



**XX ENCONTRO
LUSO-GALEGO
DE QUÍMICA**

26 A 28 NOVEMBRO 2014

PORTO - PORTUGAL

PATROCINADORES INSTITUCIONAIS



Sociedade
Portuguesa



ASSOCIAÇÃO DE
QUÍMICOS PORTUGUESES



Colegio Oficial de
Químicos de Portugal

TÍTULO

Livro de Resumos do XX Encontro Luso-Galego de Química

COORDENADORES

Marcela A. Segundo, Susana Casal, Paula B. Andrade, José L. F. C. Lima

EDIÇÃO

Sociedade Portuguesa de Química

Av. Da República, 45 – 3º Esq

1050-187 Lisboa – Portugal

DATA

Novembro de 2014

TIRAGEM

400 Exemplares

ISBN

978-989-98541-7-8

EXECUÇÃO GRÁFICA

FFUP . Joana Macedo (design)

Sersilito – Maia (impressão)

CATALOGAÇÃO RECOMENDADA

Livro de Resumos do XX Encontro Luso-Galego de Química

Faculdade de Farmácia, U. Porto, 2014 – 460 p.

ISBN 978-989-98541-7-8

Química – Congressos

Reservados todos os direitos. Esta publicação não pode ser reproduzida ou transmitida, no todo ou em parte, por qualquer processo, eletrónico, mecânico, fotocópia, gravação ou outros, sem prévia autorização do Editor.

Os Coordenadores declaram que o conteúdo dos resumos científicos é da inteira responsabilidade dos respetivos autores.

Nutritional, antioxidant and antitumour properties of *Leccinum vulpinum* Watling

Filipa S. Reis^{1,2,3}, Diana Sousa^{1,4}, Lillian Barros³, Anabela Martins³, Patricia Morales², M.H.

Vasconcelos^{1,4}, Isabel C.F.R. Ferreira^{3*}

¹Cancer Drug Resistance Group, IPATIMUP – Institute of Molecular Pathology and Immunology of the University of Porto, Porto, Portugal.

²Dpto. Nutrición y Bromatología II, Facultad de Farmacia, Universidad Complutense de Madrid (UCM), Madrid, Spain.

³Mountain Research Centre (CIMO), ESA, Polytechnic Institute of Bragança, Bragança, Portugal.

⁴Laboratory of Microbiology, Department of Biological Sciences, Faculty of Pharmacy of the University of Porto, Porto, Portugal.

*iferreira@ipb.pt

Mushrooms are widely appreciated all over the world for their nutritional [1] and bioactive properties [2, 3]. This work characterizes *Leccinum vulpinum* Watling, an edible mushroom harvested in Bragança's outskirts (Northeastern Portugal), a region with a great mycological biodiversity. The samples were chemically characterized regarding their content in nutrients and non-nutrients. Furthermore, the antioxidant and antitumour properties of the methanolic extract were evaluated. The nutritional value was assessed through the composition in macronutrients following standard procedures; the individual profiles in sugars, fatty acids, tocopherols, phenolic and organic acids were evaluated through chromatographic techniques. The antioxidant capacity was evaluated through the reducing power, radical-scavenging activity and lipid peroxidation inhibition of the samples. The screening for tumour cell growth inhibitory activity was carried out in four human tumour cell lines: AGS (gastric adenocarcinoma), MCF-7 (breast adenocarcinoma), NCI-H460 (non-small cell lung cancer) and HCT-15 (colorectal adenocarcinoma). The activity of the extract was further studied in the most sensitive cells (HCT-15), particularly regarding its effects on the cell cycle profile (by flow cytometry).

L. vulpinum species may be considered a healthy food, with a great nutritional value, being a source of nutraceuticals (e.g., mono- and polyunsaturated fatty acids, and vitamins) and other bioactive compounds (e.g., phenolic acids). This species also showed antioxidant activity. Concerning the antitumour properties, *L. vulpinum* inhibited the growth of the tested cell lines. Additionally, treatment of HCT-15 cells (the most sensitive cell line) with 77.2 µg/mL of this extract caused a statistically significant increase in the S phase and a decrease in the G2/M phase of the cell cycle.

Acknowledgements: FCT (Portugal) and COMPETE/QREN/EU for financial support to CIMO (PEst-OE/AGR/UI0690/2011) and L. Barros; QREN for the grant to F.S. Reis and D. Sousa (NORTE-07-0124-FEDER-000023).

REFERENCES

- [1] Kalač, P. *Journal of the Science of Food and Agriculture*. **2013**, 93, 209-218.
- [2] Ferreira, I.C.F.R.; Barros, L.; Abreu, R.M.V. *Current Medicinal Chemistry*. **2009**, 16, 1543-1560.
- [3] Ferreira, I.C.F.R.; Vaz, J.A.; Vasconcelos, M.H.; Martins, A. *Anti-cancer Agents in Medicinal Chemistry*. **2010**, 10, 424-36.