Marcia Goettert et al., Clin Pharmacol Biopharm 2017, 6:4(Suppl)
DOI: 10.4172/2167-065X-C1-026

Anti-inflammatory and antileukemia potential of *myrciaria Sp*. ethanol extract

Márcia Goettert[1], Shanna Bitencourt[1], Diorge Marmitt[1], Stefani Stoll[1], Bruna Caye[1], Juliana Dörr[1], Jarbas Oliveira[2] and **Stefan Laufer[3]**
[1]Univates, Lajeado, Brazil
[2]Pontifical Catholic University of Rio Grande do Sul, Brazil
[3]University of Tübingen, Germany

Most anti-inflammatory and anticancer drugs produced are derived from naturally occurring compounds or their derivatives. There is a constant search for new metabolites from natural origin, particularly from plants, which have potential for efficacious drugs. Myrtaceae, a plant family present in tropical areas, is one of the most studied on biological activities. *Myrciaria* genus belongs to this family and comprises several species; however, few studies have shown their therapeutic potential. The present study aimed to investigate the anti- inflammatory potential and cytotoxicity of the ethanol extract of a species of the *Myrciaria* genus on RAW 267.4 macrophage cells, human peripheral blood mononuclear cells (PBMCs) and Jurkat acute T-lymphocytic leukemia cells. First, RAW 267.4 and PBMCs were treated with increasing concentrations of the extract to assess cytotoxicity for 48 h and 96 h using Alamar blue and Trypan blue exclusion, respectively. In addition, lymphoproliferation was assayed on phytohemagglutinin (PHA)-stimulated PBMCs using MTT method. TNF-α levels were determined by ELISA after RAW 267.4 and PBMCs were pre-incubated with the extract and then challenged with LPS. Protein expression of inflammation-associated markers (NF-kB, p38α and p-p38) in LPS-activated RAW 264.7 cells was assessed by Western blot. In addition, the extract was screened for p38 MAPK inhibition using cell-free enzyme activity assay. Later, Jurkat cells were challenged for 24 h with the extract and cytotoxicity was determined by Trypan blue exclusion. After challenging RAW 264.7 and PBMCs with *Myrciaria* sp. extract, a slight decrease ($p<0.05$) on RAW 264.7 viability was observed with the maximum concentration tested (200 µg/mL), while PBMCs were not affected by the extract. However, PHA-stimulated PBMCs had a decreased proliferation when cultured with 200 µg/mL extract. In addition, when both LPS-activated cells were pre- treated with the extract, there were dose-dependent decrease in TNF-α levels ($p<0.001$), suggesting possible immunomodulatory and anti-inflammatory activities of the extract. Furthermore, Western blotting on RAW 264.7 cells showed that the extract was capable to inhibit LPS-induced NF-kB activation and p38 phosphorylation. Besides, *Myrciaria* sp. extract presented a great p38 inhibitory activity. On Jurkat cells, the ethanol extract showed cytotoxicity after 24 h, indicating a selectivity. The IC50 of the extract was 127.7 µg/mL. The results suggest that *Myrciaria* sp. ethanol extract present great biological and is a potent inhibitor of p38 MAPK suggesting an action mechanism with selective activity that can be used in the development of anti-inflammatory and antileukemic drugs or phytomedicines.

marciagoettert@gmail.com

Notes: