

News & Comments

Effective Components of (*Black Ginsengs*) BG against Prostate Cancer

Nirmal Kumar

The dried roots and rhizomes of *Panax ginseng* C.A. Mey have been used as a restorative and tonic medication in China for thousands of years. Processing is a crucial component of Traditional Chinese Medicine's usage of herbal remedies (TCM). Ginsenosides Rk1, Rk3, Rg5, and Rg3 are the most prominent components of BG, which is a recently processed product that produces unusual ginsenosides by steaming and drying fresh ginseng repeatedly (often nine times). Processed BG has more potent anti-tumour, anti-inflammation, antioxidant, decreasing blood sugar, increasing resistance, and anti-aging pharmacological properties than ginseng. The beneficial component of BG against prostate cancer was revealed for the first time.

The study was carried out at the Chinese medicine Chemistry Lab, Liaoning University of Traditional Chinese Medicine China. The 10 BG batches (Liaoning Zhongshu Tang Black Ginseng Co. Ltd.). Professor Xu Liang from Liaoning University of Traditional Chinese Medicine identified each sample. Methanol (Oceanpak, Sweden), Acetonitrile (Tedia, USA), Methyl thiazolyl tetrazolium (MTT) (Amresco, USA), Human Prostate Cancer Cells (Du145) (Kunming Cell Bank of the Academy of Sciences), and Dimethyl Sulfoxide (DMSO) (SIGMA, USA). A precise amount of BG freeze-dried powder (81.30 mg) was measured out and added to 60 mL of methanol. For statistical analysis, SPSS2 5.0 was employed.

One-way analysis of variance was used to analyse the data (ANOVA). The Grey Modelling v3.0 program was used to analyse the grey relational degree analysis.

On the proliferative effect of DU145, the inhibitory rates of RPMI 1640 complete culture medium with drug serum-containing 5, 10, 15, and 20% of BG and its separated fractions (which were PF, OF, TSF, and AEF) were investigated. The identification and analysis of ginsenosides of BG in ESI negative ion mode were demonstrated by comparing references. Results from experiments with ginsenosides Rg5 and Rk1 on prostate cancer cell apoptosis were presented. The serum of BG contains PPT and PPD, which were not discovered in BG, according to a study of the ratio of saponins present in blood and medicinal materials. It was hypothesized that PPD came from the glucose-dropping transformation of ginsenoside Rk1, whereas PPT came from the transformation of ginsenoside Rg3 and Rg2. The dehydration reaction of common primary ginsenosides produced certain unusual ginsenosides. For instance, the ginsenosides Ra1, Ra2, Ra3, Rb1, Rb2, Rb3, Rc, and Rd were hydrolysed to create the ginsenosides Rg3, F2, and Rh2 in BG. Grey correlation analysis and bivariate correlation analysis were both employed in two different ways. The ginsenosides S-Rg2, S-Rg3, R-Rg3, RK1, Rg5, the peak



number of 16, and the peak number of 17,19,20 was chosen as the saponin components of BG with substantial anti-prostate cancer action based on two distinct analytical methods of spectrum efficiency.

The saponins (S-Rg2, S-Rg3, R-Rg3, RK1 and Rg5) with substantial anti-prostate cancer activity were obtained from the spectrum-effect connection and were the active ingredients of anti-prostate cancer in BG after the structure-effect relationship was verified.

Secondary ginsenosides in BG were the active ingredients against prostate cancer. It will offer guidance for future studies on cancer treatment and a pharmacodynamic material foundation for the investigation and creation of novel medications.

JOURNAL REFERENCE

Sun, M., L. Liu, X. Liu and D. Dou, 2022. The ginsenosides of black ginseng against prostatic cancer by spectrum-effect and structure-effect relationships. *Int. J. Pharmacol.*, 18: 488-510.

KEYWORDS

Spectrum-effect relationship, structure-effect relationship, black ginseng, prostate cancer

