Editorial
Volume 12:3, 2022

Journal of Environmental & Analytical Toxicology

ISSN: 2161-0525 Open Access

Sources, Distribution, Contaminant Interactions, Analytical Methods and Wastewater Removal Strategies for Micro Plastic Pollution

Gasana Janvier*

Department of Environmental and Occupational Health, Florida International University, Miami, USA

Editorial

Plastics are one of the most widely utilised materials on the planet. Humans have learnt how to make several forms of plastics that are stronger, lighter, and more flexible than earlier materials throughout the last century. Synthetic polymers can be made from either natural components like cellulose or petroleum and other fossil fuels. To gain a better understanding of this emerging problem, it is necessary to identify the sources of plastics, the amount that has been spread, and the methods for treating all environmental compartments, preventing future dispersion, and comprehending the various effects that they may have on living organisms and human health.

Plastics' longevity is a worry since, on the one hand, their durability allows for longer usage and makes them a viable material option, but on the other hand, it has been demonstrated that the resistance to degradation of plastic trash is troublesome. Currently, nations have policies in place to reduce the impact of plastics; yet, the environment has suffered as a result of the accumulation of plastic trash [1]. Plastics are believed to be the principal component of 95 percent of marine garbage. In recent years, there has been an increase in environmental concern regarding "microplastics": tiny plastic particles less than five millimetres from two main sources, primary and secondary.

"Primary microplastics" are plastic bits smaller than 5 mm in size, which corresponds to the size for which they are created in a specific industrial or household application. There are numerous products used in daily care that contribute to the increase in the waste of microplastic particles in the environment, including facial cleansers, toothpaste, resin pellets, and cosmetics (e.g., shower gels, scrubs, peelings, eye shadow, deodorants, blush powders, makeup foundation, mascara, shaving cream, baby products, bubble bath lotions, hair colouring, nail polish, insect repellents, and sunscreens) [2].

One of these goods' features is "open usage," after which they are washed away and end up in drains. Their usage in medicine as pharmaceutical vectors is becoming more common. Microplastics are also utilised in air blasting technology to remove rust and paint by blasting acrylic, melamine, or polyester microplastic scrubbers at equipment, engines, and boat hulls. The decomposition of bigger plastic particle trash produces "secondary microplastics". The physical, biological, and chemical degradation processes of plastic can weaken and modify its structural integrity, resulting in fragmentation [3].

Several studies have found that the unintentional discharge of plastics has also had an impact on terrestrial systems. It is believed that soil contains 4 to 23 times more microplastics than seas, posing a considerable environmental concern. In terrestrial compartments, there are three significant sources of microplastics: inputs from agricultural activities, runoff, and the decomposition of big plastics after incorrect disposal. A few agricultural practises, such as the use of sewage sludge as a fertiliser, might contribute to the disposal of microplastics in the soil. According to several studies, the bulk of microplastics are contained in the solid phase of sludge [4].

There are several sources of microplastics in sludges, including microbeads used in cosmetics and industry, fibres released from washing synthetic garments, tyre debris, and fragmented plastics from urban runoff. Furthermore, several agricultural procedures intended to boost crop yields and minimise pests may add to the prevalence of microplastics. Plastic mulching is widely used, and plastic films are frequently left behind after use, resulting in an accumulation of plastics in soils, which will undergo transformations such as fragmentation and degradation, resulting in the formation of different sizes of plastics ranging from micro- to nanoplastics

Characterizing and quantifying nano- and microplastics with an average size of 500 m might benefit from visual identification. This technique is intriguing since it is easy and inexpensive; nevertheless, it is not suggested as an independent method for detecting microplastics. The application of this approach may result in an underestimation or overestimation of microplastic abundance, as certain microplastic particles have been recognised as natural fibres and materials, potentially confounding the measurement of the precise number of microplastics [5].

Conclusion

Microplastics are a new contaminant with no standard analytical methodologies in place, making precise monitoring in environmental compartments difficult. The lack of standardisation of sampling and testing methodologies creates uncertainty regarding the true condition of this pollutant. Furthermore, according to the study, they interact with one another and have the capacity to absorb additional toxins such as pesticides, medicines, and metals. Microplastics/contaminant interactions have been proven in studies, reinforcing the notion of microplastics being a vector for the transfer of pollutants into various ecosystems.

Conflict of Interest

No potential conflict of interest was reported by the authors.

References

1. Hopewell, Jefferson, Robert Dvorak and Edward Kosior. "Plastics recycling: challenges and opportunities." *Philos Trans R Soc Lond B Biol* 364 (2009): 2115-2126.
2. Cole, Matthew, Pennie Lindeque, Claudia Halsband and Tamara S. Galloway, et al. "Microplastics as contaminants in the marine environment: a review." *Mar Pollut Bull* 62 (2011): 2588-2597.

***Address for Correspondence:** Gasana Janvier, Department of Environmental and Occupational Health, Florida International University, Miami, USA; E-mail: janivergasana85@gmail.com*

Received: 01 March, 2022, Manuscript No. jeat-22-67271; **Editor assigned:** 02 March, 2022, PreQC No. P-67271; **Reviewed:** 09 March, 2022, QC No. Q-67271; **Revised:** 17 March, 2022, Manuscript No. R-67271; **Published:** 24 March, 2022, DOI: 10.37421/2161-0525.2022.12.646

3. Wang, Fen, Charles S. Wong, Da Chen and Xingwen Lu, et al. "Interaction of toxic chemicals with microplastics: A critical review." *Water Res* 139 (2018): 208-219.

4. Auta, Helen Shnada, C.U. Emenike and S.H. Fauziah. "Distribution and importance of microplastics in the marine environment: A review of the sources, fate, effects, and potential solutions." *Environ Int* 102 (2017): 165-176.

5. Fendall, Lisa S. and Mary A. Sewell. "Contributing to marine pollution by washing your face: microplastics in facial cleansers." *Mar Pollut Bull* 58 (2009): 1225-1228.

How to cite this article: Janvier, Gasana. "Sources, Distribution, Contaminant Interactions, Analytical Methods and Wastewater Removal Strategies for Micro Plastic Pollution." J Environ Anal Toxicol 12 (2022): 646