

INFLUENCE OF GAMMA RADIATION ON AMPHOTERICIN B TO POSSIBLE INCORPORATION INTO WOUND DRESSING

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Abstract

In recent decades, many investigations have been addressed to develop alternative non-conventional treatments for several human body burns and wounds as well as new drug delivery systems in the treatment of diseases such as cutaneous leishmaniasis, always aiming to improve the quality of life of patients. Amphotericin B (Amph-B) is an antifungal drug often used intravenously for serious leishmaniasis treatment, but is well known for its severe and potentially lethal side effects. Hydrogels wound-dressing containing (Amph-B) will be able to offer an alternative to some patients that cannot be treated by conventional treatment due to (Amph-B) side effects. Many of these hydrogels are produced by gamma radiation in a simultaneous sterilization and cross-linking process. The hydrogels are useful as a wound-dressings, because they hold the wound moisture, are good as a drug delivery system and low cost production. The aim of this work is show the effects of gamma radiation (60 Cobalt) into (Amph-B) at different irradiation dose (10 kGy, 15kGy and 20kGy) and different temperatures (25°C, 0°C and -70°C) to find the optimum conditions for future incorporation into hydrogels as an alternative treatment of cutaneous leishmaniasis. The study is very important to evaluate the molecule behavior when irradiated. The drug stability will be characterized by High Performance Liquid Chromatography (HPLC), UV-vis and Nuclear Magnetic Resonance (NMR).