

Antibacterial and Antifungal Properties of *Opuntia ficus-indica*

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Abstract

Phytotherapy, which offers natural remedies, is well-tolerated by the body and is currently experiencing significant growth in Western countries. This is largely due to concerns over the side effects associated with pharmaceutical drugs, prompting many to seek gentler, alternative forms of medicine. Our research focused on *Opuntia ficus-indica*, commonly known as the prickly pear, a plant widely used in phytotherapy. We aimed to investigate its potential antibacterial and antifungal properties. This species, a xerophyte from the cactus family, has been the subject of numerous studies worldwide, highlighting its various bioactive compounds with promising applications in several fields. In our study, we examined the antibacterial and antifungal activities of acetonetic crude extracts and essential oils extracted from the seeds of *Opuntia ficus-indica*. These tests were conducted against several pathogenic bacterial strains (including *Escherichia coli*, *Staphylococcus aureus*, *Bacillus cereus*, *Enterococcus faecalis*, and others) as well as pathogenic fungal strains (such as *Phytophthora infestans*, *Aspergillus parasiticus*, *Penicillium* sp., and two yeast species, *Candida albicans* and *Candida glabrata*), using the agar diffusion method. Our findings revealed that the acetonetic extract exhibited notable antibacterial effects against strains like *Bacillus cereus*, *Enterococcus faecalis*, and *Staphylococcus aureus*. The essential oil extracted from the seeds also demonstrated significant activity against *Micrococcus luteus* and *Pseudomonas aeruginosa*. Antifungal tests showed activity against most fungal strains, except for *Penicillium* sp. and *Phytophthora infestans*, likely due to the plant's high content of phytosterols, particularly beta-sitosterol, and secondary metabolites.

Key Words: *Opuntia ficus indica*, *Bacteria*, *fungy*

