

B - - Biological Effects of Bocaiuva's Pulp Oil in Obese Mice and Rat's Synaptosomes

Ana Cristina Jacobowski ¹, Ana L Colín-González ², Abel Santamaria DelÁngel ², Maria Lígia Rodrigues Macedo ¹

¹ Universidade Federal do Mato Grosso do Sul, Tecnologia de Alimentos (MS, Brasil), ²Instituto Nacional de Neurología y Neurocirugía, Laboratorio de Aminoácidos Excitadores (Ciudad de México, México)

INTRODUCTION

Bocaiuva's pulp oil (*Acrocomia aculeata*), a palm tree widely distributed in the Cerrado and Pantanal biomes. Is chemically very similar to extra virgin olive oil, which is recognized for its beneficial effects on health as it reduces by up to 30% the risk of cardiovascular disease, combats diabetes and hypertension.

OBJECTIVES

Investigate the cytotoxicity of oil by *in vitro* assay in NIH/3T3 cells; search the antiobesity potential of oil in an animal model of metabolic syndrome; evaluate the oil antioxidant potential in brain synaptosomes of male Wistar rats by *in vitro* assay.

MATERIALS AND METHODS

Obtaining Bocaiuva's pulp oil through Soxhlet with petroleum ether at 45 °C; *in vitro* assay Bocaiuva's pulp oil cytotoxicity in cultured murine fibroblast NIH/3T3 through the Sulforhodamine B assay; evaluation of biochemical parameters in serum of obese mice after eight weeks of supplementation (daily gavage of 2 µL/g body weight); *in vitro* analysis of lipid peroxidation and production of reactive oxygen substances in Wistar synaptosomes brain exposed to Bocaiuva's pulp oil and oxidizing agents.

DISCUSSION AND RESULTS

The Bocaiuva's pulp oil showed no cytotoxic effect on NIH / 3T3 cells in any of the concentrations used; Bocaiuva's pulp oil demonstrated antiobesity effect, lowering very significantly ($p < 0.001$) the weight of supplemented obese mice with oil, and reduce aminotransferase, triacylglycerol and alanine aminotransferase values when compared to the obese group not supplemented. The Bocaiuva's pulp oil protected synaptosomal fraction against the formation of reactive oxygen substances when exposed to oxidizing agent (43% lower than control).

CONCLUSION

The Bocaiuva's pulp oil showed potential anti-atherogenic effect with hepatic injury recovery caused by obesity-induced fat diet and protective action against neurodegenerative agents, reducing lipid peroxidation and improving antioxidant status in synaptosomes.

Keywords: Antiobesity, Antioxidants, Cytotoxicity

Supported by: CAPES, CNPq, FINEP, FUNDECT.