

Effects of Non-Saponin Red Ginseng Components on Multi-drug Resistance

Eun-Hye Kim*, Jong-Dae Park[†], Suhk-Neung Pyo*, and Dong-Kwon Rhee*[#]

**College of Pharmacy, SungKyunKwan University, Su-Won 440-746,*

[†]Ginseng Science Research Group, KT & G Central Research Institute, Daejeon 305-805, Korea

Multidrug resistance (MDR) is a major problem in cancer chemotherapy, which often results in the termination of treatment. The aim of this study was to identify any fractions of Korean red ginseng that would be effective in modulating MDR. Although ginsenosides has been reviewed as possible MDR modulators, the MDR modulation activity of the other component is unknown. Therefore, in this study, red ginseng was extracted with methanol, ether, ethylacetate, and butanol followed by several fractionations by silica gel chromatography and the MDR modulating activity of these fractions was examined. Several ether fractions showed mild modulating activity on both Pgp-MDR and multidrug related-MDR cells *in vitro*. These results show that nonsaponin components are effective on MDR modulation and might help improve cancer chemotherapy.