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Hydroalcoholic extract of *Achillea wilhelmsii* decreases the expressions of Hippo signaling pathway-associated oncogenes in A549 lung cancer cell line

Introduction:

Background:

Evidence suggests that the Hippo pathway, which regulates organ size, is altered in a few conditions like lung cancer. *Achillea wilhelmsii* that used in the traditional Iranian medicine to treat a variety of disorders has been proven to contribute to some signaling pathways in cancers. In this regards, this study aimed to evaluate the effect of the hydroalcoholic extract of this plant on viability and mRNA expression of some Hippo signaling pathway-associated oncogenes and suppressors in A549 lung cancer cell lines.

Methods:

Hydroalcoholic extract was prepared using a Soxhlet extractor and its antiproliferative activity was studied by MTT assay. Then, the mRNA expressions of "large tumour suppressor kinases 1 and 2" (LATS1 and LATS2), "Yes1 Associated Transcriptional Regulator" (YAP1), and "Transcriptional co-activator with PDZ-binding motif" (TAZ) were measured using real-time PCR.

Results:

According to MTT, the viability was decreased significantly after 24 hours treatment with *A. wilhelmsii* at concentrations of 200-1000 µg/ml and after 48 hours treatment at a concentration of 100-1000 µg/ml. While the mRNA levels of LATS1, TAZ, and YAP1 decreased significantly compared to untreated cells, the mRNA expression of LATS2 did not change (P0.05).

Conclusion:

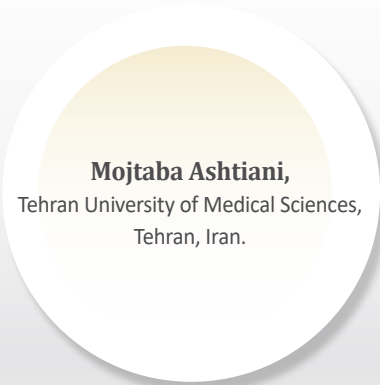
Hydroalcoholic extract of *A. wilhelmsii* might inhibit proliferation of lung cancer cells as well as it could decrease the expression of both oncogenes in them. However, it had suppressing

Effects on LATS1, which should be considered in further studies.

Biography:

Mojtabi Ashtiani is from Iran, He has a bachelor's degree in medical laboratory science and a master's degree in medical biochemistry. He has conducted 6 researches in the field of cancer and genetics, all of which have been published.

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