



Health Hazards Due to Plastic

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Introduction

One of the maximum chosen materials in today's engineering world is plastic, affectation danger to atmosphere and customer's health in numerous straight and secondary ways. Exposure to dangerous compounds through engineering, leaching in the stored food items while using plastic packages, or chomping of plastic teethers and toys by children are related to severe hostile health results such as birth defects, cancers, impaired immunity, endocrine disruption, developmental and reproductive effects, etc. Administrations and government agencies in Canada, Australia, the United States, and the European Union have limited or banned the consumption of phthalates in customer products (Rustagi, Pradhan, and Singh 2011)

Leftover Plastics are allocated in one of three ways: burial, incineration, or recycling. About 16% of waste in developed countries is Incinerated, Garbage burning at high temperature to convert waste-to-energy services that procedure heat energy to generate steam or electricity. Plastics are naturally imitative from natural gas or petroleum, they can produce nearly as much energy as fuel oil, though the abundant amount of energy primarily necessary to produce the plastic is lost. Potential dangerous releases from incinerating plastics comprise dioxin, hydrogen chloride, cadmium, and fine particulate matter. Even with stricter air pollution standards in place, there is considerable public opposition to incineration (Rustagi, Pradhan, and Singh 2011).

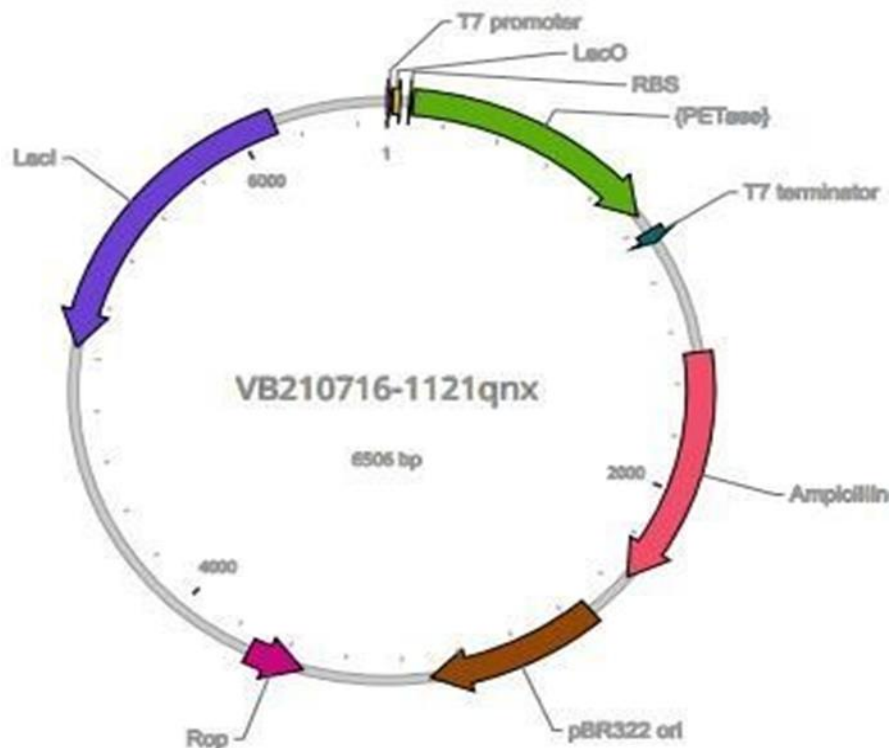
Plastic Wastes Dealing

Plastics are chemically inert due for this reason landfilling plastics is usually a benign practice. Due to the presence of other chemicals leaching process also occur contaminate water. Plasticizers known as phthalates are risky materials and have been found in several leachate analyses at various concentrations. Recycling is a process in which we collect different types of plastic reuse them to make new valuable products. This process is so much expensive and labor costly. A groundbreaking technique for raising customer awareness about the separation of recyclable wastes from non-recyclable is newly introduced in Thailand through the “Waste for eggs campaign”. Thirty plastic waste pieces can be exchanged for 5 eggs by local people (Rustagi, Pradhan, and Singh 2011).

Idea For Bioremediation of Plastic Use Enzyme

Commonly known, plastic resources take about 100 to 1000 years to reduce when used in landfills besides polluting air and water around.

PETase enzyme expression vector: Involved in the degradation and assimilation of the plastic poly (ethylene terephthalate) (PET), which allows *I.sakaiensis* to use PET as its major energy and carbon source for growth.



