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Within the field of forensic toxicology, it is important to understand the effects of chemicals on cells. A proficient method for testing the potential harmful effects is through MTT (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide) proliferation assays. The assay is typically used to determine the concentration of eukaryotic cells that are inactivated or killed when exposed to a chemical. This research is designed to create a successful and time restricted MTT proliferation assay method for educational purposes using bacterial cells. Several gram positive and gram negative bacteria were tested for their usefulness in the MTT assay by first diluting growing broth cultures to $OD_{550}=0.3$. Bacteria were exposed to 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide, or Yellow MTT, which then produces formazan in the form of purple crystals. Formazan is then dissolved using an SDS (sodium dodecyl sulfate) solution. By utilizing a UV-vis spectrophotometer, the A_{570} correlates with the number of living cells that are actively metabolizing. Background noise was eliminated by subtracting the absorbance of negative control samples containing only broth and MTT. Of the organisms tested to date, the gram positive *Enterococcus faecalis* and the gram negative *Moraxella catarrhalis* have shown the best results. The next step in the research is to select several chemicals to treat the cells to determine their toxicity. This research shows that bacteria can be successfully used in the MTT proliferation assay for the purposes of providing a relevant, time efficient, and cost effective lab experience in a forensic toxicology class.