

Airborne Microplastics: Occurrence and Detection Methods of Microplastics

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Abstract

A diverse range of studies have investigated microplastics in ambient air. However, where and how the air was collected differed between studies, as did the methods of separation and analysis. It is particularly difficult to compare the results as the quantity, size, shape, and type of the microplastics detected were widely diverse, depending on the detection method. The present study investigated various characteristics of microplastics, including their type, size, and shape, by collecting air samples from an outdoor environment. Among the instrumentation methods for spectroscopic analysis, μ -Raman is available for the identification and size determination of substances through a microscope and the identification of individual particles simultaneously. In this study, we investigated the existence of microplastics in suspended air and compared the abundance characteristics of indoor and outdoor microplastics to get some important information for the effective management of microplastics generated from major sources in that area. μ -FT-IR is the most widely used instrumental analysis method for quantification of microplastics. It is suitable for measuring the size of a smaller area (around 5 μm). Therefore, in this study, microplastics in the atmosphere down to a minimum of 1.7 μm were measured using μ -Raman, which can analyze PM2.5 level particles.



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