

# The Rhizome of *Trillium tschonoskii* Maxim. Extract Induces Apoptosis in Human Lung Cancer Cells

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*Trillium tschonoskii* Maxim. has been used to treat several diseases including cancers in folk medicine. However, the mechanisms responsible for *T. tschonoskii* extract-induced apoptosis are not clear. This study was mainly undertaken to identify the major biochemical changes in a lung cancer cell line upon treatment with an *T. tschonoskii* extract (TTME), and to investigate the functional relationship between these changes. The *n*-butanol extract was used to evaluate the mechanism of induction of apoptosis in A549 human lung cancer cells and its effects on mitochondrial function and production of reactive oxygen species (ROS). The *n*-butanol extract of *T. tschonoskii* has cytotoxic, antiproliferative, and morphological effects on the lung cancer cell line. *T. tschonoskii* mainly leads to apoptosis of cancer cells with a concomitant increase in the release of cytochrome c and a loss of mitochondrial membrane potential in a dose-dependent manner. A rapid increase in the level of intracellular ROS and an accumulation of cells in the G2/M and S phase of the cell cycle were also observed in treated cells. These observations suggest that the *n*-butanol extract of *T. tschonoskii* has promising anticancer activities, which could be useful in cancer treatment.

*Key words:* *Trillium tschonoskii* Maxim., Apoptosis, Cancer