

CYTOTOXIC AND GENOTOXIC ANALYSES OF MONAZITE ELEMENTS IN *ESCHERICHIA COLI*

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The monazite [(Ce, La, Y, Th) PO₄] is a mineral extracted from open mines, whose elements are applied in agriculture, industry and medicine. There are controversies about the cytotoxic and genotoxic effects of cerium (Ce), lanthanum (La) and thorium (Th) in the literature. Ions of those elements have interesting biochemical, biological and pharmacological properties. Moreover, thorium-232 is an alpha particle emission. Thus, it is important to clarify the biological effects of these elements. The aim of this study was to evaluate the cytotoxic and genotoxic effects of those elements using microbial tests and molecular biology techniques. Lysogenic induction (INDUTEST), cell survival and induction of plasmidial DNA strand breaks were evaluated with different concentrations of cerium (Ce), lanthanum (La) and thorium (Th). The results showed that there was a slight change on cell survival after treatment with all of those three elements. All elements tested did not increase the lysogenic induction hence a genotoxic effect was not observed. In conclusion, our results indicate that cerium, lanthanum and thorium did not induce cytotoxicity and genotoxicity effects in our models.