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Effects of Water Quality on Survival Kinetics of a Model Virus and Bacteria

The use of *E. coli* as an indicator for viral contamination is questionable because of differences in structure and metabolism, life-cycle etc., which mean their behavior in water source or treatment processes could be different. Therefore, there is a need for developing understanding on viral behavior to enhance microbial safety of water resources. In this study, a conventional indicator, *E. coli* and bacteriophage MS2 as a selected surrogate of enteric viruses will be used to investigate their persistence in different water qualities such as pH, temperature and salinity after designated retention times. The number of *E. coli* and MS2 will be measured at time zero and time t by colony-forming unit assay reporting as CFU/mL and plaque assay with double layer technique reporting as PFU/mL, respectively. Chick-Watson model will be applied to investigate their survival kinetics at same conditions and analysis of covariance (ANCOVA) will be used to indicate a significant difference at a p value of equal or lower than 0.05. The results obtained from this study may provide impacts on setting of water quality standard and further studies.