

ANTIMICROBIAL EFFECT OF SUNFLOWER AND OLIVE OZONIZED OILS

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Antimicrobial resistance is considered a public health problem, so the search for new molecules that can support the treatment of infections, has become a priority.¹ Ozonated olive and sunflower oils have been used in the treatment of diseases, especially dermal ones. They have been observed to have antimicrobial and wound-healing effects, in addition they have low-toxicity and cost.² Because these compounds are used as antiseptic agents, they must be evaluated using the microbial challenge technique. In this study, non-ozonated olive and sunflower oils and ozonated oils at a concentration of 44 mg/mL were analyzed. The microbial challenge technique was used at an exposure time of 30 minutes, using suspensions adjusted to 10⁸ CFU/mL of different strains: three reference strains and five clinical isolates with different resistance patterns. The percentage reductions obtained were greater in ozonated oils compared to non-ozonated oils, with a greater difference in sunflower oils. Olive oil has greater antimicrobial potency than sunflower oil. Ozonated olive oil achieves reduction percentages greater than 99.9% against all strains, regardless of the type of microorganism or its drug-resistance profile. These results demonstrate the antimicrobial potency of ozonated olive oil. Although it does not reach the specification of a reduction percentage of >99.999% for antiseptic agents, it can be used as a complementary treatment of antibiotics, contributing to the fight against antimicrobial resistance.

References

1. Morrison L, Zembower TR (2020). Antimicrobial resistance. *Gastrointest Endosc Clin N Am.* **30**(4):619–635.
2. Radzimińska-Kaźmierczak M, Śmigielski K, Sikora M, Nowak A, Plucińska A, Kunicka-Styczyńska A, Czarnecka-Chrebelska KH (2021). Olive Oil with Ozone-Modified Properties and Its Application. *Molecules.* **26**(11):3074.