Risk of Anethum graveolens on Cancer Progression through Up-regulation of Tumor-related Metabolizing Enzymes and Transporters in HepG2 and Caco-2 Cells

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Abstract

This study investigated the impacts of Anethum graveolens L. (AG) extract on the mRNA expression of tumor-related metabolizing enzymes and transporters in HepG2 and Caco-2 cells. The cells were incubated with AG extract (60 to 480 µg/mL) for 72 hours. Cell viability and ROS level were assessed by resazurin and DCFH-DA assay, respectively. Expression of tumor-related metabolizing enzymes and transporters were determined by qRT/PCR. AG extract significantly elevated the expression of CYP1A2, NAT1, NAT2, SULT1A1, ABCB1, ABCG2, and SLCO1B1 mRNAs in HepG2 and/or Caco-2 cells (p<0.05). Although the AG extract (60 to 240 µg/mL) did not directly retard the cell viability and ROS level, the use at high concentration for a period over 3 days probably triggers progression of cancer cells, particularly HepG2 and Caco-2 cells, by up-regulation of tumor-related metabolizing enzymes and transporters.

Keywords: Anethum graveolens, Carcinogenesis, Metabolism

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