Low cost, at-home incubation systems to culture Escherichia coli bacteria for water quality testing in North Carolina

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E. coli testing in Water Quality Monitoring

E. coli is a significant drinking and recreational water contaminant that indicates the likely presence of other harmful microbes that can result in water-borne illness with contact.

Current methods of E. coli testing

E. coli testing typically requires lab incubation that can be costly and time consuming. However alternate methods of E. coli culturing is being explored.

- The Compartment Bag Test allows for successful E. coli culturing in ambient air temperatures above 25°C (77°F).
- Incubation system using a cooler and heated water bottles used to hold heated water.
- Plastic bags were used to contain the samples inside of the incubation system to mimic Compartment Bag Testing.

Design Development

- The incubation system designed for this experiment was based on an existing models created for incubation in ambient temperatures over 25°C (77°F), and modified to maintain successful incubation with lower ambient temperatures.
- The interior temperature will be monitored and adjusted to ensure the temperature remains within the desired range for E. coli culturing.
- Incubation system using a cooler and heated water bottles was successful with ambient air above 25°C (77°F).

References