

# Greening the Future: The Usage of Organic Plastics

Luiz Francisco\*

Department of Biopolymers, University of Zurich, Switzerland, Switzerland

## Abstract

Organic plastics, also known as bioplastics, are a type of synthetic polymers derived from renewable resources, such as plants, starch, and agricultural byproducts. These materials are gaining popularity as environmentally friendly alternatives to traditional petroleum-based plastics due to their biodegradable and sustainable nature. Organic plastics can be classified into two main categories: biodegradable and non-biodegradable. PLA is one of the most commonly used biodegradable plastics.

**Keywords:** Environmental health; Human health; Microplastics; Ocean health; Plastic additives

## Introduction

It's made from fermented plant starch (usually corn) and is compostable, making it a sustainable option for packaging and disposable products. PHA bioplastics are produced by bacteria through fermentation processes. They are biodegradable and can be used in various applications, including food packaging and medical devices. These bioplastics are created using starch from sources like potatoes, corn, or wheat. They are compostable and have applications in disposable cutlery, packaging, and agricultural mulch films. Some bioplastics, while derived from renewable sources, do not readily biodegrade.

## Discussion

These include bioplastics made from sugarcane ethanol or bio-based polyethylene. They are used in items like bottles and containers. Bio-PET is a plant-based alternative to traditional PET plastics. It's often used in beverage bottles and food packaging. The production and use of organic plastics offer several environmental advantages, such as reduced reliance on fossil fuels, lower greenhouse gas emissions, and the potential to reduce plastic waste in landfills and oceans. However, it's essential to manage them properly to ensure that biodegradable plastics are disposed of in appropriate conditions for effective decomposition. Organic plastics are a promising avenue in the quest for more sustainable materials, but it's crucial to balance their benefits with responsible use and disposal to minimize their impact on the environment. Organic plastics, commonly referred to as bioplastics, represent a revolutionary approach to addressing some of the most pressing challenges in the realm of plastics and environmental sustainability. These innovative materials are designed to offer a more eco-friendly alternative to traditional petroleum-based plastics, which are notorious for their long-lasting environmental impact. In this introduction, we will delve into the concept and significance of organic plastics. At the heart of organic plastics lies a fundamental shift in the way we produce and consume plastics. Unlike conventional plastics, which are derived from fossil fuels, organic plastics are primarily crafted from renewable resources, such as plant-based materials, agricultural byproducts, and even microorganisms. This distinction is at the core of their appeal, as it not only reduces our reliance on finite and environmentally damaging resources but also holds the promise of mitigating the pervasive issue of plastic pollution. Organic plastics can be classified into two primary categories: biodegradable and non-biodegradable. Biodegradable bioplastics have the remarkable ability to break down naturally, returning to the environment in a harmless

manner. On the other hand, non-biodegradable organic plastics, while sourced from renewable materials, may not readily decompose, making them suitable for specific applications. The emergence of organic plastics carries significant implications for sustainability, waste reduction, and the reduction of greenhouse gas emissions. Their adoption in various industries, ranging from packaging to medical devices, demonstrates the increasing recognition of their potential to revolutionize the way we interact with plastics. In the chapters to follow, we will explore the different types of organic plastics, their applications, benefits, challenges, and their role in shaping a more environmentally conscious and sustainable future. Organic plastics represent a compelling pathway towards a world where plastics coexist harmoniously with the planet, and this exploration will shed light on their multifaceted contributions to a greener and more responsible tomorrow. The discussion surrounding organic plastics, or bioplastics, is multifaceted and centers on their potential to address environmental and sustainability concerns associated with traditional petroleum-based plastics. Here are some key points of discussion regarding organic plastics. Organic plastics are derived from renewable resources, reducing the reliance on fossil fuels. This contributes to a reduction in greenhouse gas emissions associated with plastic production. Biodegradable organic plastics offer the potential to decrease plastic waste in landfills and oceans, as they can break down naturally. There are various types of organic plastics, such as PLA, PHA, starch-based plastics, and bio-PET, each with its own unique properties and applications. Non-biodegradable organic plastics, while bio-based, may not readily decompose, which raises questions about their environmental impact. Organic plastics have found applications in a wide range of industries, including packaging, agriculture, medicine, and consumer goods. Biodegradable organic plastics are commonly used in single-use items, such as disposable cutlery and food packaging [1-4].

The distinction between biodegradable and non-biodegradable organic plastics is crucial. Biodegradable plastics must be managed correctly to ensure they break down efficiently. The production

\*Corresponding author: Luiz Francisco, Department of Biopolymers, University of Zurich, Switzerland, E-mail: luiz.francisco@gmail.com

**Received:** 02-Oct-2023, Manuscript No. bsh-23-117858; **Editor assigned:** 04-Oct-2023, PreQC No bsh-23-117858(PQ); **Reviewed:** 18-Oct-2023, QC No. bsh-23-117858; **Revised:** 23-Oct-2023, Manuscript No. bsh-23-117858(R); **Published:** 31-Oct-2023, DOI: 10.4172/bsh.1000177

