

Exploration of Yeast as a Probiotic Therapy Against Vaginal Infections: Antibacterial and Anti Biofilm Activity

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Abstract:

Antimicrobial resistance, often linked to biofilm formation, represents a significant virulence factor in pathogenic bacteria. However, an alarming trend is the accelerated development of resistance to conventional antibiotics, severely compromising the efficacy of existing antimicrobial therapies. This emerging challenge necessitates the exploration of alternative therapeutic strategies for managing persistent infections.

This study aimed to assess the potential of yeast as a probiotic therapy by evaluating its antibacterial and anti-biofilm activity against vaginal pathogens. Three yeast strains were tested: two strains of *Saccharomyces cerevisiae* and one strain of *Kluyveromyces marxianus*. These yeast strains isolated from local fruit have already been characterised for their probiotic potential and identified at molecular level. These were evaluated against 15 strains of vaginal pathogens.

The pathogenic strains were characterized through various microbiological and biochemical methods, confirming their affiliation to five genera: *Staphylococcus*, *Streptococcus*, *Enterococcus*, *Corynebacterium*, and *Escherichia coli*. Both antibacterial and anti-biofilm activities of the yeast strains were assessed. Although none of the yeast strains exhibited direct inhibition of pathogenic bacterial growth, the *S. cerevisiae* strains demonstrated significant anti-biofilm activity, while all tested yeast strains showed auto-aggregation properties.

These findings highlight the potential role of yeast, particularly *S. cerevisiae*, as an anti-biofilm agent, offering a promising alternative approach in the treatment of biofilm-associated vaginal infections.