

Anti-inflammatory Activity of Amburoside A, a Phenolic Glucoside from *Amburana cearensis*, in BV2 Microglial Brain Cells

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INTRODUCTION: The neurodegenerative diseases are the greater cause of disability in the world and are worsened by inflammatory processes. Microglia are part of the innate immunity of the central nervous system (CNS), are activated in various CNS disorders and express inflammatory mediators, like nitric oxide (NO). BV2 cells were obtained from microglia and are used to test inflammatory phenomena of the CNS *in vitro*. Amburoside A (AMB) and coumarin (CUM) is extracted from native plants of Brazil's Northeast and has shown anti-inflammatory potential in models of the peripheric inflammation.

OBJECTIVES: Evaluate the anti-inflammatory potential of the extract of *Amburana cearensis* (ESAC) and two of its components (AMB and CUM).

METHODS: BV2 cells were maintained in RPMI-1640 medium supplemented with 10% serum and plated at 5×10^4 cells/ml for 24 h, incubated with the drugs (100 µg/ml) for 1 h before adding LPS (1 µg/ml). 24 h later biochemical tests were carried out (MTT assay for viability, and Griess for NO production).

RESULTS AND DISCUSSION: None of the drugs tested were toxic in the MTT assay at 100 µg/ml and neither was LPS at 1 µg/ml. In the Griess assay, LPS increased the nitrite released into the culture medium by three-fold. The extract (ESAC) was able to prevent the increase in NO production almost completely, and AMB showed prevention to the same extent. Coumarin prevented half of the increase in NO production.

CONCLUSION: This work was the first testing the effect of an extract of *Amburana cearensis* and some of its compounds, amburoside A and coumarin, in neuroinflammation with promising *in vitro* results: low toxicity and anti-inflammatory activity. These data justify further characterization and *in vivo* studies to assess the potential of this compounds in the treatment of several brain disorders.

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Palavras chave: microglia, neuroinflammation, *Amburana cearensis*

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