



EVALUATION OF THE PUTATIVE TOXICITY OF UROLITHIN A ON GLIAL CELLS

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RESUMO

Introduction: Urolithin (URO) are a class of metabolites from fermentation of ellagic acid by the intestinal microbiota. These metabolites have been associated with the beneficial effects observed after intake of nuts, seeds and fruits. Moreover, studies have shown that URO has better bioavailability and properties related to neuroprotection, immunomodulation, anti-inflammatory and anti-obesity effects than ellagic acid. **Objective:** To evaluate the putative toxic effect of URO-A, the predominant isoform of URO, in C6 glial cells. **Methodology:** C6 cells were incubated with URO-A (3, 30, 60 and 100 μ M) for 24hs. After incubation, oxidative damage parameters, such as cell viability and generation of reactive species (RS), were analyzed using colorimetric and fluorimetric assays. **Results:** There was no significant difference related to cell viability in cells treated with URO-A at concentrations ranging from 3 to 100 μ M ($p > 0.05$). Treatment of C6 cells with URO-A at concentrations between 60 and 100 μ M induced an increase in RS generation ($p < 0.05$). **Discussion:** The results suggest that at larger amounts (60 and 100 μ M), URO-A may have exhibited a pro-oxidant effect, which is uncommon in higher molecular weight compounds such as ellagic acid itself. This effect may be associated with the ability of URO-A to reduce transition metals, which can be re-oxidized by hydrogen peroxide or O_2 and lead to an increase in RS. Although, lower concentrations of URO-A (2.5 - 10 μ M) still shows positive effects on neuroinflammation and neurodegenerations in experimental models of Parkinson Disease. **Conclusion:** As far as we know, these are the first findings on pro-oxidant effects induced by URO in C6 cells and may be important in studies with models of neurodegenerative diseases. Despite this, the use of URO at low concentrations still shows a high potential for antioxidant protection in nervous cells.

PALAVRAS-CHAVE: Functional foods, Urolithin, Glial cells, Phenolic compounds, Toxicity

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