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THE EFFECT OF NANOMATERIALS ON *E. COLI* GROWTH

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Nanomaterials are becoming increasingly common in the environment as they are engineered for technical purposes. Because nanotechnology is a relatively new technology, studies of nanomaterial toxicity effects are ongoing. For this study, *Escherichia coli* (*E. coli*) was used to determine the toxicity of coated zinc oxide, uncoated zinc oxide, iron oxide, and copper nanomaterials. Control conditions included no nanomaterials and zinc macromaterial. ATP fluorescence was used to monitor the growth curve of *E. coli* with and without nanomaterials, and culture methods were used to examine *E. coli* growth with varying concentrations of nanomaterials. The results so far show that as the concentration of nanomaterials increased, *E. coli* growth or ATP levels decreased and then increased again. These results were compared to *E. coli* growth without nanomaterials and *E. coli* growth with zinc macromaterial. Some nanomaterials may have had a greater impact on *E. coli* growth than other nanomaterials. These ATP fluorescence tests and culture methods will lead to future chemotaxis studies on the effects of nanomaterials as an attractant, repellent, or inert ingredient on *E. coli* movement.