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47th Annual Scientific Meeting of the European  
Society for Clinical Investigation



Albufeira, Portugal  
**17–20 April 2013**

ABSTRACT BOOK

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# European Journal of Clinical Investigation

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and beclin-1 were higher in CSCs, although LC3 lipidation was not different. However, dCCs showed decreased p62 content, indicating higher autophagic flux. Our results suggest that CSCs present a block in the autophagic pathway. When rapamycin were used to induce autophagy, a reduction on cell mass was observed but only for dCCs. Nevertheless, autophagy was blocked with 3-methyladenine, CSCs were more affected, suggesting a key survival role for the basal autophagy found in CSCs.

**Conclusion:** A distinct behavior of CSCs and dCCs towards autophagic drugs is here shown. Therefore, a stem line therapy may be based on the stimulation of mitochondrial activity and inhibition of autophagy.

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### 3.17

#### NO radical scavenging and iNOS expression inhibition by *Cytisus multiflorus*

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**Background:** Historically, extracts and preparations of plants are the basis of traditional medicine and the starting point for the discovery of new therapeutic agents. *Cytisus multiflorus* is used in folk medicine and it is claimed to have various health benefits, including anti-inflammatory properties. Still, no scientific data regarding this ability has been described for this plant. The present work aims to clarify the antioxidant capacity and the anti-inflammatory mechanisms of *Cytisus multiflorus*.

**Materials and methods:** A purified ethanolic extract was prepared and its antioxidant abilities were evaluated through the DPPH scavenging and reducing power assays. Anti-inflammatory properties were assessed by determining the amounts of nitric oxide (NO) on a chemical and on lipopolysaccharide-stimulated Raw 264.7 macrophages models. Furthermore, the effects on two proteins that are potential targets to prevent or treat chronic inflammation, namely cyclooxygenase-2 (COX-2) and inducible NO synthase (iNOS), were also estimated in the cellular model by Western Blot analysis.

**Results:** The ethanolic extract showed high antioxidant capacity, with EC<sub>50</sub> values of 13.4 ± 1.0 and 11.4 ± 2.1 µg mL<sup>-1</sup> for DPPH and reducing power assays, respectively. It also efficiently scavenged the NO radical and inhibited the NO production, in the chemical and cellular models, respectively. Furthermore, despite no changes on intracellular COX-2 levels were observed, iNOS expression was significantly diminished by the treatment with non-toxic concentrations of *Cytisus multiflorus* ethanolic extract.

**Conclusions:** The present results suggest that *Cytisus multiflorus* is a good antioxidant and that it actually exerts an anti-inflammatory action.

**Acknowledgements:** Portuguese Foundation for Science and Technology (PEst-OE/AGR/UI0681/CNC/CEF/2011, PEst-OE/SAU/UI0177/2011) and PROTEC (O.R. Pereira PhD grant SFRH/PROTEC/49600/2009).

### 3.18

#### Antioxidant properties of *Geranium robertianum* L.

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**Background:** *Geranium robertianum* L., commonly known as Herb Robert, is widely used in folk medicine through infusions, syrups and pads for the prevention and treatment of several diseases, including inflammation, diabetes and cancer. As for the majority of the medicinal plants, the healing properties of *Geranium robertianum* L. are closely associated to its phenolic constituents and to the antioxidant capacity of these compounds. Despite that, the antioxidant abilities of this plant, as well as the identification of its bioactive compounds are still not fully understood.

**Materials and methods:** The aqueous extract of *Geranium robertianum* L. was prepared by decoction of the plant leaves and its total phenolic content was determined by the Folin-Ciocalteu assay. Moreover, individual phenolic constituents were characterized by high performance liquid chromatography (HPLC-DAD) and electrospray mass spectrometry (ESI-MS<sup>2</sup>) combined analysis. The antioxidant capacity of the aqueous *Geranium robertianum* L. extract was evaluated through the DPPH assay plus by the NO radical scavenging method using sodium nitroprusside as radical producer.

**Results:** Phenolic compounds in the *Geranium robertianum* L. extract accounted for approximately 60% of its dried weight and it included the chlorogenic acid, ellagic acid, quercetin, homooriodictyol and kaempferol. The extract exhibited high DPPH radical scavenging capacity (EC<sub>50</sub> of 4.53 ± 0.26 µg mL<sup>-1</sup>) and NO radical scavenging ability.

**Conclusions:** The obtained results indicated that *Geranium robertianum* L. is rich in phenolic compounds which are probably associated to its powerful antioxidant activity.

This work was supported by the Portuguese Foundation for Science and Technology (PEst-OE/AGR/UI0681/CNC/CEF/2011) and FCT/QREN/COMPETE (Projects PTDC/AAC-CLI/098308/2008 and PTDC/AAC-CLI/118092/2010).

### 3.19

#### *Eriocephalus africanus*: a potential source of antioxidant compounds

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**Background:** *Eriocephalus africanus* is endemic from South Africa. Due to its claimed beneficial properties, this plant is used as an analgesic, anti-allergic, antidepressant, antiseptic, antioxidant and anti-inflammatory. Yet, scientific data confirming the biological activities of this specie is lacking, as well as the identification of its main bioactive components. In this context, this study aimed to evaluate the antioxidant capacity of an *Eriocephalus africanus* ethanolic extract, as well as to identify its main components.