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# A Promising Substitute for Plastics and Other Products Made of Plastic is the Cellulosic Part of Agricultural Biomass

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## ABSTRACT

*Plastics are materials with many different capabilities that are adaptable and affordable. Greater concerns, however, include their non-biodegradability, accumulation in landfills and natural ecosystems, physical issues for wildlife brought on by ingesting or becoming entangled in debris, chemical leaking, and transfer to people. Materials that replace plastic are justified in this regard. Agriculture, which feeds the world but leaves behind a sizable portion of its products as biomass or food that humans cannot consume, may provide some solace. A suitable source of cellulose that has good potential to replace plastics is found in agricultural biomass, such as maize stalks, wheat straws, rice straws, and soybean stalks. This article emphasises the advantages of agricultural biomass and its potential for cellulose-based biodegradable goods. Utilizing agricultural biomass also presents a special value-added opportunity for the agricultural sector and farmers to earn from their outputs and boost the profitability of their businesses. This affordable and environmentally friendly approach to stop the negative effects of plastics would greatly benefit the Earth and its present and future generations.*

**Keywords:** Agriculture, Wheat, Maize, Soybean, Rice

## INTRODUCTION

### *Snippets of sections*

Plastics a global burden: Since plastics were first introduced in the 1950s, their development has accelerated dramatically. Plastics have indisputable advantages because they are strong, affordable, light, and simple to prepare. These inherent qualities have in fact greatly accelerated the manufacturing of plastics, and their uses in construction, food, clothing, medicine, transportation, electronics, and household items have increased tremendously. As of 2016, 8.3 billion metric tonnes of plastics had been produced globally.

### *Cellulose is a good alternative to plastics.*

Cellulose is a low-density biomaterial with a sturdy and rigid structure that unquestionably satisfies the requirements for plastics. It exhibits strong biocompatibility, biodegradability, and low toxicity, and it is widely available. Chemically speaking, cellulose is a linear polysaccharide made up of D-glucopyranosyl units that are -1-4 connected. Strong intra- and inter-chain interactions support the tight network structure where the ribbon-like polysaccharide chains are found.

### *Agricultural biomass as a cellulose source that is sustainable*

Biomass is plentiful and recyclable, and it is mostly produced by plants such as those used in agriculture, forestry, industry, food processing, animal husbandry, fisheries, and other rural activities as well as microbiological wastes from plants and animals. 140 billion tonnes of biomass are produced annually just from agriculture on a worldwide basis. Approximately 205 million dry tonnes of main agricultural wastes are produced, according to the 2011 Billion-Ton Update.

### *Additional benefit*

The "Zero-Waste" philosophy of methodically managing agricultural products and processes, avoiding and eliminating waste, as well as conserving and recovering resources without burning or burying, is in line with the use of agricultural biomass to extract cellulose for preventing current and future plastics problems. Farmers will receive income from stock that will be thrown away in addition to the grains from their crops.

***Economic feasibility***

Alternatives to petroleum-based products are required because to the increasing worldwide focus on sustainability, the sharp rise in oil prices, environmental pollution, and worries about the depletion of non-renewable fossil fuels. Furthermore, the depletion of non-renewable fossil sources is a major problem because plastic components are made from fossil fuels, particularly from natural gas or oil. The world economy is also dealing with declining oil resources, which will reduce the use of fossil fuel for plastic.

***Long-term sustainability***

Although it is impossible to eradicate all plastics from society, there are alternatives that could greatly lessen both the present and future reliance on plastics. The replacements should incorporate long-lasting production patterns that adhere to the redesign, reduction, and recycling principles, especially for packaging and single-use items. Using lignocellulose from agricultural biomass in place of petroleum-based materials would undoubtedly result in sustainable development with lower economic costs.

## CONCLUSION

It is concluded that Durability is one of the desirable qualities of plastics, and this quality, along with humans' incapacity or reluctance to efficiently handle end-of-life plastic, has led to plastic waste, micro plastics, and Nano plastics, all of which are developing into a multidimensional global problem. Plastic pollution is everywhere, silent, growing, and more dangerous than ever. In support of this, the plentiful cellulose present in renewable agricultural waste products and by-products .