Anti-Inflammatory Effect of *Coccoloba cereifera* on an Acute Arthritis Model

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**Introduction and Methods**

Inflammation is mainly a physiological response to deleterious stimuli, but non-resolved inflammatory processes can be involved in the development of inflammatory diseases such as rheumatoid arthritis. *Coccoloba cereifera* Schwn. (Polygonaceae) is a plant species endemic to Serra do Cipó (Minas Gerais). In a previous work, we reported the inhibitory effect of its aerial parts on TNF-α release by LPS-stimulated THP-1 cells¹. The goal of the present work was to evaluate the anti-inflammatory properties of an ethanolic extract from *C. cereifera* aerial parts on an acute arthritis model. Inflammation was induced by the injection of LPS in the joint of Swiss mice. After 1 h, the extract was administrated *per os* (10, 100 and 1000 mg/kg) and PBS was used as the negative control. Twelve hours later, the joint periarticular tissue was removed and the levels of the cytokine TNF-α and the chemokine CXCL-1 were quantified by ELISA, as well as myeloperoxidase (MPO) activity.

**Results and Discussion**

The extract of *C. cereifera* showed anti-inflammatory activity solely at the highest dose assayed (1000 mg/kg): it diminished CXCL-1 and TNF-α production by 68.3 ± 10.7% and 46.5 ± 12.2%, respectively, when compared to the control group. The reduction of these mediators is known to improve the resolution of the inflammatory processes. Moreover, when tested at the same dose, the extract reduced MPO activity by 62.5 ± 9.1%. MPO is an indirect indicator of neutrophil migration to the inflammatory site and the inhibition here observed also contributes to the resolution of inflammation. Analyses of *C. cereifera* extract by UPLC-MS-ESI showed it is majorly composed by flavonoids including myricetin-7-O-β-glucoside, quercetin-3-O-β-glucoside and a glycosylated biflavonoid, along with oligomeric proanthocyanidins composed by (epi)catechin and (epi)gallocatechin units linked to gallic acid. The anti-inflammatory properties of polyphenols have been extensively reported in literature². Therefore, it is feasible to suppose that they are responsible for the anti-inflammatory effect of *C. cereifera*.

**Conclusions**

The extract of *C. cereifera* aerial parts has anti-inflammatory effect in an acute arthritis model, by reducing the levels of TNF-α and CXCL-1 in the periarticular tissue, and diminishing cellular migration. The observed effect is probably related to the phenolic composition of the species.

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**References**