Aim: Many genetic and environmental factors can be effective in the process of cancerization. Preventing the progression of leukemia may be possible by controlling the pathways involving mechanisms such as apoptosis and autophagy. When the literature is examined, there are studies showing the effects of various types of juniper on various cancer cell lines, including human chronic myeloid leukemia cells, but the signal pathways in which they act are not fully known. In this study, the anticancer effects of Juniperus oxycedrus extract on K-562 human chronic myeloid leukemia cells were investigated.

Method: After the cells were treated with the Juniperus oxycedrus extract, cytotoxicity and gene expression analyzes were performed. Changes in the expression of Akt, the member of the PI3K/Akt/mTOR signaling pathway; caspase 3, which is one of the main effective genes in the pathways regulating apoptosis; and the apoptosis suppressor BCL-2 gene, which is an oncogene, were investigated.
Results: According to the MTT test results, *Juniperus oxycedrus* extract showed over approximately 50% cell viability in K-562 cells at all doses. The most appropriate dose of *Juniperus oxycedrus* fruit extract in this research was determined as 50 µg/mL considering cell viability. After the gene expression analysis, it was observed that Akt expression increased 1.092 times, BCL-2 expression decreased approximately 0.3 times, and caspase 3 expression increased 1.2 times.

Conclusions: Constituents of *Juniperus oxycedrus* plant may have apoptotic effects on chronic myeloid leukemia cells.

Key words: *Juniperus oxycedrus*, leukemia, apoptosis.

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{spoiler title=References}


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