PP013
Investigation of anti-tumoral activity of *Cistus creticus* extract against PC-3 cell line

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Recent studies have revealed that plant extracts show cytotoxic activities against cancer cell lines by ceasing cell division in particular phases (Xu et al., 2012, Yıldırım et al., 2013). Expression of specific genes was found to be activated according to pathway in which cell death occurs. Objective of this study was to identify antitumoural effect of *Cistus creticus*, which is a perennial shrub, found in Mediterranean region, against prostate cancer cell line by measuring the cytotoxic activities and apoptotic gene expression levels.
Extraction of *Cistus creticus* (*C. creticus*) was performed overnight in 80% aqueous ethanol solution. After ethanol removal by rotary evaporator, aqueous extract was lyophilized. Human prostate cancer cell line (PC-3), cultured in DMEM, was exposed to extract of *C. creticus*, between a concentration range of 10 to 3000 µg/ml for 24, 48 and 72 hour time periods. Cytotoxic activity was determined by MTT assay. Cytotoxicity results were verified by Real Time PCR (RT-PCR). Expression levels of *bcl-2* as antiapoptotic, *bax* and *caspase-3* as apoptotic genes were analyzed. *β-actin* was used for normalization. Initiation of cytotoxic activity on PC-3 cells exposed to extract of *C. creticus* was observed after 24 hours as seen in Figure 1. Cell viability was decreased up to 1500 µg/ml extract concentration, after which it showed an ascending trend line. Gene expression analysis was performed with *C. creticus* extract-treated PC-3 cells at 1500 and 3000 µg/ml extract concentration for 48 hours, which former was initial point of viability increase and latter was the highest point of viability in the experiment. According to RT-PCR results, antiapoptotic *bcl-2* expression level of cells treated with extract at a concentration of 3000 µg/ml was 2.3 times higher than those treated with extract at a concentration of 1500 µg/ml. *Caspase-3* and *bax* expression levels were 1.6 and 5.8 times higher in cells treated with extract at a concentration of 1500 µg/ml, respectively, complying with the decreases observed in viability.

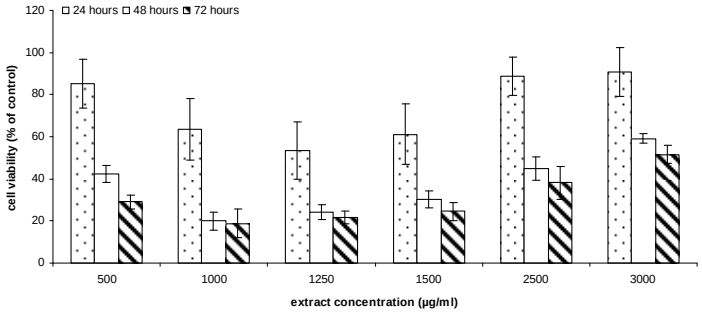

Figure 1. Cell viability of *C. creticus*-treated PC-3 cells. Cytotoxic activity showed tendency to decrease after 1250 µg/ml extract concentration.

C. creticus extract exhibited significant antitumoral activity against human prostate cancer cell line, PC-3. Cytotoxic activity profile showed tendency to increase up to 1500 µg/ml extract concentration, after which cell viability increased. Cell viability results also showed consistency with RT-PCR analysis. Expression levels of antiapoptotic *Bcl-2*, apoptotic *bax* and *caspase-3* changed in parallel with cell viability test results.

References

Xu, R., Ye, H., Sun, Y., Tu, Y., Zeng, X., 2012. Preparation, preliminary characterization, antioxidant, hepatoprotective and antitumor activities of polysaccharides from the flower of tea plant (*Camellia sinensis*). Food and Chemical Toxicology. 50, 2473-2480.
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