

Differential anti-tumor activity of coriolus versicolor (Yunzhi) extract through p53- and/or Bcl-2-dependent apoptotic pathway in human breast cancer cells.

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Coriolus versicolor (CV), also called Yunzhi, has been demonstrated to exert anti-tumor effects on various types of cancer cells, but the underlying mechanism has not been fully elucidated. The present study aimed to evaluate the in vitro anti-tumor activity of a standardized aqueous ethanol extract prepared from CV on four breast cancer cell lines using MTT assay, and test whether the mechanism involves apoptosis induction and modulation of p53 and Bcl-2 protein expressions using cell death detection ELISA, p53 and Bcl-2 ELISAs respectively. Our results demonstrated that the CV extract dose-dependently suppressed the proliferation of three breast tumor cell lines, with ascending order of IC₅₀ values: T-47D, MCF-7, MDA-MB-231, while BT-20 cells were not significantly affected. Tumoricidal activity of the CV extract was found to be comparable to a chemotherapeutic anti-cancer drug, mitomycin C. Nucleosome productions in apoptotic MDA-MB-231, MCF-7 and T-47D cells were significantly augmented in a time-dependent manner and paralleled the anti-proliferative activity of CV extract. Expression of p53 protein was significantly upregulated only in T-47D cells treated with the CV extract in a dose- and time-dependent fashion, but not in MCF-7 (except at 400 µg/ml after 16 h) and MDA-MB-231 cells. The CV extract significantly induced a dose-dependent downregulation of Bcl-2 protein expression in MCF-7 and T-47D cells, but not in MDA-MB-231 cells. These results suggested that apoptosis induction, differentially dependent of p53 and Bcl-2 expressions, might be the possible mechanism of CV extract-mediated cytotoxicity in human breast cancer cells in vitro.