Utilizing C. elegans to Study Effects of Natural and Pharmaceutical Anti-Obesity Medications

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The purpose is to understand mechanisms associated with obesity and utilize natural or pharmaceutical anti-obesity medications on growth of nematodes. The hypothesis is anti-obesity medication, phentermine, would have the most significant effect on nematode population growth. The null hypothesis is there will be no significant difference between groups, (blank, control, phentermine, bupropion, green tea, mormon tea), tested. Five experiments were conducted examining population growth. Experiment one included twelve cultures, six each, non-genetically modified (WN2002) and genetically modified (RB1716) nematodes. Nematodes in experiment one were grown in (1:5) concentration. Experiment two-to-five, wildtype strain only and six cultures each, to pinpoint effects in model organism. Experiment two-to-five were grown in (1:10) concentration. Statistical analysis of variance (ANOVA) was conducted with [F (5, 30); $p < 0.05$] degrees of freedom and [F-critical= 2.533554548], [F (6, 42); $p < 0.05$] and [F-critical= 2.43769264]. Results show: experiment 1 (WN2002) (F= 0.370632041), experiment 1 (RB1716) (F= 0.849562682), experiment two (F= 1.269096549), experiment three (F= 1.892592593), experiment four (F= 6.080597015), and experiment five (F= 4.00258879). T-tests were conducted to validate (ANOVA). Nematodes grown in (1:5) concentration show small population sizes and no observable significant effects. Nematodes grown in (1:10) concentration show small population sizes and no holistic significant effects, but show effects comparing phentermine and green tea to blank (E3). Nematodes grown in (1:12) concentration show larger population sizes and holistic effects.

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