

A Critical Review on Antibacterial Profile of Statins

Abhishek Joshi, Shreyash Khade, Sakshi Sinare, Vaibhav Lasure, Parth Gund,
Aditi Fufane, Priyanka Rahane

Dr. Kolpe Institute of Pharmacy, Kolpewadi, Kopergaon, Maharashtra, India

Abstract: Statins are widely known for their lipid-lowering properties and cardiovascular benefits, have recently garnered attention for their potential antimicrobial effects. Emerging evidence suggests that certain statins, particularly simvastatin, atorvastatin, and lovastatin, exhibit antibacterial activity against a range of Gram-positive and Gram-negative bacteria. The proposed mechanisms include disruption of bacterial cell membranes, inhibition of isoprenoid biosynthesis, and modulation of host immune responses. Several in vitro and in vivo studies have demonstrated enhanced bacterial clearance and synergistic effects when statins are combined with conventional antibiotics. These findings open new avenues for repurposing statins as adjunct therapies in the treatment of bacterial infections, especially in an era of rising antibiotic resistance. However, further clinical investigations are required to fully elucidate their efficacy, optimal dosing, and safety in antimicrobial applications

Keywords: Minimum inhibitory concentration, Statins, Antimicrobial resistance, Antibacterial mechanism, Drug repurposing

