

## ANTI-CANCEROUS POTENTIAL OF POLYSACCHARIDES DERIVED FROM WHEAT CELL CULTURE

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There is a global need to discover effective anti-cancerous compounds from natural sources. Cultivated wheat cells can be a valuable source of non-toxic or low toxic plant-derived polysaccharides. In this study we evaluated the antitumor ability of seven fractions of wheat cell culture polysaccharides (WCCPSs) in the HCT-116 colon cancer cell line.

Almost all (6/7) fractions had an inhibitory effect on the proliferation of colon cancer cells, and two fractions (A-b and A-f) had considerable therapeutic indexes. The WCCPS fractions induced cell cycle arrest in the G1 phase and induced different rates of apoptosis (<48%). Transmission and scanning electron microscopy revealed that WCCPS fractions caused apoptotic changes in the nucleus and cytoplasm, including damage to mitochondria and external morphological signs of apoptosis.

In addition, the WCCPSs induced an increase

in the levels of Bax, cytochrome c, caspases 8 and 3, indicating that cell death was assessed through intrinsic and extrinsic pathways of apoptosis. Furthermore, some fractions caused a significant decrease of c-Myc, b-catenin, NFkB2 and HCAM (CD 44) levels, indicating enhanced cell differentiation. Thus, for the first time, our results provide a proof of concept of the anti-cancer capacity of WC-CPS fractions in colorectal cancer.

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