

**BACTERIOTHERAPY IN ONCOLOGY: ADVANCES IN THE USE OF MICROORGANISMS TO OPTIMIZE THE ANTITUMOR IMMUNE RESPONSE****Mayra Fernanda Ocampo Valdivia, Sergio Andrés Cuiza Flores****ABSTRACT**

Cancer represents a significant global challenge due to its biological complexity, tumor heterogeneity, and the limitations of conventional therapies such as chemotherapy, radiotherapy, and certain immunotherapies, which often exhibit low specificity and considerable side effects. In this context, oncological bacteriotherapy has emerged as an innovative alternative within the field of immunotherapy, utilizing genetically modified bacteria to specifically target the tumor microenvironment. This review focused on analyzing the therapeutic potential of five bacterial species: *Clostridium novyi*-NT, *Salmonella enterica* serovar Typhimurium, *Listeria monocytogenes*, *Escherichia coli*, and *Bifidobacterium longum*, their mechanisms of action, efficacy, advantages, limitations, progress in preclinical and clinical studies, and their potential use in combination with other therapies. Additionally, an analysis of empirical data reported up to 2020 was conducted, identifying positive trends in success rates. Based on this, estimated projections for the 2025–2030 period was developed, outlining an optimistic yet realistic scenario that considers plausible clinical and statistical criteria to envision a future in which modified bacteria could become effective, customizable, and safe therapeutic tools. This study proposes and scientifically supports the value of bacteriotherapy as an emerging avenue for cancer treatment. By demonstrating tumor specificity, genetic engineering capabilities, and a low immunogenic profile, this work seeks to promote its development and clinical application.

**Keywords:** Bacteriotherapy, Immunotherapy, Cancer, Genetically Modified Bacteria, Oncological Treatment

DOI: 10.23881/idupbo.025.1-3i