EFFECTS OF POLYCAPROLACTONE NANOSPHERES INCORPORATING IMMUSUPPRESSIVE AGENT (RD-07) ON HUMAN ADENOCARCINOMA CELL LINE

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A potent immunosuppressive agent (RD-07) has pharmacological action by inhibiting T cell response via interleukin-2 production. Intestinal epithelial cells produce various inflammatory mediators. However, the way in which immunosuppressive agents influence the production of these mediators by intestinal epithelial cells is not fully understood, even the cytotoxic effects on these cells. In this way the aim of this study was to evaluate the cytotoxic effects of RD-07 in its free form and loaded in ε-polycaprolactone (PCL) nanoparticles on human colon adenocarcinoma cell line (HT-29). The nanosystem was characterized by means of its physic-chemical properties including size and morphology by scanning electronic microscopy. Different biomarkers were used for relative toxicity assessment: MTT dye reduction, neutral red uptake (NRU) and nucleic acid content. Unloaded PCL had no cytotoxic effects on HT-29 cells evaluated by viability assays used. Free RD-07 decreased cell activity in a dose-dependent manner diminishing in 50% the cellular viability at a concentration of 3 µM. However, it was not observed cytotoxic effects on the HT-29 cells treated with RD-07-loaded nanoparticles (0-60 µM). In conclusion, our results indicate a potential beneficial application of encapsulated RD-07 since it was verified a toxicity reduction on HT-29 cells.

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