Anticancer Effect and Essential Oil Composition of *Pistacia eurycarpa* Grown in Bingol

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ABSTRACT

In addition to being a food source, plants offers many medicinal benefits such as antioxidant, anti-inflammatory and anticancer activities. The genus Pistacia is an important member of the Anacardiaceae family consisting of small trees and trees. Essential oils of Pistacia species have antifungal, antibacterial, antioxidant and antiproliferative activity. *Pistacia eurycarpa* is grown in especially Southeastern Anatolia Region and also Eastern Anatolia Region of Turkey.

In present study, we investigated the chemical composition, antiproliferative and anticancer effects of the essential oil of *Pistacia eurycarpa*, which collected during July 2014, from Ilıcalar village around the province of Bingol in Turkey (1300 m). The plant material was identified with volume 2 of Flora of Turkey and East Aegean Islands. The essential oil of plant was obtained by hydrodistillation method and analyzed by HS-SPME/GC-MS. PC-3 human prostate cancer cell line was used for assays and cells were grown in DMEM (Dulbecco's Modified Eagle Medium) supplemented with 5 ml of penicillin-streptomycin and 10% fetal bovine serum and in a humidified incubator containing 5% CO₂. Cell viability was examined by MTT assay. Cell Death Detection Elisa assay was performed for detect the apoptotic effect of *Pistacia eurycarpa*.

Thirty six compounds representing 95.83% of the oil were identified, retention times and percentages are detected also. α- and β-Pinene, p-Cymene, bornyl acetate and verbenone identified as major compounds. Essential oil of *P.eurycarpa* decreased viability of PC-3 cells about 59%. Apoptotic rate was 4,7 fold higher than control group in treated cells with essential oil of *P.eurycarpa* (*p*<0,05).

In conclusion, when these findings supported by further *in vivo* studies, the apoptotic and antiproliferative effect of *P. eurycarpa* on cancer can be clarified more clearly.

**Keywords:** PC-3 cells, essential oil, anticancer activity, *Pistacia*, apoptosis.