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Appraisal of 2-Furoic Acid as a potent biofilm inhibitor against Staphylococcal species and corroborating its application via *in vitro* catheter model

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Abstract

Biofilms on catheter related blood stream infections (CRBSIs) increases the risk of allowing microbes to escape host defences and antimicrobial therapy. Antimicrobial catheter-lock solutions may eradicate biofilms formed by *S.aureus* and *S.epidermidis* as they are frequently isolated from CRBSIs. We evaluated 2-furoic acid (2-FA) individually and in combination with antibiotic, Vancomycin against biofilms of *S.aureus* and *S.epidermidis* to identify effective catheter-lock solutions. Minimum biofilm-inhibition concentration causing 50% ($MBIC_{50}$) and 90% ($MBIC_{90}$) inhibition were determined as 100µg/ml and 1000µg/ml respectively, against biofilms of *S.aureus* and *S.epidermidis* on 96-well microtitre plates. Its efficacy as a potent anti biofilm agent was checked and was applied in *in vitro* catheter studies. Furthermore, adherence and toxicity quotient of 2-FA confirmed its anti-biofilm potential in HEp-2 cells.

Biography

Dr. S. Adline Princy is an Associate Professor at School of Chemical & Biotechnology at SASTRA University, Thanjavur, Tamil Nadu. Combating against infections of bacterial origin, has been her cardinal research interest. She has published her research findings in reputed International journals. She has also been a convener in International Conference on Regulatory Network & Architecture in Bacteria. "Quorum Sensing Targeted Drug Development" is the central theme on which her research group is working upon.