APPLE EXTRACT: CYTOTOXICITY AND DNA PROTECTION

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The aim of this study was to determine the possible cytotoxic potential of the apple extract through MTT (3-(4,5dimethyl thiazole-2-yl)-2,5diphenyl tetrazolium bromide) assay; to evaluate the effects of the extract on the protective activity of cellular DNA using the crystal violet technique; to evaluate the capability of apple extracts on protect DNA from induced damage using comet assay. All tests were done in cultured human fibroblasts. According to the MTT results, the apple extract is safe for use in cell cultures in the range from 0.003 to 0.0002%(w/v). According to the crystal violet test, the apple extract concentration of 0.0015% promoted an increase of approximately 27% on the protection of DNA compared to control suggesting significant DNA protective activity. Regarding to the Comet assay, DNA damage was observed in human fibroblasts incubated with apple extract at concentrations of 0.01 and 0.005%(w/v). However, these data were statistically different when compared with the control group what means that the extract is not genotoxic. Moreover, the greater comets presence Class 1 and 2 and the lower count comets Class 3 and 4 in cells receiving the apple extract show its potential to exert protective effects against stimuli that cause DNA damage. In conclusion, cell cultures treated with apple extract reduces comets formation. Apple extract has no capacity to cause DNA damage, since it maintained the integrity of the genetic material and can be considered not genotoxic. Apple extract has the potential to exert protective effects against stimuli that cause damage to cellular DNA.

Palavras-chave: Bioactive compounds; crystal violet; comet assay

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