were identified in the hydroethanolic extract, being salvianolic acid B, rosmarinic acid and luteolin-7-O-glucuronide, the main molecules present. Moreover, the compounds revealed to be stable in the drinking water during the 5 tested days. Results show that HPV-positive (GIV, V and VI) have lower weight but higher water and food intake, as expected. Analysis of HPV-positive mice hepatic tissue has not shown any difference compared to control groups, nor there seems to be any side effect from the exposure to MS. However, GIV demonstrated a significant increase of superoxide dismutase activity when compared to GV ($p=0.0029$) and VI ($p=0.0011$). This suggests that group IV is subject to a higher oxidative stress, as expected, which might help explain the higher values, as SOD is increased in these situations. These results could also mean that spearmint is responsible for a decrease in the oxidative stress known to be induced by HPV, which in turn decreases SOD, further solidifying its role as an antioxidant. The 0.5 mg/ml and 0.55 mg/ml concentrations were also found not to be cytotoxic, showing no signs of intolerance or hepatic toxicity. Further studies are required to clarify the correlation between superoxide dismutase and spearmint, and its toxicity.

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