

Micro Plastics Control and Plastic Recycling

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Introduction

Microplastic particles have been shown to be present almost everywhere, including our food and water. Microplastics have an effect on the ecosystem and marine life even if their effects on human health are not yet fully understood. According to studies, microplastics can alter the feeding habits of small creatures, clog the digestive tracts of larger species, and damage the mouth and oesophagus when swallowed by marine life. Even if the majority of the blame for our plastics pollution problem should be placed on careless manufacture, it is up to us as consumers to take action to protect the environment by reducing our consumption and learning how to properly recycle plastic waste. The Plastics Crash Course uses visual learning and expertise in plastic recycling to inform the public on the necessity of plastics and the benefits of recycling them. The Plastics Crash Course also covered the creation of microplastics and general recycling guidelines. 95 percent of the 120 participants said they had gained new knowledge. Participants answered to the pre-survey by claiming they would recycle everything because they believed all plastic was the same and that its density variations just gave it differing qualities. The majority of participants reported learning how microplastics arise, what plastics can be recycled, what their resin identifying codes signify, and that there are several types of plastic after reading the infographics on the Plastics Crash Course site.

Plastics are ubiquitous environmental pollutants that pollute the deep ocean and the Arctic. More than eight billion tonnes of plastic trash have been released worldwide. The majority of synthetic polymers deteriorate over hundreds of years. These polymers gradually deteriorate over time, releasing poisonous substances. Microplastics in particular can be ecotoxic because of their small size since they can physically harm tissues, obstruct digestion, restrict nutrient absorption, trigger immunological responses, and decrease organismal survival and reproduction through interactions with food. MP pollution, in summary, is a rising field of study as it garners more and more unfavourable media attention. MPs are plastic particles and fibres that are either mass-produced or separated from bigger pieces of plastic debris. Even while efforts to understand MPs are growing, there aren't enough outreach programmes to adequately inform the public about MPs in a remote context. These outreach activities are needed not only due to the impact of the COVID-19 pandemic on education, but also due to the increased environmental concerns caused by MPs and plastic pollution. By educating the public about recycling plastics, we can empower consumers to make wise choices and incorporate ethical recycling habits into our daily lives, which will help to address the challenge of plastic waste. Recycling plastics can be divided into two groups.

Description

Recycling process is the most typical technique. Plastic is sorted by

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Date of Submission: 15 June, 2022, Manuscript No. jhbe-22-74162; **Editor Assigned:** 19 June, 2022, PreQC No. P-74162; **Reviewed:** 26 June, 2022, QC No. Q-74162; **Revised:** 30 June, 2022, Manuscript No. R-74162; **Published:** 04 July, 2022, DOI:10.37421/2380-5439.2022.10.100030

kind or colour, cleaned, ground, and melted in this type of recycling to create new pellets. Most plastic that is recycled undergoes mechanical recycling [1]. However, not all products can be mechanically recycled. For example, plastic bags and films cannot be mechanically recycled at the average materials recovery facility. These goods entangle themselves in the processing machinery, which may jam and force the facility to close. This void can be filled by the second kind of plastics recycling, known as chemical recycling. Chemical recycling, which is still in its infancy, claims that any plastic product may be recycled indefinitely. Depending on the desired end product, specific chemical recycling procedures are used [2].

To create smaller molecules that can be recycled into plastics or other components that normally come from crude oil, the conventional method involves subjecting plastic waste to any combination of solvents, high temperatures, and pressures. There are several causes for this. One of them is that mechanical recycling is expensive and ineffective. Before being ground and melted, plastic items must be sorted and cleaned to prevent contamination. This process uses a lot of electricity and water, which prevents the government from making further improvements to the facilities. Additionally inferior in quality to virgin resin, recycled resin occasionally costs more. Plastics can only be mechanically recycled three to seven times before their characteristics noticeably deteriorate [3]. This can make the finished product less appealing, which makes it challenging for manufacturers to maintain consistent product quality. The resin is not of the same calibre either.

Numerous various chemicals and colourants have been applied to plastic items; they cannot be removed. This also interferes with the quality of the recycled resin. Government funding and community outreach can improve recycling, as seen in other countries. Infographics mix informative value with visual components like graphics and colour. They can therefore be utilised as stand-alone educational tools and don't call for more explanation. Infographics are demonstrated to be an effective learning aid since they facilitate viewers' understanding and short-term memory of the information. In conclusion, numerous studies have shown that the use of visual aids, such as infographics, can significantly increase participant engagement and improve students' comprehension of the material. Several individuals claimed to have learnt that there were various types of plastic, as was reported in the results [4].

One participant expressed the opinion that they thought all plastics were just one substance with various densities giving them their distinctive properties. This might be a major contributing element in the lack of understanding of why some goods cannot be recycled or in people's misconceptions that all plastics can be recycled [5]. The following module should cover fundamental concepts in plastics, such as types, distinctions between thermoset and thermoplastic polymers, fundamentals of how plastic products are made, structural variations leading to different properties, and reasons why we can't recycle everything and what we can do to increase recycling rates. Similar to the first module, these infographics ought to be created such that non-scientists may easily understand the information.

Conclusion

Through arts education, which can be a useful instrument for preparing students for scientific communication and increasing interest in engineering, this project intends to educate the community. According to literature, visual aids like infographics are more effective in capturing the attention of the general public than words when it comes to communicating scientific ideas to others.

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How to cite this article: Banerjee, Gary. "Micro Plastics Control and Plastic Recycling." *J Health Edu Res Dev* 10 (2022):100030.