Effects of Vaping Liquid on Worm Behavior
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C. elegans
Preparation

Caenorhabditis elegans is a microscopic worm used as a model organism used to study the effects of vaping on behavior.

Vaping liquid stock created by diluting 20% with LB broth and autoclaved

Wild-type worms were raised in 1%, 5%, and 10% vaping liquid stock mixed with OP50 E. coli bacteria as their food source.

References


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Avoidance Assay

1. Worms were washed with 1 mL of M9 and distributed onto fresh NGM plates
2. Added one drop of diH2O or 2M glycerol to the tail-end of a forward-moving worm and recorded behaviors.

Chemotaxis Assay

1. Worms were washed with 1 mL of chemotaxis buffer
2. Worms were placed at the center of the chemotaxis plate containing diH2O and diacetyl on opposite ends of the plate.
3. Allow worms to move on the plate for one hour.

Egg-Laying

1. Worms were bleached to isolate embryos and synchronize ages of the worms.
2. One L3 was placed on the Petri dish with OP50 and the vaping liquid dilutions.
3. Number of eggs laid were counted each day for 5 days.

Conclusion 1: Changes to worm attraction and avoidance behavior is concentration-dependent with worms showing reduced sensitivity to known attractants and repellents.

Conclusion 2: Worms lay fewer eggs when exposed to vaping liquid.

Lesson Plan

Students will conduct similar experiments on C. elegans behavior to create a PSA on energy drinks and caffeine addiction.

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