**Objective**

The objective of this research is to determine the ability of BG-4 to cause cytotoxicity to ovarian cancer cells (A27801AP and COV318) and determine the mechanism involved by measuring proteins associated with apoptosis. Specifically, we studied:

- Effect of BG-4 on Bcl-2 and XIAP (anti-apoptotic proteins)
- Effect of BG-4 on BAX and caspase-3 (pro-apoptotic proteins)
- Effect of BG-4 on p21 and CDK2 (cell cycle proteins)

**Methods**

- Cell Lines and Culture
- Cell Proliferation Assay
- Western Blotting
- Apoptosis Assay

**Introduction**

- OVCA is the most deadly form of gynecological cancers.
- High rate of OVCA is correlated to the absence of screening.
- High fatality rate of OVCA is due to late presentation of disease.
- A key approach to combating cancer is through activation of the apoptosis pathway.
- Momordica charantia, commonly known as the bitter melon, comes from the family Cucurbitaceae.
- Momordica charantia is reported to have anti-inflammatory, anti-diabetic, anti-cancer, anti-diabetic, anti-bacterial, anti-obesity, and immunomodulatory activities.
- Previous studies have shown these anti-cancer properties on various forms of cancer.

**Results**

- BG-4 purifies from Momordica charantia caused dose-dependent cytotoxicity in COV318 OVCA cells. BG-4 treatment led to a decrease in viable cell count by 19.9% at 250 μg/mL. Mean values represented as bars with different letter(s) are statistically different from each other (P<0.05, n=2).

- BG-4 affects viability of COV318 ovarian cancer cells.

**Conclusions**

- BG-4 from Momordica charantia possesses anti-cancer properties.
- BG-4 has the capability of activating apoptosis in human ovarian cancer cells.
- The findings support the idea for potential use of BG-4 as an ovarian cancer therapeutic agent and should be further studied using in vivo models of ovarian carcinogenesis.

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