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Waste oil is a toxic substance which contains heavy metal ions such as Cu^{2+} , Cd^{2+} , Pb^{2+} , and Zn^{2+} . It primarily consists of aliphatic hydrocarbons, di-aromatic hydrocarbons, and poly-aromatic hydrocarbons. Each year, large quantities leak onto roadways and drain into nearby bodies of water, where it may harm native green algae. This experiment evaluated the effects four concentrations of used motor oil have on the growth of three species of unicellular algae -- *Pandorina*, *Chlorella*, and *Chlamydomonas* -- when grown in lab culture. The experimental design consisted of three species of algae, four concentrations of oil, and six replicates ($3 \times 4 \times 6 = 72$ culture tubes). Identical test tubes containing algal medium were inoculated with algae, provided with paper disks with distinct amounts of oil, and cultured for 11 days. Algal growth was measured by recording absorbance of the culture tube when transferred into a spectrophotometer. Since statistical analysis cannot be performed on absorbance data in a decimal or proportion form, a standard curve was made by removing samples from culture tubes of known absorbance to determine the algae colony count per milliliter with a hemocytometer under 100x magnification. T-tests revealed higher concentrations of oil significantly reduced *Pandorina* growth when compared with the control. On the other hand, *Chlorella* and *Chlamydomonas* growth was relatively unaffected by oil. A literature review showed that *Chlorella* and *Chlamydomonas* to be relatively tolerant of hydrocarbon pollution. Perhaps specific toxins in used motor oil poison certain metabolic pathways that allow for unusual motility in *Pandorina* colonies.