

Evaluating the Cytotoxicity of the Azo Polymer PAZO on ATCC TIB-208 Cell Lines

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Extended Abstract

The commercially available azo polymer (poly[1-[4-(3-carboxy-4-hydroxyphenylazo) benzenesulfonamido]-1,2-ethanediyl, sodium salt]), abbreviated usually as PAZO, is a visible light-responsive material, predominately investigated in recent years as media for optical record of information [1, 2]. Another attractive field of application, for which this polymer has been developed, represents the fabrication of photo-triggered biomolecules delivery systems [3, 4]. Since the quality of a material of being toxic to cells is an essential factor for its usage in such systems, we evaluated the cytotoxicity of the PAZO polymer on ATCC TIB-208 cells. To our knowledge, no results on evaluating the cytotoxicity of this azo polymer have been reported to date.

MTT assay was performed to quantify the cell viability and the Dunnett's Multiple Comparison Test was used for the statistical analysis. The experimental procedure included the following steps: ATCC TIB-208 cells were cultured for 24 hours (5×10^5 cells/ml). On the next day, the PAZO polymer was added to the cell suspension at concentrations: 1000 $\mu\text{g/ml}$, 400 $\mu\text{g/ml}$, 160 $\mu\text{g/ml}$, 64 $\mu\text{g/ml}$, 25.6 $\mu\text{g/ml}$, 10.24 $\mu\text{g/ml}$, and the cells were incubated for another 24 hours. Then the MTT viability test was performed. The absorbance was measured at 590 nm with background subtraction at 620 nm. The obtained results show low negative impact (<20%) of the PAZO polymer on the cell viability at concentration 25.6 $\mu\text{g/ml}$ and 10.24 $\mu\text{g/ml}$. At concentration 64 $\mu\text{g/ml}$ and 160 $\mu\text{g/ml}$ of the polymer in the cell suspension the A20 cells viability is 70% / 50%, respectively.

References

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