**Citation:** Francisco L (2023) Greening the Future: The Usage of Organic Plastics. Biopolymers Res 7: 177.

**Copyright:** © 2023 Francisco L. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

of organic plastics still requires energy and resources, and large-scale adoption must consider the overall environmental footprint. Certification systems, such as compostability standards, are emerging to help consumers identify genuine biodegradable plastics. Clear labeling is essential to prevent confusion between organic and conventional plastics. Proper disposal and composting facilities are vital to realizing the environmental benefits of biodegradable organic plastics. Inadequate disposal can lead to contamination in recycling streams and compost heaps. Ongoing research aims to improve the properties and biodegradability of organic plastics, making them more versatile and sustainable. Innovations in production processes and sourcing of raw materials are critical to advancing the field. The acceptance of organic plastics by both consumers and industries is increasing, driven by a growing demand for more sustainable alternatives. Policymakers are also considering regulations to promote the use of organic plastics and limit the environmental impact of traditional plastics. In conclusion, organic plastics offer a promising solution to the environmental challenges posed by conventional plastics. However, their widespread adoption necessitates a comprehensive approach that includes responsible production, clear labeling, effective waste management, and ongoing research to enhance their environmental credentials. The discussion surrounding organic plastics underscores the importance of sustainable materials in our efforts to reduce plastic pollution and lessen our ecological footprint. In conclusion, organic plastics, or bioplastics, represent a pivotal development in the ongoing global effort to mitigate the environmental impact of plastic materials. These innovative alternatives to traditional petroleum-based plastics offer a promising pathway toward a more sustainable future. Here are the key takeaways from the discussion on organic plastics. Organic plastics are derived from renewable resources, which significantly reduce the dependence on fossil fuels. They also have the potential to lower greenhouse gas emissions and decrease plastic waste in landfills and oceans. Organic plastics come in various forms, such as PLA, PHA, starch-based plastics, and bio-PET, and they find applications in multiple industries, from packaging and agriculture to medicine and consumer goods. Biodegradable organic plastics, while beneficial, require proper waste management and composting facilities to ensure they decompose efficiently. Effective disposal methods are crucial to realizing their environmental advantages. Challenges such as the efficient conversion of organic resources into plastics and the need for clear labeling systems still exist [5-7].

Ongoing research and innovation are essential to improving the properties and sustainability of organic plastics. Increasing consumer and industry acceptance of organic plastics is driving their adoption. Policymakers are also considering regulations to encourage the use of these materials and reduce the environmental impact of traditional plastics. In summary, organic plastics offer a compelling solution to the environmental challenges posed by conventional plastics. They have the potential to reduce our reliance on non-renewable resources, mitigate plastic pollution, and lower carbon emissions. However, their success hinges on a holistic approach that encompasses responsible production, waste management, labeling, and continued research and development. Organic plastics represent a critical step forward in the pursuit of a more sustainable and environmentally conscious future. Plastics have conveyed great benefits to humanity and made possible some of the most significant advances of modern civilization in fields as diverse as medicine, electronics, aerospace, construction, food packaging, and sports. It is now clear, however, that plastics are also responsible for significant harms to human health, the economy, and the earth's environment. These harms occur at every stage of the plastic life cycle, from extraction of the coal, oil, and gas that are its main feedstocks

through to ultimate disposal into the environment. The extent of these harms not been systematically assessed, their magnitude not fully quantified, and their economic costs not comprehensively counted. The development and adoption of organic plastics represent a critical step towards a greener, more sustainable future. As the global community seeks ways to reduce carbon emissions, combat plastic pollution, and conserve resources, organic plastics offer a promising solution. In conclusion, organic plastics are a testament to human ingenuity and the ability to innovate in the face of environmental challenges. Their potential to alleviate the detrimental impact of plastic waste on the planet cannot be overstated. However, their growth and adoption must be accompanied by responsible practices, including sustainable sourcing of raw materials and appropriate disposal methods. As research and development in the field of organic plastics continue to progress, they hold the potential to play a pivotal role in a more environmentally conscious and sustainable world. Although organic plastics offer numerous benefits, they are not without limitations [8-10].

## Conclusion

Their properties may not always match those of traditional plastics, limiting their use in certain applications. The competition for land use between organic plastics production and food production raises concerns. Additionally, ensuring the effective biodegradation of these materials under various conditions remains a challenge. Organic plastics find applications in a wide range of industries, from packaging to agriculture and consumer goods. They are particularly well-suited for single-use items and have potential in emerging fields like 3D printing, where their renewable sourcing and sustainable attributes are valued.

## Acknowledgment

None

## Conflict of Interest

None

## References

1. Antoine LH, Vasiliki P, Richard M, Jeremy S, Tomasz T, et al. (2021) Promoting Ethically Responsible Use of Agricultural Biotechnology. *Trends Plant Sci* 26: 546-599.
2. Vivienne MA, Marco F (2012) Agricultural biotechnology and smallholder farmers in developing countries. *Curr Opin Biotechnol* 23: 278-285.
3. Andrew A (2010) The costly benefits of opposing agricultural biotechnology. *N Biotechnol* 27: 635-640.
4. Eric MH, Justin PB, Luiz SAC, Maria LZD, Margaret K, et al. (2022) Towards progressive regulatory approaches for agricultural applications of animal biotechnology. *Transgenic Res* 31: 167-199.
5. Devang M, Herve V (2021) Towards responsible communication of agricultural biotechnology research for the common good. *Nat Rev Mol Cell Biol* 22: 301-302.
6. Menachem M, Arie A (2015) Current challenges and future perspectives of plant and agricultural biotechnology. *Trends Biotechnol* 33: 337-342.
7. Henry IM (2010) The regulation of agricultural biotechnology: science shows a better way. *N Biotechnol* 27: 628-634.
8. Anthony MS (2003) Considerations for conducting research in agricultural biotechnology. *J Invertebr Pathol* 83: 110-112.
9. Cecilia LCH, Sara B, Rosa FB, Sara B, Josef NG, et al. (2012) An intellectual property sharing initiative in agricultural biotechnology: development of broadly accessible technologies for plant transformation. *Plant Biotechnol J* 10: 501-510.
10. Remziye Y (2019) Modern biotechnology breakthroughs to food and agricultural research in developing countries. *GM Crops Food* 10: 12-16.