

Antimicrobial Activity of Plant Compound in Combination with Inhibitory Substances

Neetigyata Pratap, Abhay Tiwari, Garima Sharma,
Shewta Dang, Reema Gabrani*

Department of Biotechnology, Jaypee Institute of Information and Technology, A-10 Sector 62, Noida, India

Abstract Two major problems associated with microbial infections are biofilm formation and increase in development of resistance due to relentless use of antibiotics. Researchers are exploring the alternate therapies where the main focus is on natural mode of treatment. Phytochemicals like curcumin and cinnamaldehyde have been shown to possess antimicrobial activity but certain limitations include the high dosage requirement. One possibility of lowering the dosage is to use the phytochemicals in combination with other natural substances. Antimicrobial substance from lactic acid bacteria are potential alternatives as a source of antimicrobial agents. Lactic acid bacterium (LAB) has generally recognized as safe (GRAS) status and is mainly used as probiotic. The crude extract of lactic acid bacteria has also been reported for their antibacterial action. The current study was undertaken to study the antimicrobial effect of curcumin and cinnamaldehyde in combination with crude extract of lactic acid bacteria isolated from various natural sources. The Antibacterial action of best combination against *Staphylococcus epidermidis* was also determined. The results showed potential inhibition of indicator organism in combination as compare to alone. The modes of action of combinations were determined by ML-35 membrane permeabilization assay.