The Effect of Different Concentrations of Tannic Acid (St. Louis River Water) and Motor Oil on Non-Resistant Staphylococcus aureus and Lemna minor Growth and Biofilm Development

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Question: What effect does different concentrations of tannic acid (St. Louis River water) and motor oil have on non-resistant Staphylococcus aureus and Lemna minor growth and biofilm development? Hypothesis: If different concentrations of tannic acid and motor oil are incubated with non-resistant S. aureus, then growth and biofilm development will possibly be affected in the following ways: H1: Tannic acid may reduce biofilm development of S. aureus by reducing the bacteria's ability to adhere to itself and a surface H2: Motor oil will enhance S. aureus biofilm development, yet its formation would be reduced in the presence of tannic acid and L. minor. One-hundred and twenty-five microliters (uL) of different concentrations (unfiltered and filtered) St. Louis river water (50, 25, 10, 5, 1, 0.5, 0.1 and 0%) were pipetted into a 96 well plate, ten microliters of S. aureus broth was added to three of six trials. Repeated for filtered and unfiltered St. Louis water (total of eight concentrations). This was done for three total plates. One plate with different concentrations of motor oil (50, 25, 10, 5, 1, 0.5, 0.1 and 0% motor oil). Concentrations made in 2mL vortex tubes. The third set had the same setup as the previous plate, now also including Lemna minor. H1 was not supported, different concentrations of tannic acid had no effect on biofilm development. H2 was partially supported, motor oil did enhance S. aureus biofilm formation, and was enhanced further in the presence of L. minor.

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