Assessing Microplastics and Genotoxicity of Rivers in the Great Lakes Bay Area Using S9 Enzymes to Simulate Human Environment

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Swimming in natural water sources such as lakes, rivers, and beaches can expose individuals to harmful organisms and toxins, leading to sickness. The contamination of these water sources can come from sewage, wastewater, industrial runoff, and pollution. A two-year study was conducted to determine the safety of rivers leading to the Great Lakes. In this year's study, microplastics and genotoxicity specifically towards humans were analyzed, along with physical and chemical parameters such as lead and nitrate levels. The results showed that all rivers contained different concentrations of microplastics, and 18% of physical and chemical properties exceeded acceptable levels. The Saginaw River was found to be strongly genotoxic, with its genotoxicity increasing even more after being metabolized by human enzymes. The Pine River was slightly genotoxic before being metabolized and did not change after metabolization, while the Flint River was not genotoxic before being metabolized, but became the most genotoxic river after metabolization. The presence of harmful substances such as microplastics and genotoxicity in these rivers raises important questions and concerns about the contamination of natural water sources and its impact on public health. Swimmers are at risk of contracting diseases ranging from rashes to life-threatening neurological conditions. It is crucial to continue monitoring the safety of natural water sources to protect public health.

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