

Bio plastics-An alternative for the better Environmental Conservation?

The main reason why plastic is becoming so problematic is that it is immensely useful. We are using it in almost every sphere of life. In fact, no matter wherever you look, it is almost impossible to not find plastic there. Now more than ever we are facing the dilemma. Should we stop using plastic and curb our economic growth or should we keep on using it and destroy the environment? In this debate, companies are coming up with alternatives to plastic. Out of all these alternatives, bioplastic is standing in the front. If it works, in future years, it might take the place of plastic. However, with it too, there are many complications.

What is bio plastic?

Bioplastic simply refers to plastic made from plant or other biological material instead of petroleum. It is also often called bio-based plastic.

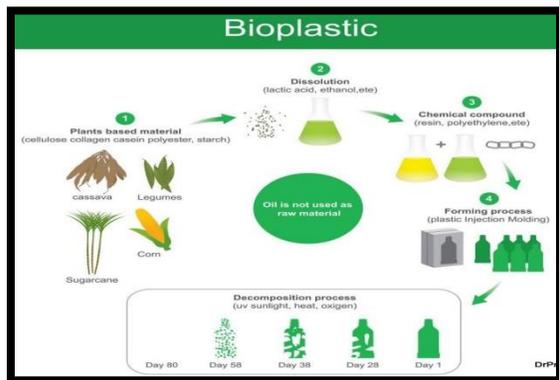
It can either be made by extracting sugar from plants like corn and sugarcane to convert into polylactic acids (PLAs), or it can be made from polyhydroxyalkanoates (PHAs) engineered from microorganisms. PLA plastic is commonly used in food packaging, while PHA is often used in medical devices like sutures and cardiovascular patches.

Because PLA often comes from the same large industrial facilities making products like ethanol, it is the cheapest source of bioplastic. It is the most common type and is used in plastic bottles, utensils, and textiles.

Advantages

- The environmental problems arising due to improper disposal of the plastic wastes would be solved through the bioplastics.
- Bioplastics are produced from renewable resources rather than fossil resources.
- The usage of renewable resources would contribute to a reduction of greenhouse gases emission through the reduced carbon footprint.
- Compared to petrochemical plastics, the bioplastics production can emit about 80% less carbon dioxide.
- The production of bioplastics also consumes 65% less energy than the production of petrochemical plastics.
- After any possible reuse and recycling options, the renewable biomass of bioplastics would be recycled and utilized for energy recovery through cascades recycling and thus it offers the advantage of the improved resource recovery.
- Further, the bioplastics can avoid some of the environmental problems like uncontrolled dumping on land and disposal at sea, and the related emission of toxic substances. However, effective implementations of collection, sorting and recycling practices and public awareness are

also essential to reward the benefits of bioplastics.



competition on cultivable land for food production.



Disadvantages

It is an undeniable reality that the bioplastics are offering many significant advantages over petrochemical plastics. However, they are also having a number of disadvantages that need to be taken into account.

- Uncontrolled and improper disposal of the bioplastic wastes also contributing to the problems like littering and, soil and water pollution.
- Similar to conventional plastics, the bioplastic wastes littering also harmful to wildlife.
- The disposal of bioplastic wastes into a landfill may contribute to the greenhouse gases emission.
- The higher manufacturing cost of bioplastics is also limiting the use of these plastics.
- The cultivation of crops for manufacturing bioplastics can create

Bioplastic is an important innovation and it would offer sustainable and eco-friendly alternatives to avoid the plastic pollution. Further, the intensification of research through industrial tie-ups and promotion of the large-scale production and commercialization of the bioplastic products are also inevitable to solve the plastic pollution in our environment. The bioplastics are still in its infancy, and hence a great innovation would be developed by the intensification of research through the government and industrial funding. The continuing intensified research in this field would facilitate further breakthroughs and improvements. However, bioplastics are not the only solution to the problem of plastic pollution. The changes in consumer behaviour in buying, consuming and disposing of plastics, and widespread public awareness of the bioplastics are also essential in effecting the control of plastic pollution.

References:

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