Oligosaccharide from apple induces apoptosis and cell cycle arrest in HT29 human colon cancer cells.

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Abstract

It is reported that apple polysaccharide can prevent colon cancer growth and impede colon cancer progression. Apple oligosaccharide was prepared by the combination of alkaline hydrolysis and enzymolysis of apple polysaccharides, and purified by anion column chromatography. The aim of this study is to explore the effect of apple oligosaccharide on the cellular viability of human colon carcinoma cells (HT29 cells) and its mechanism. The results showed that apple oligosaccharide decreased the cellular viability of HT29 cells in dose-dependent manner. Meanwhile it enhanced the expression of Bax; and decreased the levels of Bcl-2 and Bcl-xl. Apple oligosaccharide induced cell cycle arrest in S phase, which correlated with the decreased expression of Cdk 2 and cyclin B1. These results indicated that apple oligosaccharide attenuated HT29 cell viability by inducing cell apoptosis and cell cycle arrest. Apple oligosaccharide is a potential chemoprevention agent or anti-tumor agent and is worthy of further study.