

Ozonated Olive Oil with a High Peroxide Value for Topical Applications: In-Vitro Cytotoxicity Analysis with L929 Cells.

[Yasemin Günaydın](#), [Handan Sevim](#), [Deniz Tanyolaç](#), [Özer A. Gürpınar](#)

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ABSTRACT

Previous studies have shown that ozonated vegetable oils have been used topically for healing of cutaneous wounds. The aim of this study is to evaluate the dose dependent use of ozonated olive oil with high peroxide value (OZ) on the viability of cells for preventing side effects in topical applications. To the best of our knowledge, there are no reports investigating the effect of peroxide value of ozonated olive oil associated with its cytotoxic activity on mouse non-neoplastic fibroblast cell lines (L929). Therefore, the present study was carried out by using OZ alone and/or in combination with glycerol and olive oil. In our study OZ was prepared by using pure olive oil. Both olive oil and glycerol are non-toxic and can be mixed with OZ uniformly. The cytotoxic activity of samples against L929 fibroblasts was assessed using the tetrazolium salt 3-[4,5-dimethylthiazol-2-yl]-2,5 diphenyltetrazolium bromide (MTT) assay. The peroxide value of synthesized OZ was found to be in the range of 2700–2900 mEq O₂/kg oil. The OZ/olive oil group did not show any cell death at all concentrations tested ($p > 0.05$) however OZ/glycerol group showed statistically significant reductions in viability at higher concentrations ($p = 0.004–0.006$) compared to the control group. Conclusively, using OZ/olive oil with a peroxide value of 2700–2900 mEq O₂/kg oil for short-term incubation was non-cytotoxic to the L929 fibroblast cell line.

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