

# Induction of Apoptosis of Korean Fermented Soybean Paste (*doenjang*) Extracts in Human Oral Epidermoid Carcinoma Cells

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*Doenjang* is one of the important Korean fermented soybean foods. The effect of ethanol extract obtained from *doenjang* on the induction of apoptosis in KB cell was investigated by nuclear condensation and the loss of mitochondrial membrane, Hoechst-33258 dye staining, flow cytometry (cell cycles), DNA fragmentation, activation of caspases-3, -8, -9, Bax, Bcl-2, and poly (ADP-ribose) polymerase (PARP) cleavage. The ethanol extract of *doenjang* induced the apoptosis of KB cells by the dose-dependent manner, which was verified by Bcl-2 reduction, cytochrome *c* release, caspase activation, PARP, and DNA fragmentation in KB cells. The ethanol extract caused the loss of mitochondrial membrane potential and cytochrome *c* release from mitochondria to cytosol. Our present results demonstrated that the ethanol extract of *doenjang* triggers the rapid apoptosis mediated by the release of cytochrome *c*.

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