

# Biotransformation technology

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**In news**– A UK-based startup now claims to develop Biotransformation technology that can transform the state of plastics.

## What is Biotransformation technology?

- The Biotransformation Technology presents a **new and innovative strategy for effectively and efficiently processing plastics that evade refusing streams resulting in their decomposition.** The term refuses stream refers to the flow of solid waste materials that are generated from various sources.
- **Imperial College in London, UK, and a Britain-based startup, Polymateria have co-developed the technology.**
- It claims the technology would digest the plastic packaging waste naturally with the help of microbes and biodegrade the waste without leaving behind any microplastics.
- The technology **produces plastics that have a predetermined lifespan** in which they maintain the appearance and quality of traditional plastics.
- However, **once this lifespan expires and they are exposed to the surrounding environment, they undergo a self-destructive process** and biotransform into wax that is bioavailable. Microorganisms then consume this wax, leading to the conversion of waste into water, carbon dioxide, and biomass.
- This biotransformation technology is the world's first that ensures polyolefins fully biodegrade in an open environment causing no microplastics.

## Its usage-

- The technology can be used in many industries but will be particularly beneficial for the food and healthcare

industry as they generate a significant proportion of plastic waste.

- Some companies are even using such technologies, but Biotransformation will work as a complete game changer in the efforts.
- At a time when the world is producing around 400 million tonnes of plastic waste every year, such technologies can go a long way in providing an environment-friendly alternative to the dangerous plastic.
- Some well-known Indian firms in food and packaging industries deploy such technologies.
- Within healthcare and pharma industries, this technology provides biodegradable solutions for non-woven hygiene products like diapers, sanitary napkins, facial pads, etc.

### **Plastic waste in India-**

- **The country is generating 3.5 billion kgs of plastic waste annually** and that the per capita plastic waste generation has also doubled in the past five years. Of this, **a third comes from packaging waste.**
- In 2019, plastic packaging waste from e-commerce firms was estimated at over a billion kilograms worldwide
- A joint research project by Department of Management Studies, IIT Delhi, and Sea Movement noted that Amazon generated, nearly 210 million kgs (465 million pounds) of plastic from packaging waste in 2019.
- They also estimated that up to 10 million kgs (22.44 million pounds) of Amazon's plastic packaging ended up in the world's freshwater and marine ecosystems as pollution in the same year.
- However, Amazon India has now eliminated the single-use plastics across its fulfilment centers. Flipkart has also done the same in 2021 across its supply chain.

### **India's initiatives-**

- The Indian government has launched multiple initiatives to move the country towards sustainability.
- They introduced a **plastic waste management gazette** to help tackle the ever-growing plastic pollution caused by single-use plastics.
- In 2022 the Indian government imposed a **ban on single-use plastics** to bring a stop to its use in the country.
- The **National Dashboard on Elimination of Single Use Plastic and Plastic Waste Management** brings all stakeholders together to track the progress made in eliminating single-use plastic and effectively managing such waste.
- **An Extended Producer Responsibility (EPR) portal** helps in improving accountability traceability, and facilitating ease of compliance reporting in relation to EPR obligations of the producers, importers and brand-owners.
- India has also developed **a mobile app to report single use plastics grievances** to check sale, usage or manufacturing of single use plastics in their area.