



## Investigation of the honey bee venom's effect on human colon cancer cells in comparison to L-929 cell line

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### Abstract:

**Background and Purpose:** Nowadays cancer is becoming a global health problem. Honey bee venom has been used for thousands of years in treating different diseases. Recently its uses as an anti-cancer compound attracted scientist's attention. Determining the main components of bee venom which induce apoptosis can result in finding new anti-cancer compounds. Bee venom is a complex mixture of peptides, enzymes and biologically active amines like melittin and phospholipase A2.

**Methods and Materials:** This study was an experimental study. The cancer column cells (HT-29) and mice fibroblast cells (L929) were cultured in RPMI-1640 medium. Cells were treated with different concentrations of honey bee venom (0.1-12 µg/ml) in three times of 24, 48 and 72 hours. After this period the percent of living cells was determined through MTT assay. The analysis of data was done with SPSS software using One Way ANOVA method. Also, two cell lines were analyzed in the same concentrations of bee venom using the T-test. Results: in concentration 0.6 µg/ml and time 24 h the number of living cells reduced and in concentration 6 µg/ml all cells died. In concentration 2 µg/ml significant inhibitory effect on L929 was seen and in concentration 12 µg/ml and time 12 hours all cells died. Honey bee venom had an inhibitory effect on human colon cancer cells (HT-29) in vitro.

**Conclusion:** Honey bee venom cytotoxicity effect on human colon cancer cells (HT-29) was demonstrated. It seems that the induction of apoptosis in cancer cells treated with this compound is the cause of cell death which should be more investigated in the future.

**Keywords:** Cell cytotoxicity, Honey bee venom, Human colon Cancer cells.

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