

Evaluation of the pathogenicity of ***Pseudomonas aeruginosa*** isolates to strains of mice under stressful conditions. **Ashlei Kelly**, Tesfaye Belay. Dept of Applied Sciences and Mathematics. Bluefield State University. Bluefield, WV 24701

Abstract

Pseudomonas aeruginosa (*Pa*) is an opportunistic pathogen that threatens health, especially in immunocompromised individuals. *Pseudomonas aeruginosa* survives everywhere, including in a shuttle of spaceflights. Survival and starvation of *Pa* in water probably increase or decrease the degree of pathogenicity or virulence, but it is not well discovered. To promote our understanding of the mechanisms of *Pa* long-term survival in water, investigations on survival kinetics and its pathogenicity to mice are under investigation in our laboratory. Data has shown that under starvation conditions in water, *Pa* can lead to (i) survival for over 15 years in water; (ii) distinct changes in colony morphology, including loss of pigmentation. This study also aimed to determine the pathogenicity of clinical and environmental isolates of *Pa* in water under starved conditions. We hypothesized that the starvation of *Pa* isolates in water results in different survival curves, morphological, that may enhance pathogenicity in mice. Mice infected with starved isolates showed a lesser death rate than non-starved isolates. This project compared the susceptibility of BALB/c, C57BL/6J, and DBA/2 J in lung infection. Our data shows the vulnerability of DBA/2J was high compared to BALB/c or C57BL/6J. Hindlimb-unloading increased the death rate in DBA/2J compared to BALB/c strains. Lung infection of different *Pa* isolates shows a differential death rate, with the highest death rate caused by non-starved isolates in mice. Overall, long-term starvation of *Pa* isolates exits may lead to a reduced mortality rate of mice. (Supported by McNair Scholarship of Concord University, Initiation Grant of NASA WV Space Consortium, and BSU)