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Curcumin is the main component of *Curcuma longa*. It is traditionally used in Ayurvedic medicine and it is also used in Europe, mainly in pharmaceutical preparations, or as food supplement. It is commonly recommended for reducing acute or chronic inflammatory conditions, such as arthritis [1]. In the last decade, Curcumin has been investigated to assess antineoplastic effects, considering a possible correlation between the use of this spice and the decreasing incidence of degenerative and neoplastic diseases [2-3]. The aim of the present study was to evaluate the in vitro cytotoxic effects of Curcumin in cancer cell lines: MCF-7 (derived from metastasis of human mammary adenocarcinoma), CF.41 (primary canine mammary carcinoma), and CHMp (derived from metastasis of canine mammary carcinoma). All cell lines were cultured in Dulbecco Modified Eagle's Medium (DMEM), fetal bovine serum (FBS - 20%), steptomycin, penicillin and amphotericin B solution (2%) and L-glutamine (2%). Cells were incubated at 37°C and 5% CO^2. At 80% of confluence, cells were detached and seeded in 96-well plates at a concentration of $5*10^3$ cells/well (100 µl) to perform 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium (MTT) assay in different conditions: 1) in presence of increasing concentrations of Curcumin (10-4-10-12 M); 2) with hydrogen peroxide (H_2O_2) concentrations ranging from of 2.5 to 200 µM; 3) co-presence of H_2O_2 (2.5-200 µM) and Curcumin (10-4-10-12 M). For each trial, experimental time points were 2, 24, 48 and 72h. The data obtained were statistically analyzed with GraphPad Prism software, using One-way ANOVA and Bonferroni's post- test ($p<0.05$). 1) The Inhibitory Concentration(IC)50 was 10-4.563 M for MCF-7, 10-5.386 M for CF.41 and 10-2.087 M for CHPm cells. At IC50 it was possible to appreciate a significant reduction of proliferation compared to untreated control; 2) all H_2O_2 concentrations induced a statistically significant decrease of the cell amount following a time-dependent inhibitory behavior for MCF-7 and CF.41 cells, while only at 2h CHPm cells showed a concentration-dependent inhibitory behavior; 3) Curcumin seemed not to protect cells against oxidative stimuli, except for CHPm and CF.41 cells that demonstrated a low inhibition rate compared to controls after 72h. These results highlighted different behaviors depending on the type of cell origin (human or canine) and suggested a protective activity of Curcumin agaists oxidative stimuli after a long incubation period.

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