Cytotoxicity of the Coumarins Mammea B/BA cycle F and Mammea A/BB to glioma cells

Costa, I.B.[1]; Boness, H.V.[2]; Queiroz, C.K.L.[3]; Marques,E.J.[4]; Cruz, F.G.[5]; El- Bachá, R.S.[6]

[1]Graduada em Ciências Biológicas – UFBA,BA, [2]Instituto de Química, UFBA,BA, [3]Graduada em Ciências Biológicas-UNEB,BA, [4]Dep. de Ciências Exatas e da Terra-UNEB,BA, Brazil, [5]Dep. de Química Orgânica, IQ, UFBA, BA, Brazil, [6]Dep. de Bioquímica e Biofísica, ICS, UFBA, BA, Brazil

INTRODUCTION: Glioblastoma multiforme is a type of highly malignant cancer, corresponding to glioma grade IV of the World Health Organization classification, which has a high mortality rate. The high mortality occurs because these tumors are resistant to chemotherapy. Thus, a need exists to find new antitumor substances. Given the biodiversity in Brazil, abundant natural sources offer new possibilities of biologically active compounds .**OBJECTIVES:** To evaluate the toxicity of the coumarins Mammea B/BA cycle F and Mammea A/BB extracted from the plant *Kielmeyera argentea* (Calophyllaceae). **MATERIAL AND METHODS:** Roots of *K. argentea* were collected in the Metropolitan Park of Abaeté at Salvador-BA. The compounds mammea B/BA cyclo F and Mammea A/BB were obtained through usual chromatographic procedures from the hexanic extract. Their structures were established by NMR. U251 human glioma cells were cultured in DMEM containing 10% fetal bovine serum and antibiotics (100 IU/ml penicillin and 100 µg/ml streptomycin). The MTT assay was used to evaluate the metabolic activity of cells. The EC_{50} was determined by non-linear regressions by using GraphPad Prism software, version 5.00 for Windows. **RESULTS AND DISCUSSION:** There was a reduction in the viability of cells treated with concentrations equal or higher than 20 µM Mammea B/BA cyclo F or 30 µM Mammea A/BB, when compared to control cells treated only with the vehicle DMSO (0.5%). The mean of EC50 values for Mammea B/BA cyclo F and the median to Mammea A/BB were respectively 59.3 µM ± 6,125 (n = 9) and 37.0 µM (Range: 29,3 - 49,8,n=9). **CONCLUSIONS:** These coumarins were cytotoxic to U251 human glioma cells at 10^{-5} M concentrations. However, it is important to evaluate the cytotoxicity of these compounds to primary astrocytes.

Keywords: gliomas, coumarins, cytotoxicity.
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the median of the EC50 was x µM (Range: y - z, n = w)