11º Encontro de Química dos Alimentos
Qualidade dos Alimentos: novos desafios

Livro de Resumos

Sociedade Portuguesa de Química
Divisão de Química Alimentar
Esta publicação reúne os resumos das comunicações apresentadas no 11º Encontro de Química dos Alimentos. Todas as comunicações orais e em painel foram avaliadas pela Comissão Científica do Encontro.
Antioxidant activities of plants enriched in rosmarinic acid

Olivia R. Pereira\textsuperscript{a,b}, Maria J. Perez\textsuperscript{c}, Rocio I. R. Macias\textsuperscript{d}, Maria R.M. Domingues\textsuperscript{e}, Jose J. G. Marin\textsuperscript{d}, Susana M. Cardoso\textsuperscript{a,f,*}

\textsuperscript{a}CERNAS, ESA, IPC, Portugal, \textsuperscript{b}DTDT, ESSa, IPB, Portugal, \textsuperscript{c}Hospital Universitario de Salamanca, IBSAL, Salamanca, España, \textsuperscript{d}HEVEFARM, CIBERhíd, Universidad de Salamanca, España, \textsuperscript{e}Departamento de Química & QOPNA, UA, Aveiro, Portugal; \textsuperscript{f}CIMO, ESA, IPB, Portugal

*scardoso@esec.pt

Lamiaceae plants have been consumed by centuries due to their health benefits, however, the exact composition, as well as the mechanism of action underlying their bioactivities remain, in most cases, unclear [1]. The main aim of this study was to evaluate the \textit{in vitro} antioxidant potential of \textit{Lavandula dentata} and \textit{Mentha aquatica} plant extracts.

For that, ethanolic extracts of the plants were prepared and their phenolic composition was determined through combined methods of HPLC-DAD and ESI-MS. Moreover, the antioxidant activity of the two plant extracts was assayed by two methods: i) by means of DPPH scavenging potential and ii) by evaluation of their protective effects against the generation of reactive oxygen species (ROS) induced by potassium dichromate in human hepatoblastoma HepG2 cells, measured by flow cytometry using dichlorofluorescein diacetate.

\textit{M. aquatica} ethanolic extract was much enriched in phenolic compounds (total amount of 261.8 ± 21.8 GAE mg/g of extract), compared to \textit{L. dentata} (174.72 ± 6.89 GAE mg/g of extract). Both extracts contained rosmarinic acid (67.8±6.7 and 64.2±8.8 mg/g of \textit{L. dentata} and \textit{M. aquatica}, respectively), but \textit{M. aquatica} also contained significant amounts of other phenolics, including eriodictyol-7-O-rutinoside and luteolin-7-O-rutinoside. The concentrations of \textit{L. dentata} and \textit{M. aquatica} extracts able to decrease to 50% of DPPH absorbance (EC\textsubscript{50}) were 11.6±1.1 and 9.5±2.0 μg/mL, respectively. The exposure of HepG2 cells to the non-toxic concentration 50 μg/mL of \textit{L. dentata} and \textit{M. aquatica} extracts resulted in a decreased rate of ROS production under oxidative stress conditions. This protection was approximately 15% and 20%, induced by 5 and 25μM of potassium dichromate, mostly in \textit{L. dentata} extract. ROS production protection (of about 50%) was also observed in parallel assays performed with rosmarinic acid (50 μg/mL).

Attending that rosmarinic acid is a major phenolic component of \textit{L. dentata} and \textit{M. aquatica} ethanolic extracts, the present results suggest that this phenolic compound can be involved in the antioxidant properties of both plants.

Acknowledgements:
The authors acknowledge the financial support provided by the FCT to CERNAS (project PEst-OE/AGR/UI0681/2011). Olivia R Pereira was supported by a PhD grant (SFRH/PROTEC/49600/2009).

References: