

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

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## Abstract

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. The inhibitory effect of the *C. militaris* extract on MCF-7 cells was via an apoptosis cascade by inducing the expression of pro-apoptotic genes and by suppressing anti-apoptotic marker genes. 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.