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Formulation, optimization and *in vitro* evaluation of phytonanosomes of seaweed extract as a potential antibacterial agent against human pathogenic bacteria

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Resistance to antibiotics is a major health problem worldwide. Various researchers around the world are trying to solve it through the discovery of new antibiotics and structurally modifying the existing antibiotics. However, complete eradication of antimicrobial resistance still remains a challenge. Bacteria may use different biochemical pathways to escape the lethal action of antibiotics viz., by changing the permeability of the outer membrane, diminishing its transport across the inner membrane or enzymatic modification. In general, resistance to multiple antibiotics in Gram-negative bacteria often starts with limited permeability of the outer membrane to many agents and antibiotics, along with more than the expression of antibiotic resistance. Seaweeds are promising potential resources of bioactive secondary metabolites in the development of many drugs. Phytochemical screening of seaweeds showed a variety of compounds such as alkaloids, flavonoids, steroids, terpenoids etc. Many earlier reports have shown the importance of seaweeds in developing antibacterial agents. Though world is progressing towards nanotechnology, its therapeutic implementation is still under study level. Seaweed extract in the form of phytonanosomes is found to be better therapeutic agent to cure bacterial infections. Thus it is a novel approach to develop a better antibacterial agent against various human pathogenic bacteria.

Biography

S M Sivakumar is presently working as an Assistant Professor at Division of Immunology and Pharmaceutical Biotechnology, Department of Pharmaceutics, College of Pharmacy, Jazan University, Jazan, Kingdom of Saudi Arabia. He is basically a Pharmaceutical Biotechnologist specialized in the area of vaccine delivery system. He has received awards and published many research/review articles to his credit. His recent research of interest is focused on nanoparticle, vesicular, nanosomes drug delivery system targeting hepatoma, gene and antibiotic delivery system and second major interest involves screening of antimicrobials, anticancer and antioxidants principles from seaweeds.

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