III SIMPÓSIO INTERNACIONAL EM INVESTIGAÇÕES QUÍMICO-FARMACÊUTICAS
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I CONGRESSO LUSO-BRASILEIRO DE CIÊNCIAS E TECNOLOGIAS EM SAÚDE

Área: FAR 28

IN VITRO ANTI-INFLAMMATORY ACTIVITY OF EXTRACTS AND COMPOUNDS ISOLATED FROM *Piper mollicomum* KUNTH

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INTRODUCTION

Piper mollicomum Kunth is found in Brazil, including states from the Southeast, Midwest and Northeast regions, and is popularly known as jaborandi or jaborandi-manso. *P. mollicomum* flowers are popularly used to treat stomach discomfort and its roots as anesthetic. However, there is a scarcity of scientific data about the biological activity of the plant. The present study aimed to investigate the anti-inflammatory effects of the ethanol extract obtained from *P. mollicomum* leaves, as well as the extract and compounds isolated from its inflorescence using the model of lipopolysaccharide (LPS)-induced inflammation in macrophages allied to *in silico* analysis of the isolated compounds.

MATERIAL AND METHODS

RAW 264.7 cells were stimulated with LPS and then treated with the leaf or inflorescence extract of *P. mollicomum* Kunth (1 to 100 µg/mL), or with the compounds C1 (methyl 8-hydroxy-2,2-dimethyl-2H-1-chromene-6-carboxylate), C2 (2',6'-dihydroxy-4'-methoxy-dihydrochalcone) or C3 (2',4'-dihydroxy-4',6'-dimethoxy-dihydrochalcone) (0.1 to 10 µM) and the cell viability and nitric oxide (NO) levels were accessed. It was also evaluated the cytokine levels (IL-1β, IL-6 and TNF). Cell viability evaluated according to the reduction method of 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT); the production of NO was indirectly accessed by the Griess method; cytokine levels (IL-1β, IL-6 and TNF) were quantified by the ELISA method.

RESULTS

The *in vitro* results demonstrated that both leaf and inflorescence extracts, as well as the isolated compounds C1, C2 and C3 did not present significant cytotoxic effect. However, only the leave-extract and the isolated compounds C1 and C2 were able to reduce the Nitrate production in a dose dependent way. The inflorescence extract and C3 compound showed significant reduction of nitrate levels in the higher used concentration (100 µg/mL). Regarding the cytokine levels, TNF levels were reduced by leave extract and C1 compound, IL-1β levels had been reduced by leave extract and C1 and C2 compounds, while IL-6 levels were reduced by the leave extract and C2 compound. In addition to the experimental results, the *in silico* analysis

suggests that the compounds C1, C2 and C3 present good oral bioavailability.

CONCLUSIONS

Together, these results revealed that the leaf extract and the compounds C1 and C2 isolated from the inflorescence of *P. mollicomum* Kunth exert potential anti-inflammatory activity, scientifically reinforcing its use as a medicinal plant. However, more tests are needed to better determine the mechanism behind this anti-inflammatory activity.

ACKNOWLEDGMENTS

CNPq, CAPES, FAPESC, INCT-Inovamed