Abstracts

FOR

5th International Symposium on Phytochemicals in Medicine and Food

(5-ISPMF)

AUGUST 25 – SEPTEMBER 01, 2021, NANCHANG, CHINA
Welcome Address

It is our great pleasure to welcome you to the 5th International Symposium on Phytochemicals in Medicine and Food (5-ISPMF), which is organized by the International Association of Dietetic Nutrition and Safety (IADNS), Phytochemical Society of Europe (PSE), Physiological Society of Japan, and Phytochemical Society of Asia (PSA). 5-ISPMF is jointly organized by Nanchang University, Jiangsu University and University of Vigo. Over 410 scientists from 62 counties and other 350 scientists from China have registered to attend this online conference. 5-ISPMF also has obtained the supports form several international journals including Food Chemistry Marine Drugs, International Journal of Molecular Sciences, Food Chemistry X, Oxidative Medicine and Cellular Longevity, Phytochemistry Reviews, and so on. The international organizing committee and scientific committee board of 5-ISPMF assembled an exciting and diverse program, featuring 16 plenary lectures, 82 invited lectures, 142 oral presentation, a graduate student forum consisting of 70 short lecture, and more than 100 posters, which dedicate to creating a stage for exchanging the update research results in the phytochemicals for food and human health.

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Supporting Journals:

![Food Chemistry](image1)
![Food Chemistry](image2)
![Oxidative Medicine and Cellular Longevity](image3)

(Elsevier, IF 7.514) (Elsevier, IF 5.182) (Hindawi, IF 6.534)

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<td>14:50-15:00</td>
<td>GL42</td>
<td>Haihua Ji, Nanchang University, China</td>
<td>In vitro gastrointestinal digestion and fermentation models and their applications in food carbohydrates</td>
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<td>15:00-15:10</td>
<td>GL43</td>
<td>Filipa A. Fernandes, Instituto Politécnico de Bragança, Portugal</td>
<td>Nutritional and chemical characterization of the fruit of Adansonia digitata L.</td>
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<td>15:10-15:20</td>
<td>GL44</td>
<td>Li Yang, University of Macau, China</td>
<td>The effect of high-carbohydrate diet on the bioavailability of polyphenols and its mechanism</td>
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<td>15:20-15:30</td>
<td>GL45</td>
<td>Mariana C. Pedrosa, Instituto Politécnico de Bragança, Portugal</td>
<td>Ultrasound-assisted extraction of leaves of the olive tree (Olea europaea L.): response surface analysis optimization approach</td>
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<td>15:30-15:40</td>
<td>GL46</td>
<td>Xin Qi, Yanbian University, China</td>
<td>Research progress on pharmacological components and pharmacological effects of Perilla</td>
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<td>15:40-15:50</td>
<td>GL47</td>
<td>Dhruv Thakur, National Institute of Food Technology Entrepreneurship and Management (NIFTEM), India</td>
<td>Oleogel as a frying medium for preparation of potato chips</td>
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<td>15:50-16:00</td>
<td>GL48</td>
<td>Ruieng Wang, Huazhong Agricultural University, China</td>
<td>Anti-obesity activity of B-type proanthocyanidin dimers: a structure-activity relationship study</td>
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<td>16:00-16:10</td>
<td>GL49</td>
<td>Agnese Spadi, Instituto Politécnico de Bragança, Portugal</td>
<td>Chemical composition and bioactive properties of Eucalyptus globulus L. essential oil</td>
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<td>16:10-16:20</td>
<td>GL50</td>
<td>Yangyang Jia, Huazhong Agricultural University, China</td>
<td>Effect of persimmon tannins on the emulsification characteristics of persimmon pectin</td>
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<td>16:20-16:30</td>
<td>GL51</td>
<td>Myadagbadam Urtnasan, Institute of Traditional Medicine and Technology, Mongolia</td>
<td>The validation of HPLC method of piperine determination in Haliforte capsule</td>
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<td>16:30-16:40</td>
<td>GL52</td>
<td>Jinxin Liu, Nanchang University, China</td>
<td>Effect of different treatments on the anthraquinones of Cassia obtusifolia seeds polysaccharides and its chemical composition</td>
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<td>16:40-16:50</td>
<td>GL53</td>
<td>Jargalsaikhan Gombodorj, Mongolian National University of Medical Sciences, Mongolia</td>
<td>The effect of khursin deed-6 on nitroglycerin induced migraine model in rat</td>
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<tr>
<td>16:50-17:00</td>
<td>GL54</td>
<td>Lingchao Miao, University of Macau, Macau, China</td>
<td>Anti-diabetic potential of apigenin, luteolin, and baicalin via partially activating PI3K/Akt/Glut-4 signaling pathways in insulin-resistant HepG2 cells</td>
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<tr>
<td>17:00-17:10</td>
<td>GL55</td>
<td>Iyanuoluwa Olabukola Ademola, Federal University of Technology, Nigeria</td>
<td>Anti-amnestic effect of caffeine, catechin and theobromine on scopolamine-induced cognitive and neurochemical impairments in Wistar albino rats</td>
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<tr>
<td>17:10-17:20</td>
<td>GL56</td>
<td>Xin Li, Fujian Agriculture and Forestry University, China</td>
<td>Structural characteristics of butylated lotus seed starch and its impact on gut microbiota</td>
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**Session 4**

