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Poster Communication 2

Antifungal Activity of Rockrose (*Cistus ladanifer*) Decoction Extracts against Planktonic Cells and Biofilms of *Candida* spp.: An *in vitro* Study

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Abstract

Background: *Candida* infections remain a significant clinical concern due to their increasing tolerance and resistance to antifungal agents, as well as the limited efficacy of current treatments. Beyond planktonic growth, *Candida* spp. can form highly structured biofilms embedded in an extracellular matrix, which markedly increases their persistence and antifungal tolerance [1]. Species such as *Candida albicans*, *C. glabrata, C. tropicalis* and *C. parapsilosis* are frequently implicated in human disease, and novel bioactive compounds capable of targeting both planktonic cells and biofilms are urgently needed. *Cistus ladanifer*, a Mediterranean plant rich in phenolic and terpenoid compounds, has been reported to exhibit antimicrobial activity, making it a promising natural alternative. **Objective:** This study aimed to evaluate the antifungal potential of *C. ladanifer* decoction extracts against planktonic and biofilm-associated *Candida* spp [1-3]. **Methods:** Minimum Inhibitory Concentration (MIC) assays were performed according to EUCAST guidelines (50–1500 mg/L). Minimum Fungicidal Concentration (MFC) was determined by CFU quantification after serial dilutions and SDA plating. To assess biofilm susceptibility, Minimum Biofilm Eradication Concentration (MBEC) assays were conducted using 24h pre-formed biofilms in 96-well plates. Biofilms were exposed to fresh RPMI-1640 containing extract concentrations higher than those used for MIC and MFC. The plates were incubated for 24 h at 37 °C. Viability was quantified by CFU enumeration (Log_{10} CFU/cm²). Total biomass was assessed by Crystal Violet staining, with absorbance measured at 570 nm. **Results:** The decoction extracts exhibited antifungal activity against all *Candida* species tested, with MIC values matching MFC. Susceptibility varied among species, confirming species-dependent sensitivity to *C. ladanifer* extracts. MBEC and biomass analyses revealed reductions in viable biofilm cells and total biofilm mass following exposure to the extracts, indicating potential anti-biofilm effects. **Conclusion:** *Cistus ladanifer* decoction extracts demonstrate measurable antifungal activity, affecting both planktonic cells and biofilms in a species-dependent manner. These findings support the potential of plant-derived compounds as complementary strategies for controlling *Candida* infections.

Keywords: *Candida* spp.; antimicrobial resistance; *Cistus ladanifer*

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