

Public Abstract

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Title:STUDY OF ANTI-CANCER EFFECT OF WINTER WORM AND SUMMER GRASS ON MCF-7 HUMAN BREAST CANCER CELLS

Winter worm and summer grass (WWSG) is one of the most valued traditional Chinese medicines for fighting cancer, increasing longevity, and improving immunity. It consists of the entomopathogenic fungus *Cordyceps sinensis* and its natural lepidopteran host *Hepialus armoricanus*. Using the water extract of *Cordyceps militaris*, a sibling species of *C. sinensis* cultivated on an artificial host the silkworm *Bombyx mori* pupae; we have found that the *C. militaris* extract inhibited growth of MCF-7 human breast cancer cells in a dose- and time-dependent manner, with IC_{50} value at about 11 $\mu\text{g}/\text{ml}$ when MCF-7 cells were incubated in the *C. militaris* extract-containing medium for 96 h. The inhibitory effect of the *C. militaris* extract on MCF-7 cells was through an apoptosis cascade by inducing pro-apoptotic genes (*Bax*, *Bim*, *Apaf-1* and *Caspase-7*) and suppressing anti-apoptotic marker gene (*Bcl-2*) expression. Moreover, the *C. militaris* extract also inhibits DNA methyltransferase transcription, suggesting that the reduced cancer suppressor gene methylation might lead to the recovery of tumor-suppressor gene expression and eventually to the inhibition of tumor cell growth. These findings broaden the understanding of this herbal medicine's medical effect and provide a potential therapy for cancer treatment.