

Faculty of Engineering

Summer Research Program 2024-2025

Project Title: Isolation and Characterization of Environmental Bacteriophages

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Objective

The project aims to isolate bacteriophages from environmental samples, purify them, and conduct in vitro tests to evaluate their antibacterial properties, particularly against antibiotic-resistant bacteria. Students will gain hands-on experience in cutting-edge microbiological research and contribute to groundbreaking discoveries in biotechnology.

Project Details

Bacteriophages specifically infect bacteria and have gained renewed interest as potential alternatives to antibiotics due to the rising issue of antibiotic resistance. Understanding phage diversity and their interaction with bacteria can lead to innovative treatments for bacterial infections, providing a crucial tool in the fight against resistant strains. This project will mainly be conducted in PC2 lab in New Horizons. During this process, students will collect samples from environments like water bodies, sewage, and animal faeces. Bacteriophages will be enriched by incubating samples with a bacterial host, followed by a plaque assay to identify phages. Single plaques will be isolated and purified through repeated assays. Phage concentration will be determined by counting plaques. In vitro tests will determine the host range and efficacy of phages against bacterial strains using time-kill and growth inhibition assays.

Prerequisites

To be considered you must have completed at least 96 credit points of an undergraduate degree (usually 2 years), have a weighted average mark of 80% or higher, and be available for the full length of the program.