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EVALUATION OF ALOE VERA EXTRACT CYTOTOXICITY THROUGH WST-1 IN A-549 CELL LINEAGE

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Among the large variety of known species of Aloe, Aloe vera (L.) Burm. F. (Aloe vera) is the most used by the population because of its folk medicinal properties and by the cosmetic industry in order to compose shampoos, creams and other cosmetics. Aloe vera is a succulent and xerophytic plant, whose leaves store a gelatinous substance, rich in substances wich medicinal properties are attributed. However, recent studies have shown that some components of the gel may exhibit photochemical properties that in the presence of ultraviolet A radiation, would be responsible for adverse effects. This study aims to evaluate the toxicity induced by glycolic extract of Aloe vera in combination with UVA radiation, in A549 cells line. Cytotoxicity of the extract and its association with UVA are being evaluated by cell proliferation assay WST-1 and exclusion of trypan blue test. Initially, cells were exposed to the glycolic extract of aloe vera at proportions of 1.56; 3.13; 12.5; 25 to 50% for 2, 6, 12, 24 and 48 hours. This data demonstrate that lower proportions of aloe vera (1.56, 3.13 and 6.25%) were not cytotoxic, while the proportions of 12.5, 25 and 50% induced a significant reduction in cell survival. After that, cultures of A549 cells were incubated with the extract (50, 12.5, 6.25, 3.13 and 1.56%) in association with exposure to UVA (10w / s) for 30, 60, 90 and 120 minutes. Again the concentrations of 1.56, 3.13 and 6.25% did not show a toxic profile for the cells. The extract of Aloe vera, at concentrations 50 and 12.5% in combination with UVA radiation, induced greater cell death rate when compared to the results seen in the trials with the non-irradiated sample. Experiments were also conducted to analyze the presence of Emodin, anthraquinone, by cromatography. The results point to the absence of such antroquinona in the extract. This result was also confirmed by spectrophotometry. In addition, an assessment of oxidative stress produced by exposure to producing agents was performed by flow cytometry. Labeling with DCFDA a fluorogenic dye was performed 1 and 24 hours after exposure and the results showed an increase of reactive species of oxygen proportional to the time without statistical difference. This set of results suggest that the glycolic extract of aloe vera can be harmful to the cells when associated with UVA and people should be careful when using skin products with aloe vera under sunlight.

Key-words: cell culture, oxidative stress, cell viability

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