



# III encontro de jovens investigadores



11 a 13 de novembro de 2015

## Programa

## Quarta-feira, 11 de novembro de 2015, das 14h30-18h10

**13h15-14h00 Documentação**

**14h00 Sessão de boas vindas**

### **SESSÃO 1**

**Moderadores: Luís Mesquita e João Barreira**

**14h30 Thermal analysis in the drilling of foam materials and ex-vivo bovine bones**

Maria Goreti Fernandes, Elza Fonseca, Renato Natal

**14h40 Separation of nadolol stereoisomers by liquid chromatography using chiralpak IA stationary phase**

Rami S. Arafah, António E. Ribeiro, Luís S. Pais

**14h50 Anti-inflammatory activity of mushrooms extracts, identified phenolic acids and their possible metabolites**

Oludemi Taofiq, Ricardo C. Calhelh, Sandrina Heleno, Lillian Barros, Anabela Martins, Rui M.V. Abreu, Maria João R.P. Queiroz, Isabel C.F.R. Ferreira

**15h00 Debate**

**15h10 Sistema robótico autónomo para ambientes de terapia de iodo**

Ana Andrade, José Lima, Maria do Carmo Batista, Paulo Leitão

**15h20 Avaliação biomecânica de prótese do joelho sob influência de carga**

Inês Fernandes, Elza Fonseca

**15h30 Níveis de força ântero-posteriores nos membros inferiores em jovens futebolistas**

Pedro Forte, Jorge E. Morais, Tiago M. Barbosa, António Reis

**15h40 Debate**

**15h50-16h30 Sessão Painel 1**

**16h30-16h50 CAFÉ (bar da ESA)**

## Anti-inflammatory activity of mushrooms extracts, identified phenolic acids and their possible metabolites

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Mushrooms are rich sources of many bioactive compounds, such as phenolic acids, that play an important role in the organism, acting as antioxidants, antitumors, antimicrobials, immunomodulators, among others. However, their anti-inflammatory activity has not been deeply studied. In the present study, the ethanolic extracts of fourteen edible mushroom species were firstly characterized in terms of phenolic acids and related compounds by HPLC-PDA, followed by the study of the anti-inflammatory activity of those extracts and corresponding identified compounds, by using LPS (lipopolysaccharide) activated RAW 264.7 macrophages and measuring the inhibition in NO production. Furthermore, methylated and glucuronated derivatives of the identified compounds (*p*-hydroxybenzoic, *p*-coumaric and cinnamic acids) were synthesised and evaluated for the same bioactivity to understand the contribution of these compounds for the overall activity of the extracts, and to establish structure-activity relationships. *Pleurotus ostreatus*, *Macrolepiota procera*, *Boletus impolitus* and *Agaricus bisporus* revealed the strongest anti-inflammatory potential, presenting also the highest concentration in cinnamic acid, which was also the individual compound displaying the highest activity. The derivative compounds of *p*-coumaric acid revealed the strongest properties, especially the compound CoA-M1 (presenting an ester instead of the carboxylic group), that exhibited a very similar activity to the one showed by dexamethasone, used as anti-inflammatory standard. On the contrary, *p*-hydroxybenzoic acid derivatives revealed the lowest activity. Overall, the conjugation reactions change the chemical structure of phenolic acids and may increase or decrease their activity; nevertheless, the glucuronated and methylated derivatives of the studied compounds are still displaying anti-inflammatory activity.

**Keywords:** edible mushrooms; phenolic acids; synthesised derivatives; anti-inflammatory; HPLC-PDA.