

Creating awareness to save the planet

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ABSTRACT

Finishing the plastic does a lot of damage to our biodiversity and environment and that has to stop, at the hands of biotechnology we can solve this. In order to solve it, we need to replace the plastic bags with biodegradable ones. The microorganism that is responsible for degrading the plastic faster, this is the *Idonella sakaiensis*.

KEYWORDS

Biotechnology, *Ideonella sakaiensis*, polyethylene terephthalate, pollution, biodegradable bags, biodiversity.

INTRODUCTION

White biotechnology is used to replace all the processes and products used by industry, which are generally polluting, this biotechnology uses microorganisms such as ***Ideonella sakaiensis***, it is a bacterium of the genus *ideonella* and of the family of comamonadaceae. The bacteria was found inside a plastic bottle recycling plant and is capable of breaking down **polyethylene terephthalate (PET)** into its terephthalic acid and ethylene glycol components. On the other hand, **plastic bags** take more than **four centuries** to completely degrade, thus **damaging** the marine ecosystem and producing more **environmental pollution on the planet**, and we must not forget that they are the main source of contamination, so we must **reduce the using** plastic bags by swapping them for **biodegradable bags** in this way we can save the marine ecosystem and help reduce environmental pollution.

PROBLEM

The vast majority of bags are disposed of uncontrollably, polluting both cities and natural ecosystems. In the sea, its impact can be lethal for animals such as turtles, whales or dolphins, which die after ingesting them. For all these reasons, the environmental impact of plastic bags is enormous, plastic bags pollute and do a lot of damage to the marine ecosystem. All plastic bags in the sea

take around 150 years to degrade and a PET bottle can take 1,000 years to disappear.



METHODOLOGY

To make biodegradable plastics, starch is mainly used as a raw material.

1. The production of biodegradable plastic begins with starch.
2. Then microorganisms such as ***Ideonella sakaiensis*** transform it into a smaller lactic acid molecule that serves as the basis for the production of polylactic acid (PLA) polymer chains.
3. Crosslinking of polylactic acid polymer chains from the site to the biodegradable plastic sheet that serves as the basis for the production of various non-polluting plastic products.
4. You already have your biodegradable plastic.



microorganisms that help biodegradation, thus improving product quality and reducing pollution along with damage to our biodiversity.

RESULTS

The results or benefits of using **biodegradable bags** are that they help reduce pollution, prevent damage to marine fauna, and provide **the same benefits** of use as normal ones.



SOLUTION

I think the solution is to use biotechnology to help biodegradation of plastics and invest in research and cultivation of new

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