Ferrofluid Extraction of Microplastics

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Overwhelming research shows microplastics are found in the environment, as well as in the majority of American fish, water, and even meats. While its long-term effects on humans and environments are not clearly known, it is imperative to test water sources, as water is critical to life. The hypothesis was if the ferrofluid extraction method was used to test local waters, microplastics will be extracted. A control sample was established by combining homemade microplastics and water. Local waters from the San Pedro River, Parker Canyon Lake, and Patagonia Lake were tested to extract microplastics with ferrofluid and magnets, and the solution was examined under the microscope. In the control sample where microplastics were added, microplastics were detected in the ferrofluid. However, microplastics were not detected in the local water samples tested. The hypothesis was confirmed. The known microplastics were extracted with the ferrofluid from the control sample, and identifiable traits of the microplastics were not detected in the lake and river test samples. The results showed microplastics are able to be extracted using the ferrofluid extraction method. In addition to preventing plastic from being disposed of into oceans, this method should be considered to be used to clean ocean waters since approximately 12.7 million metric tons (MT) of plastic are being dumped into the oceans per year. Microplastics are known as a foreign substance to the human body and environment, thus there is a critical need to test if they are reaching local waters.

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