Vector sequence:

TAATACGACT CACTATAGGG GAATTGTGAG CGGATAACAA TTCCCCTCTA GAAATAATTT TGTTTAACTT
TAAGAAGGAG ATATACCATG AACTTTCCGC GCGCGAGCCG CCTGATGCAG GCGGCGGTGC
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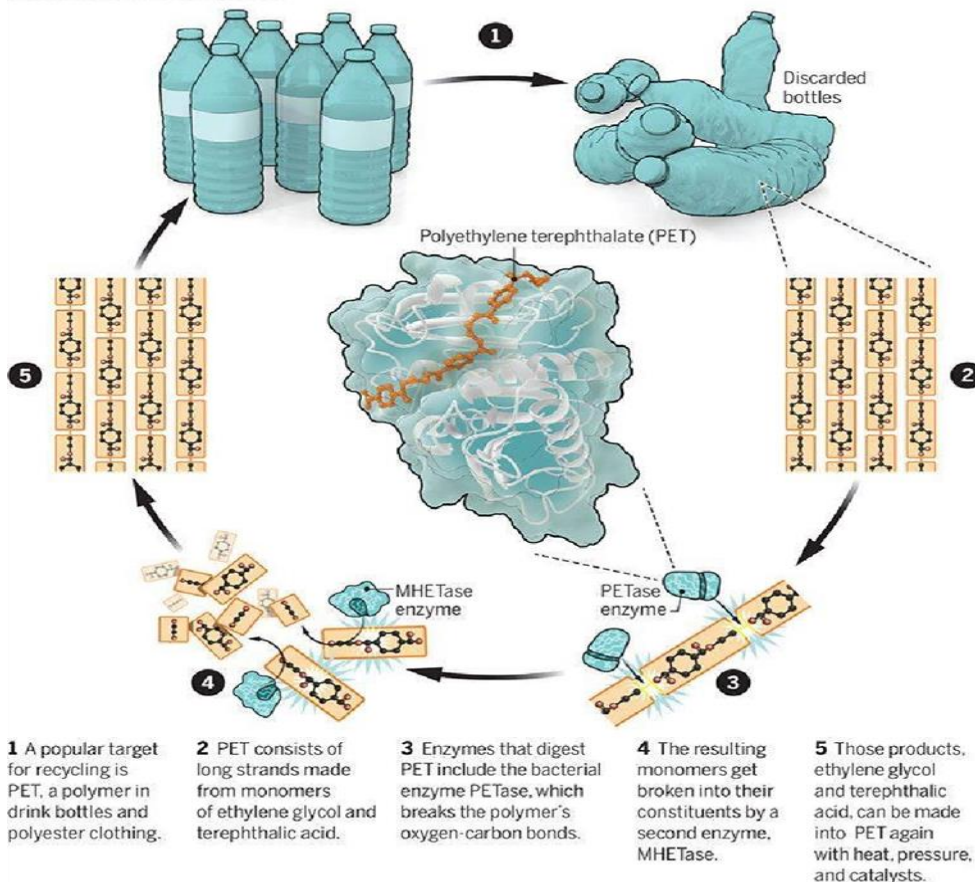
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Pictorial Representation

Coming full circle

Scientists are engineering enzymes to recycle plastic. These modified versions of natural proteins work at relatively low temperatures, target specific plastics in a mixture, and produce pure monomers that can then form new plastic.



Breaking bonds

PET is held together by bonds between carbon and oxygen, which require less energy to break in a chemical reaction than those formed by links between two carbon atoms. Those bonds, found in many common plastics such as polyethylene and polypropylene, are harder to break.

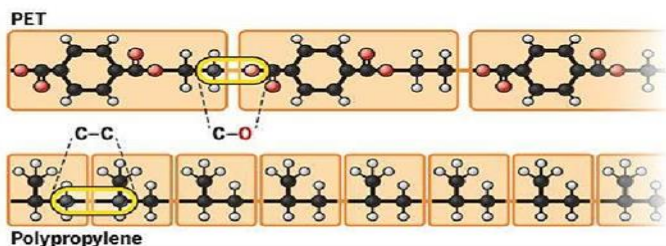


Figure 2

Bioplastic Idea/Biodegradable Plastic Idea

According to studies we can also produce bioplastic by using the scale of fish and with mixing of algae related species. By mixing other required material which must be eco-friendly and also not create toxicity for our ecosystem.

References

1. Rustagi, Neeti, S. K. Pradhan, and Ritesh Singh. 2011. "Public Health Impact of Plastics: An Overview." *Indian Journal of Occupational and Environmental Medicine* 15 (3): 100–103. <https://doi.org/10.4103/0019-5278.93198.1>