**Mentor:** Adriana Trifan, Saioa Gomez-Zorita, Elwira Sieniawska

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<tr>
<td>17:20-17:30</td>
<td>GL57</td>
<td>Yuanyuan Liu, Fujian Agriculture and Forestry University, China</td>
<td>Anti-aging activities of green alga Ulva lactuca oligosaccharide via the brain-gut-microbiome axis in diabetic mice</td>
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<td>17:30-17:40</td>
<td>GL58</td>
<td>Tao Xu, Zhejiang University, China</td>
<td>Modulating the digestibility of cassava starch by esterification with phenolic acids</td>
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<td>17:40-17:50</td>
<td>GL59</td>
<td>Maria Carpena, University of Vigo, Spain</td>
<td>Microwave-assisted extraction from brown algae: the first step for their in-depth analysis</td>
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<td>17:50-18:00</td>
<td>GL60</td>
<td>Hongcong Song, Northwest A&amp;F University, China</td>
<td>Profiling of terpene aroma glycosides in grapes by UPLC-Q-TOF/MS</td>
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<td>18:00-18:10</td>
<td>GL61</td>
<td>Ajay V. Chinchkar, National Institute of Food Technology Entrepreneurship and Management (NIFTEM), India</td>
<td>Effect of polyvinyl acetate (PVAc) coating on postharvest quality of lemon at ambient storage</td>
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<td>18:10-18:20</td>
<td>GL62</td>
<td>Suhuan Mei, Jiangsu University, China</td>
<td>Investigation into the anti-inflammatory mechanism of coffee leaf extract in LPS-induced Caeco-2/U937 co-culture model through cytokines and NMR-based untargeted metabolomic analyses</td>
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<td>18:20-18:30</td>
<td>GL63</td>
<td>Xiaodan Lu, Fujian Agriculture and Forestry University, China</td>
<td>Inhibition effect of triglyceride accumulation by large yellow croaker Roe DHA-PC in HepG2 cells</td>
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<tr>
<td>18:30-18:40</td>
<td>GL64</td>
<td>Paula Garcia-Oliveira, University of Vigo, Spain</td>
<td>Characterization of in vitro antioxidant, antitumor and anti-inflammatory properties of plant species from Rosaceae family</td>
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</table>
| 18:40-18:50  | GL65 | Rili Hao, Shandong Agricultural University, China | Caffeic acid phenethyl ester against cadmium-induced spleen toxicity in mice: Role of miR-182-
GL49: Chemical composition and bioactive properties of *Eucalyptus globulus* L. essential oil

