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## INDEX

### Conteúdo

<b>INDEX</b> .....	<b>3</b>
<b>SPONSORS</b> .....	<b>4</b>
<b>INITIAL MESSAGE</b> .....	<b>10</b>
<b>PAST SYMPOSIA</b> .....	<b>11</b>
<b>PROF. JANUSZ PAWLISZYN MEDAL</b> .....	<b>12</b>
<b>SHORT COURSE</b> .....	<b>13</b>
<b>SCIENTIFIC AND ORGANIZING COMMITTEES</b> .....	<b>14</b>
<b>CONGRESS GENERAL INFO</b> .....	<b>17</b>
<b>SCIENTIFIC AND SOCIAL PROGRAM</b> .....	<b>19</b>
<b>LIST OF THE PLENARIES</b> .....	<b>29</b>
<b>LIST OF THE KEYNOTES</b> .....	<b>40</b>
<b>LIST OF THE SPONSORS LECTURES</b> .....	<b>59</b>
<b>LIST OF THE ORAL COMMUNICATIONS</b> .....	<b>67</b>
<b>LIST OF THE FLASH COMMUNICATIONS</b> .....	<b>107</b>
<b>LIST OF THE POSTERS</b> .....	<b>118</b>

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Number	Title and authors	Page
P66	<b>Optimization of a GDME-HPLC-DAD methodology for the extraction of volatile organic compounds from wood-based panels</b> <u>Fátima Daniela Gonçalves</u> , José António Rodrigues, Rui Miguel Ramos	192
P67	<b>Pesticide multiresidue determination in tomato using dilution of QuEChERS raw extracts and UHPLC-MS/MS</b> Fabiane M. Stringhini, Cleusa F. Zanchin, Luana Floriano, Pimperlino J. dos Santos, Martha B. Adaime, <u>Renato Zanella</u>	193
P68	<b>Optimization of a semi-preparative liquid chromatography method to produce analytical standards of dicaffeoylquinic acid isomers from yerba mate</b> <u>Tayse Ferreira F. da Silveira</u> , Adriana D. Meinhart, Helena T. Godoy	194
P69	<b>HPLC-DAD-(ESI)-MS/MS analysis as the first step to metabolic fingerprinting of medicinal herbs: the case of underexploited Euphorbia species</b> <u>Tayse F. Ferreira da Silveira</u> , Daniele B. Rodrigues, Ana Perez Vazquez, Paula Barciela Alvarez, Maria Carpena, Jesus Simal-Gandara, Miguel A. Prieto, Lillian Barros	195
P70	<b>Análise cromatográfica de metabolitos secundários em frutos de castanheiro da Índia</b> <u>José Pinela</u> , Carly Albiston, Mikel Añibarro-Ortega, Alexis Pereira, Maria Inês Dias, Lillian Barros	196
P71	<b>Comprehensive HPLC-DAD-(ESI)-MS/MS characterization and comparison of bioactive molecules from different parts of Ganoderma lucidum sporocarps</b> <u>Daniele Bobrowski Rodrigues</u> , Taofiq Oludemi, Peter Petros, Lillian Barros	197
P72	<b>Profiling the volatile exometabolome of <i>Pedobacter lusitanus</i> NL19</b> <u>Silvia M. Rocha</u> , Gonçalo Figueiredo, Carina Costa, Sónia Mendo	198
P73	<b>SE-HPLC and RP-HPLC as powerful tools for analyzing the gastrointestinal delivery of collagen hydrolysates obtained from codfish skins using chitosan-TPP hydrogels</b> <u>Isa Silva</u> , Manuela Pintado, Sónia Ventura, Ezequiel Coscueta	199
P74	<b>Method validation for the analysis of pesticides in water samples using solid phase extraction and gas chromatography coupled to mass spectrometry (SPE-GC-MS) - Matrix effect assessing in water sources</b> Ana Isabel Penetra, <u>Vitor Vale Cardoso</u> , Rui Neves Carneiro	200
P75	<b>Optimization of fabric phase sorvent extraction and UHPLC conditions for quantification food bioactives</b> Patrícia A. Nóbrega, Mariana B. Martins, Emmanuel Nunes, José S. Câmara, <u>Jorge A. M. Pereira</u>	201
P76	<b>Liquid chromatography approaches for phosphopeptide enrichment</b> <u>Gonçalo Martins</u> , Jose Luis Capelo, Carlos Lodeiro, Hugo Santos	202
P77	<b>Determination of MOSH and MOAH by GC×GC-TOFMS</b> <u>Julio Lluch</u>	203
P78	<b>Can musts sulphitation be as a preservation strategy to keep the 'Vinho Verde' musts character?</b> <u>Cátia Martins</u> , Natacha Fontes, Sara Cunha Silva, António Graça, Sílvia M. Rocha	204
P79	<b>Universal sample handling for liquid biopsies</b> <u>Luis Botelho de Carvalho</u> , Jose Luis Capelo, Carlos Lodeiro, Hugo Santos	205
P80	<b>Development of chromatographic tools to identify and characterized anthocyanin-fatty acid adducts</b> <u>Luis Cruz</u> , Nuno Mateus, Victor Freitas	206

## P71 Comprehensive HPLC-DAD-(ESI-)MS/MS characterization and comparison of bioactive molecules from different parts of *Ganoderma lucidum* sporocarps

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*Ganoderma lucidum* is a well-known medicinal mushroom, both historically and currently. Driven by the ethnopharmacological prospect and the crescent body of scientific evidence that associates *G. lucidum* intake with health, the interest in its secondary metabolites has been further fostered. Whereas most research on medicinal mushrooms has focused on the comprehensive identification and yields of metabolites throughout their different growth phases, the distribution of those compounds along the sporocarps (fruiting bodies) in the mushroom's antler growth phase remains poorly investigated. This study aimed to directly compare the chemical composition of the exterior skin and interior flesh of *G. lucidum* sporocarps. Dried samples provided by Käapa Biotech (Finland) were homogenised and subjected to ultrasound-assisted extraction with ethanol:H<sub>2</sub>O (80:20, v/v) at an amplitude of 47% for 15 min. Extracts were analysed in an HPLC-DAD-(ESI-)MS/MS system. Sixty-two compounds were tentatively identified in both extracts and comprised primarily lanostane-type triterpenes, besides six phenolic compounds. Among the triterpenes, 20 lucidenic and 16 ganoderic acids were found, with Lucidenic acid F and Ganoderic acid D being the major compounds in the flesh and skin. The overall chemical profile was the same regardless of the sporocarp part analysed, but the proportion among the compounds was considerably different. Interestingly, whereas the total triterpene content of the outer part exceeded 3 times that of the inner part, both presented equivalent amounts of total polyphenols. Our results indicate a similar profile but a higher concentration of compounds in the skin when compared to the interior biomass of fruiting bodies. This is the first time a study has examined the variations of triterpenic components between different parts of *G. lucidum* sporocarps.

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