

## Understanding the Mechanisms of Salmonella Typhimurium Resistance to Cannabidiol (CDB)

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**Abstract :** The recalcitrance of pathogenic bacteria indicates that millions of people who are at risk of infection arising from chronic diseases, surgery, organ transplant, diabetes, and several other debilitating diseases present an aura of potentially untreatable illness due to resistance development. Antimicrobial resistance has successfully become a global health menace, and resistances are often acquired by bacteria through health-care-related incidence (HRI) orchestrated by multi-drug resistant (MDR) and extended drug-resistant pathogens (EDRP). To understand the mechanisms *S. Typhimurium* uses to resist CDB, we study the abundance of LPS modification, Ergosterols, Mysristic palmitic resistance, Oleic acid resistance of susceptible and resistant *S. Typhimurium*. Using qPCR, we also analyzed the expression of selected genes known for enabling resistance in *S. Typhimurium*. We found high abundance of LPS, Ergosterols, Mysristic palmitic resistance, Oleic acid resistance of and high expression of resistant genes in *S. Typhimurium* compared to the susceptible strain. LPS modification, Ergosterols, Mysristic palmitic resistance, Oleic acid and genes such as Fims, integrons, blaTEM are important indicators of resistance development of *S. typhimurium*.

**Keywords :** antimicrobials, resistance, Cannabidiol, Salmonella, blaTEM, fimA, Lipopolysaccharide, Ergosterols

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