

For many years, zinc oxide (ZnO) has been widely used in the chemical and pharmaceutical industries due to its unique properties. It exhibits a series of characteristics that make it suitable for various applications. This study focuses on the ecological synthesis of zinc oxide nanoparticles using aqueous extracts of noble laurel and thyme leaves. The optical and chemical properties of the nanoparticles were studied using various characterization techniques, including ultraviolet and infrared spectroscopy. After characterizing the products obtained in powder form, tests were conducted to evaluate their antibacterial activity. These tests were performed by assessing samples at different concentrations of ZnO NPs on bacterial strains such as *E. fecalis* and *S. aureus*, and a fungal strain, *C. albicans*, which is Gram-positive. Evaluation of antibacterial activity was based on observation and measurement of the inhibition zone around bacterial colonies. The results demonstrated significant bactericidal activity of ZnO nanoparticles, providing the possibility of incorporating them into the composition of medicinal and pharmaceutical products such as mouthwash.