Agnese Spadi\(^1,2\), Virginie Xavier\(^1,*\), Piernicola Masella\(^2\), Sandrina Heleno\(^1\), Joana S. Amaral\(^1\), Tânia C.S.P. Pires\(^1\), Ricardo C. Calhelha\(^1\), Isabel C.F.R. Ferreira\(^1\), Lillian Barros\(^1\)

\(^1\)Centro de Investigação de Montanha (CIMO), Instituto Politécnico de Bragança, Campus de Santa Apolónia, 5300-253 Bragança, Portugal
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Eucalyptus is a large genus of tall evergreen plants belonging to the Myrtaceae family that comprises about 900 species and subspecies\(^1\). It is native to Australia but currently is planted all around the world being one of the most important tree for its several uses such as timber, pulp and essential oil\(^2\). In recent years, the demand of *Eucalyptus* sp. essential oil has significantly increased as it has been approved as a natural additive. It is widely used in food, flavor, pharmaceutical, and perfumery industries, thanks to its many biological properties, including antibacterial, antifungal, analgesic and anti-inflammatory properties\(^3-4\). *Eucalyptus* sp. leaves in particular are rich in essential oil and its chemical composition depends on several factors, both intrinsic and extrinsic ones, such as environment and agronomic practices\(^5\).

The aim of this work was to characterize the essential oil obtained from *Eucalyptus globulus* L. dry leaves and assessing its antioxidant (DPPH and reducing power), antimicrobial (microdilution method against pathogenic bacteria) and cytotoxic properties.

A conventional Clevenger apparatus was used to extract the essential oil by hydrodistillation for 3 h. The essential oil yield was 2.2 ± 0.3 %. The chemical composition of the oil was determined by GC-MS analysis which enabled the identification of 94% of total compounds in common eucalyptus essential oil. The major compounds were eucalyptol, alpha-pinene, globulol, alpha-terpinyl acetate, alpha-terpineol and aromadendrene. From a qualitative point of view, the obtained results are in good agreement with the data available from the literature, considering the genetics and environment variations that may occur\(^5\). The antioxidant activity was evaluated by DPPH radical scavenging effect and reducing power. For DPPH assay an EC\(_{50}\) value of 145.5 ± 0.7 mg/mL was obtained, while for reducing power assay an EC\(_{50}\) value of 3.0 ± 0.2 mg/mL was presented. Concerning the cytotoxic activity against four tumor cell lines (AGS - gastric, NI-H460 – lung, CaCo – colon and MCF-7- breast), the best results were revealed on the inhibition of the colon cancer cell line with GI\(_{50}\) value of 73 ± 5 μg/mL. The minimum inhibitory concentration (MIC) and the minimum bactericidal concentration (MBC) were tested against a large panel of several common food and clinical bacteria evidencing a wide spectrum antibacterial activity against the selected bacteria. A strong activity in a concentration range between 2.5 and 0.6 % was reported against *Escherichia coli*, *Listeria monocytogenes* (clinical isolate), Methicillin-resistant *Staphylococcus aureus* (MRSA) for clinical bacteria and again *Yersinia enterocolitica*, *Listeria monocytogenes* (ATCC), *Enterobacter Cloaceae*, *Staphylococcus aureus* and *Bacillus cereus* for food bacteria. Overall, the results revealed that essential oils from eucalyptus are a potential and natural source of bioactive substances for bio-based industries.

**Acknowledgments:**
The authors are grateful to the Foundation for Science and Technology (FCT, Portugal) for financial support through national funds FCT/MCTES to CIMO (UIDB/00690/2020). L. Barros and R. Calhelha thanks the national funding by FCT through the institutional scientific employment program-contract for her contract, while S. Heleno thank FCT through the individual scientific employment program-contracts (CEECIND/00831/2018 and CEECIND/03040/2017). This project has received funding from the Bio Based Industries