UT-WHY? Effects of Household Beverages on UTI Causing Bacteria

Swanson, Audrey (School: Perham High School)
Edvall, Sierra (School: Perham High School)

The purpose of this study was to research if green tea, pure cranberry juice, and pure lemon juice affect the growth of UTI causing bacteria, and if those juices affect UTI causing bacteria when administered in different concentrations. We hypothesized that green tea would inhibit the growth of E. coli, P. alcalifaciens, and S. epidermidis, and as the concentration of green tea increases the number of all three bacteria decreases. Our third and fourth hypotheses stated that pure cranberry juice would inhibit the growth of E. coli, but it will not affect the growth of P. alcalifaciens, and S. epidermidis, and as the concentration of pure cranberry juice increases the number of E.coli decreases. Our fifth hypothesis stated that lemon juice would inhibit the growth of all three bacteria, but it would have less of an effect than green tea. Lastly, we hypothesized that as the concentration of lemon juice increases, so will the number of all three bacteria. To conduct our experiment, we grew each type of bacteria with a 15% and 30% solution of each juice, as well as a control group without any sort of juice. We then counted bacteria colonies per randomly selected square centimeters of each dish and multiplied that to find the amount of bacteria colonies per dish. We accepted our first hypothesis, partially accepted our second hypothesis, and rejected our third, fourth, fifth, and sixth hypotheses.

Awards Won:
Arizona State University: Arizona State University Intel ISEF Scholarship