



**,EFFECT OF CAROTENOIDS ON CELL VIABILITY AND CELL CYCLE
PROGRESSION IN HUMAN CANCER CELL LINES**

Gloria, N.F.¹, Soares, N.C.P.², Oliveira, F.L.², Borojevic, R.², Teodoro, A.J.¹

¹Departamento de Tecnologia de Alimentos; Escola de Nutrição; Universidade Federal do Estado do Rio de Janeiro. Email: nathaliefg.nut@gmail.com

² Instituto de Ciências Biomédicas; Universidade Federal do Rio de Janeiro.

The breast cancer is complex disease caused by the progressive accumulation of genetic mutations and others factors. This disease presents a high mortality and strategies to prevent have been studied all over the world. A wide range of bioactive compounds is shown as being responsible for the beneficial effects on human health and the consumption of lycopene and beta-carotene is associated with lower risk of developing cancer. The aim of study was to evaluate the influence of lycopene and beta-carotene on proliferation, cell cycle and apoptosis of different cell lines of humans breast adenocarcinoma (MCF-7 and MDA-MB-231). The MCF-7 and MDA-MB-231 cells were incubated with DMEM and RPMI, respectively, supplemented with 10% fetal bovine serum under an atmosphere of 5% CO₂ at 37°C, and incubated with different concentrations of lycopene and beta-carotene (0,25-10mM, both), for periods of 48 and 96 hours. For analysis of cell proliferation, we used the MTT method. The analysis by flow cytometry was used to evaluated the distribution of the phases of the cell cycle and apoptosis. The results showed that MCF-7 cells presents a potent inhibitory effect after 96 hours of treatment with lycopene (average of 25% inhibition) in a time-dependent effect. The cell cycle and apoptosis analysis indicated arrest cell cycle in G₂/M phase and an increase of cell in G₁ phase, causing an increase on apoptosis process. When MCF-7 cells were treated with beta-carotene, the results were more expressive after 48 hours of incubation. The increase of apoptotic cells were average of 100% compared to the control, without statistic difference between the doses. The MDA-MB-231 cell line showed a time-dependent effect when treated with lycopene. The results with betacarotene presented a similar inhibitory effect at both periods of treatment. In this context, the chemoprevention of lycopene and beta-carotene through the action emerges as an important tool in preventing and controlling breast cancer.

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