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Topical applications of ozone and ozonated oils as anti-infective agents: an insight into the patent claims.

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Abstract

Orthodox medicine has been very active in the field of topical anti-infective agents and current chemotherapy has procured valid antibiotics, antivirals, vaccines, antibodies, and antiparasitic drugs to be parenterally and/or topically used. However, these drugs may cause side effects and sometimes provide unsatisfactory results because pathogens become drug-resistant. Another drawback is represented by their cost, which compromise their use or their availability in poor Countries. Therefore, there is a critical need for new strategies to treat dermatological affections. The old intuition for using ozone in the treatment of necrotic wounds, especially if due to anaerobic bacteria, is now justified by the studies about reactive oxygen species generation by granulocytes and macrophages as the first line of defense during an infection. As a consequence, the disinfectant value of ozone has been increasingly appreciated during the last fifteen years. This review summarizes the patents filed and issued, with particular emphasis to the more recent patents, about the anti-infective topical use of ozone: i) in the gaseous form; ii) after gaseous ozone saturation of aqueous, not-oily pharmaceutical vehicles and solvents; iii) where gaseous ozone chemically reacts with unsaturated substrates leading to therapeutically active ozonated derivatives. We hope that recent advances and a better understanding of the ozone chemistry and biology will be able to create the mental attitude to prove the validity of large-scale therapeutic use of both ozone and ozone derivatives as topical anti-infective agents by performing multicenter, randomized clinical studies, as aptly requested by orthodox medicine.

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