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**ABSTRACT**

**EVALUATION OF THE EFFECT OF VEGETABLE EXTRACT FROM THE *EXCELSA BERTHOLLETIA* PLANT ON INFLAMMATION AND INSULIN RESISTANCE *IN VITRO***

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**Introduction:** Diabetes is a metabolic disease characterized by hyperglycemia due to impaired glucose homeostasis and insulin action [1].Several studies have been conducted to investigate the use of regional plant extracts.*Bertholletia excelsa,* popularly known as brazil chestnut, very abundant in northern Brazil belonging to the family *Lecythidaceae* [2,3].The present study aimed to evaluate the effect of the bark of *B.excelsa* on inflammation and insulin resistance *in vitro*.**Methods:** Cell viability assays, nitric oxide inhibition and glucose uptake were carried out in cell lines.**Results and Discussion:** In the cell viability assay the MRC-5 and HCT116 cell lines did not show cellular toxicity with IC50%>100μg/mL, compared to the standard drug Doxorubicin IC50%0.20μg/mL. In the nitric oxide (NO·) quantification test, the extract showed no toxicity to the LPS-stimulated RAW macrophage and also decreased the production of nitric oxide at a single concentration of 50μg/mL (55.7±1.22) compared to the positive control Dexamethasone 20μg/mL (56.59 ±3.13). In the glucose uptake and insulin resistance assay the insulin-induced cell line HCT116 was used.Glucose uptake was established with maximum effect observed at 100μg/mL (45.9±2.4), approximately 80mmol/l glucose uptake. These data suggest that the extract in question had a greater sensitivity in insulin-induced HCT116 cells in a concentration-dependent manner. **Conclusion:** From this study, it was possible to identify that this Amazonian species has a pharmacological potential and can act by reducing insulin resistance and intervening in the factors related to the inflammatory process, which are involved in the pathophysiology of Diabetes. Results were expressed as the mean ± SEM, data were analyzed by one-way ANOVA, and the multiple comparisons test Turkey (*p<0.05*  was considered significant) in triplicate of independent experiments. Calculations were performed using the GraphPad Prism 5.0 software program.

**Key words:** diabetes, Amazonian species, cytotoxicity, nitric oxide

References: 1. J Ethnopharmacol 116; 27, 2008.

2. Acta Biochim Pol 55; 391, 2008.

3. Phytother Res 23; 874, 2009.

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