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Is *Cytisus multiflorus* an anti-inflammatory plant?

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Cytisus multiflorus is a leguminous shrub native from Iberian Peninsula that is distributed in the south-west Mediterranean region. This plant is used in folk medicine and it is claimed to have various health benefits, including anti-inflammatory properties.[1] Yet, the anti-inflammatory usage of *C. multiflorus* is totally based on the available ethnopharmacological information while no scientific data on this capacity and on molecular targets has been reported for the plant. Hence, the present work aims to clarify the possible anti-inflammatory mechanisms of *C. multiflorus*.

A purified ethanolic extract was prepared and its high antioxidant capacity was confirmed though the DPPH radical scavenging[2] and reducing power[3] assays (EC_{50} values 13.4±1.0 and 11.4±2.1 μg/mL, respectively). Moreover, anti-inflammatory properties of the *C. multiflorus* extract were tested on a lipopolysaccharide-stimulated Raw 264.7 macrophages model. In order to accomplish that, nitric oxide (NO) production, scavenging activity and cytotoxicity of the extract were assessed. 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 estimated by Western Blot analysis.

The obtained results showed that *C. multiflorus* extract was able to significantly inhibit the production of NO for non-toxic concentrations. The treatment of this cell line with 161 μg/ml and 325 μg/ml of the purified extract induced a decrease in the levels of NO of 24% and 32%, respectively. Furthermore, despite no changes on COX-2 levels were observed, iNOS expression was significantly diminished by the treatment with the highest concentration of the extract.

Overall, the present results suggest that *C. multiflorus* actually exerts an anti-inflammatory action which is, at least partially, mediated through the inhibition of iNOS expression.

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