



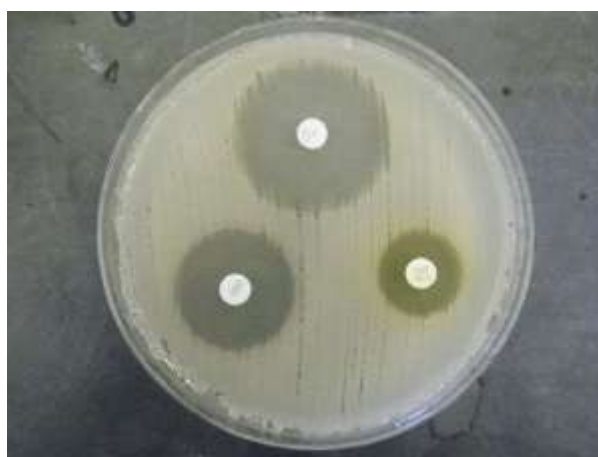
Biology @ Acadia

STUDYING THE POTENTIAL OF FOSFOMYCIN AS AN ANTIBIOTIC TREATMENT FOR URINARY TRACT INFECTIONS

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Urinary tract infections (UTIs) are one of the most common bacterial infections experienced by humans. Trimethoprim-sulfamethoxazole (TMP-SXT), nitrofurantoin, and ciprofloxacin are common antibiotic drugs used to treat UTIs. Uropathogens are beginning to show more resistance to these treatments, increasing the importance of studying other antibiotic options. The purpose of Alana's study was to investigate resistance rates of gram-negative bacteria to a broad-spectrum



bactericidal agent called fosfomycin. Samples (1048) were collected in Halifax, Nova Scotia. A pharmacodynamic model was used to assess the relationship between fosfomycin concentration and growth tendencies of five strains of gram negative, UTI-causing bacteria. The fosfomycin resistance rate among isolates was determined to be 1.24%. This is lower than resistance rates for TMP-SXT, ciprofloxacin and nitrofurantoin which were 14.41%, 6.97% and 4.39%, respectively. The pharmacodynamic model showed a correlation between fosfomycin concentration and amount of bacterial kill. The results from both the pharmacodynamic modeling and the susceptibility screening demonstrate significant potential for fosfomycin as a UTI treatment.

Alana MacDonald graduated from Horton High School in Greenwich, Nova Scotia in 2006. She recently completed her honours thesis in her fourth year of biology at Acadia University. While at Acadia, Alana has received the Acadia Excellence Scholarship and a stipend from the Atlantic Canada Society for Microbial Ecology to fund her research. She played varsity volleyball, did an exchange semester in Edinburgh, Scotland and completed the co-operative education program in Biology giving her work experience as she learned. Alana is now heading for Australia for a few months and then to Peterborough, Ontario where she has been offered a research and development role with Quaker Canada. Over the past four years at Acadia, she has volunteered with the Acadia Waves Volleyball program and the Acadia Varsity women's volleyball team. Alana would like to thank all of her professors and mentors in the Biology department at Acadia for all of their support over the past four years. Her time at Acadia has been a phenomenal one, full of opportunities, friendships, learning, working, playing, growing and always striving for success.

