

Assessment of a Novel Source-tracking Protocol for Evaluating the Significance of Municipal Wastewater Sources on the Microbial Contaminant Levels of Discharged Wastewaters

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Purpose of Study

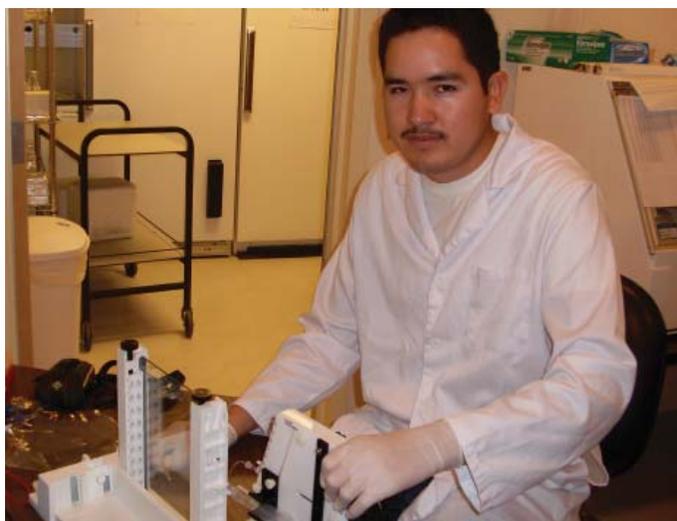
A significant reason for treating wastewaters is to remove potential pathogens. Pathogens carrying virulent and antibiotic resistant genetic factors are those of most concern. Research indicates that treatment is never perfect and that a percentage of these microorganisms do survive treatment. The purpose of this study is to use an integrated source-tracking process to identify the preferential treatment efficiency for wastewater from different source types and identify the sources that contribute the most to the microbial load in wastewater discharge.

Study Underway

Samples will be collected four times over a 48-hour period at six locations along the Las Cruces wastewater treatment sequence, including the effluent. The total antibiotic resistance will be evaluated with four different antibiotics at varying concentrations. In addition, methods such as PCR and DGGE will allow us to determine the antibiotic resistant microbial diversity in wastewater treatment.

Benefits

Various techniques will be used to identify potential sources of antimicrobial resistant populations. It is expected that a pre-treatment source-tracking protocol will be developed that can be used to identify the role of specific pre-treatment waste sources to the overall contamination of surface waters. The results will also allow the identification of wastewater treatment efficiency at each treatment stage.



Jesus was raised in a small farming community of Arrey, New Mexico, near Hatch. Along with his siblings, he is a first generation college student. Jesus is pursuing a bachelor's degree in environmental science with an emphasis in water and plans to graduate in the summer of 2009. He will continue graduate studies at NMSU in agronomy with a research project in environmental/soil microbiology.

