



## Restoration of Earth with Biobased Polymer

**Marjadi Darshan**

*Shree Ramkrishna Institute of Computer Education & Applied Sciences, MTB Campus,  
Athwalines, Surat-395001*

*E-mail: [darshan.marjadi@srki.ac.in](mailto:darshan.marjadi@srki.ac.in)*

---

Humanity is facing increasingly numerous challenges in life despite the great advancements in science and technology over the last century. All the needs of modern society, e.g. food, fuel, energy, and materials, are highly dependent on diminishing fossil resources. The demand for creating and using plastic throughout the world, driven by the increasing usage of plastic-based materials has been increasing and adding stress to the current waste management infrastructures. There is significant interest to decrease the reliance on petroleum-based plastic products, which causes global environmental pollution. The advancement in science and technology has enabled mankind to live longer and consume more of the world's resources. More than eight million tons of plastic waste leak into oceans every year, which can be eased through innovative redesigns of packaging materials.

Issues such as global climate change and depletion of fossil fuels, both resulting from the increased usage of energy, have triggered alarms among scientists and politicians worldwide. Therefore, governments, industries, and academia are inputting much effort towards finding a sustainable solution for the increasing energy crisis. However, a similar concerted effort is still lacking to bring about the creation and usage of sustainable materials in the modern lifestyle. In addition to the increasing demand for energy, the usage of materials in the modern lifestyle has also been increasing rapidly. Considering the widespread usage of plastics in food packaging, clothes, shelter, communication, transportation, construction, health care, and leisure industries; plastics are the most dependable material among the other materials that mankind is currently dependent upon. Currently, most of the plastics that are widely used in various sectors are produced from petrochemical products. The plastic industry has been among the most profitable businesses and is expected to grow further, especially because of their increased demands from rapidly developing countries like India and other parts of South-East Asia. While plastics are superior materials in terms of their production costs and diverse properties, the sustainability of this synthetic material is undoubtedly an issue that needs to be addressed. Biobased and biodegradable polymeric materials are considered amongst the most suitable alternatives for some applications. The



excessive usage of petroleum also contributes to the increased emission of CO<sub>2</sub> into the atmosphere, which is thought to be among the principal reasons for global warming and climate change. These are some of the strong and valid reasons leading towards the development of technologies to produce biobased and biodegradable plastics.

Science and technology have created the modern lifestyle that mankind is living in which efficiency is the keyword. Drawing an analogy from a bacterial culture in a shaken flask, the depletion of nutrients and the simultaneous accumulation of toxic wastes are the main reasons for the onset of the stationary growth phase and the subsequent death phase. However, unlike bacteria, mankind is aware of the consequences of such activities. As a result, the world population is now concerned about sustainable development.

Biobased and biodegradable plastics most likely to remain less superior in terms of production cost and material properties compared to petrochemical plastics. Petroleum-based plastics have serious environmental and social impacts due to their non-degradable nature and the leaching of carcinogenic substances like dioxin when exposed to scratch or heat. Compared to the ease at which fossil resources are utilized; renewable biobased materials will need more effort and efficiency to be used in daily life. However, biobased materials are considered superior in terms of sustainability and environmental friendly provided that they are used judiciously and in a contented manner. Hence, it is in our hands to utilize our knowledge of the environment to work towards the restoration of the earth and make it free from single-use plastics.

---

***Suggested citation:***

*Marjadi D (2021). Restoration of Earth with Biobased Polymer . Prithivya, An Official Newsletter of WCB Research Foundation and WCB Research Lab. Vol 1(2) 22-23.*

