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Antitumor activity of water extract of a mushroom, *Inonotus obliquus*, against HT-29 human colon cancer cells

[Sung Hak Lee](#)¹, [Hee Sun Hwang](#), [Jong Won Yun](#)

Affiliations

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Abstract

In the current study, it was demonstrated that the hot water extract of *I. obliquus* (IOWE) exerts inhibitory activity against the proliferation of human colon cancer cells (HT-29). The inhibitory effect of IOWE on the growth of HT-29 cancer cells was evaluated by treating cells with IOWE at concentrations of 0.25, 0.5 and 1.0 mg/mL for 24 or 48 h. The IOWE inhibited cell growth in a dose-dependent manner, and this inhibition was accompanied by apoptotic cell death. The maximum inhibitory effect (56%) was observed when IOWE was treated at a concentration of 1.0 mg/mL for 48 h. The apoptotic effect of IOWE on HT-29 cells was also confirmed by flow cytometric analysis. In addition, the apoptotic cell percentage was closely associated with down-regulation of Bcl-2 and up-regulation of Bax and caspase-3. The results suggest that IOWE would be useful as an antitumor agent via the induction of apoptosis and inhibition of the growth of cancer cells through up-regulation of the expression of proapoptotic proteins and down-regulation of antiapoptotic proteins.

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