

# 11º Encontro de Química dos Alimentos

Qualidade dos alimentos:  
novos desafios

Resumos

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# **11º Encontro de Química dos Alimentos**

**Qualidade dos Alimentos: novos desafios**

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## *Cytisus multiflorus*: source of antioxidant polyphenols

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*Cytisus multiflorus*, a shrub native from Iberian Peninsula, is consumed as tea infusions due to its beneficial effects. The therapeutic properties of this species, enclosing diuretic, anti-inflammatory, anti-hypertensor and antidiabetic effects, have been associated to the antioxidant properties of its polyphenols [1]. In this sense, this study focuses on the phenolic composition of *C. multiflorus*, as well as on the evaluation of its antioxidant properties.

The ethanolic extract obtained from flowers of *C. multiflorus* was mainly rich in chrysin-7-*O*- $\beta$ -D-glycopyranoside, as elucidated by HPLC-DAD, ESI-MS<sup>n</sup> and NMR analyses. This also contained considerable amounts of rutin, a dihydroxyflavone isomer of chrysin, 2''-*O*-pentosyl-6-*C*-hexosyl-luteolin, 2''-*O*-pentosyl-8-*C*-hexosyl-luteolin and 6''-*O*-(3-hydroxy-3-methylglutaroyl)-2''-*O*-pentosyl-*C*-hexosyl-apigenin [2]. The antioxidant properties of *C. multiflorus* ethanolic extract were evaluated in both chemical models (DPPH scavenging potential and reducing power) and in human hepatoblastoma HepG2 cell cultures. The non-toxic *C. multiflorus* extract concentrations were tested for their protective effects against the production of reactive oxygen species (ROS), as induced by potassium dichromate. ROS measurements were also performed with individual polyphenols characteristic of the extract, as well as with a mixture of those phenolics which resembles their levels in the extract.

The extract exhibited high DPPH scavenging activity and reducing power with EC<sub>50</sub> of 13.4±0.6 and 86.1±11.1 µg/mL, respectively. The exposure of HepG2 cells to 50 or 200 µg/mL of the extract resulted in a decreased rate of ROS production in a concentration dependent manner. The mixture of standards that simulate the phenolic composition of the plant afforded a protection of about 50%. From the four standard compounds tested, the most potent was the chrysin.

The results suggest that since chrysin derivatives appears as major components in *C. multiflorus* ethanolic extract, this is the phenolic most involved in the antioxidant properties of the plant.

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