

Abstract

Cell-Free Supernatants of *Lactobacillus gasseri* and *Lactobacillus crispatus* Exhibit Antimicrobial Activity Against Resistant Pathogens [†]

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Introduction: *Lactobacillus gasseri* and *Lactobacillus crispatus* are lactic acid bacteria from the vaginal and intestinal microbiota that produce bioactive metabolites with antimicrobial potential. The increasing prevalence of resistant pathogens, such as *Klebsiella pneumoniae* and *Enterococcus faecalis*, reinforces the importance of exploring probiotic-derived compounds as alternative antimicrobial strategies. This study evaluated the activity of cell-free supernatants (CFSs) from *L. gasseri* and *L. crispatus* by determining the Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC). **Methodology:** CFSs were obtained from bacterial cultures by centrifugation and sterile filtration. MIC and MBC were determined using broth microdilution assays at different concentrations (mg/mL). MIC was defined as the lowest concentration with no visible growth, while MBC was confirmed by subculture on agar plates. **Results:** The CFS of *L. gasseri* showed an MIC of 125 mg/mL and an MBC of 250 mg/mL against *K. pneumoniae* and *E. faecalis*. The CFS of *L. crispatus* presented an MIC of 500 mg/mL and an MBC of 500 mg/mL against both pathogens. Metabolites produced by *L. gasseri* demonstrated stronger antimicrobial activity compared to *L. crispatus*, with lower inhibitory and bactericidal concentrations. **Conclusions:** These results indicate that probiotic-derived compounds hold potential for the development of antimicrobial biomaterials and therapeutic applications. Further studies are required to confirm their stability, safety, and clinical applicability.



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