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Apoptosis of melanoma cells induced by egg yolk fatty acids biofortified in conjugated linoleic acid (CLA)

Abstract

Conjugated linoleic acid (CLA) are biologically active compounds with proven health-promoting effects. In the anticancer properties of CLA, it is known that they decrease the proliferation of cancer cells, but the effectiveness of their action varies, which may be due to differences in their composition, amount of intake, absorption and metabolism.

The aim of this study was to determine, *in vitro*, the mechanisms of potentially anticancer effects of the mixture of fatty acids extracted from egg yolks enriched with CLA, against human tumor melanoma cells lines WM793 and 1205Lu and normal BJ fibroblast cells, being a control.

In this study, it was shown that the mixture of fatty acids, isolated from egg yolk enriched in CLA isomers, in the biofortification process, stronger than the mixture of fatty acids without these isomers, reduced the proliferation of human melanoma cell line WM793 by 30,5%. However, in the case of cancer cells of the 1205Lu line, treated only with a mixture of fatty acids enriched in CLA isomers, a tendency to lower proliferation was demonstrated. At the same time, tested fatty acid mixtures did not affect on human normal fibroblasts cells line BJ, as a control. Furthermore, the reduction in the proliferation of human melanoma cancer cells was associated with the induction of apoptosis. The CLA-enriched fatty acid mixture increased gene expression and activation of proteins primarily associated with mitochondrial-dependent apoptosis pathway.

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