

Plastic Feeders












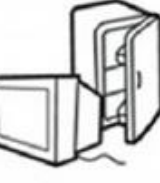


For a plastic-free Ecosystem

What's the base? Part 1...

Plastics are different polymers, made of Carbon, Hydrogen, Oxygen and Nitrogen.

Sometimes, they contain other elements, like Chlorine, in PVC.

However, the often used plastics are made only of C, H, N, O elements, these being the major constituents of Life.

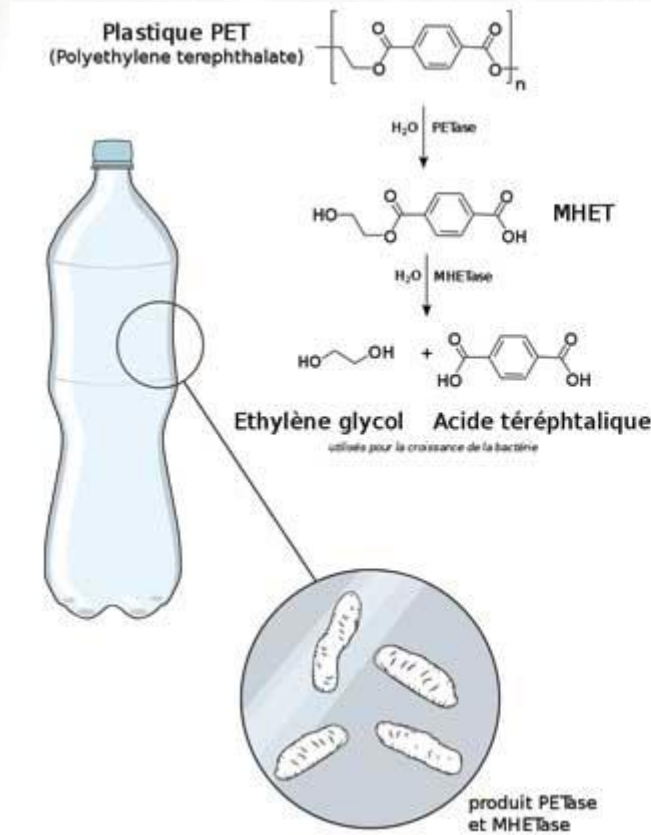
 1 PET	 02 PE-HD	 03 PVC	 04 PE-LD	 05 PP	 06 PS	 07 O
Polyethylene terephthalate	Polyethylene (high density)	Polyvinyl chloride	Polyethylene (low density)	Polypropylene	Polystyrene	Bisphenol A and others
PET is commonly used in commercially sold water bottles, soft drink bottles, sports drink bottles, and condiment bottles.	HDPE is commonly used in milk and juice bottles, detergent bottles, shampoo bottles, grocery bags, and cereal box liners.	PVC can be flexible or rigid, and is used for plumbing pipes, clear food packaging, shrink wrap, plastic children's toys, tablecloths, vinyl flooring, children's play mats, and blister packs (such as for medicines).	LDPE is used for dry cleaning bags, bread bags, newspaper bags, produce bags, and garbage bags, as well as "paper" milk cartons and hot/cold beverage cups.	PP is used to make yogurt containers, deli food containers, furniture, luggage and winter clothing insulation.	PS, also popularly known as Styrofoam, is used for cups, plates, take-out containers, supermarket meat trays, and packing peanuts.	Any plastic item not made from the above six plastics is lumped together as a #7 plastic. things like CD's baby bottles and headlight lens
						

What's the Base? Part 2...

Some organisms, like *Ideonella sakaiensis*, are able to degrade PET

Other microorganisms have the ability to feed themselves on PE, PS, PU and other polymers

Virtually, every type of polymer, that contain only C, H, N and O, could be degraded biologically.



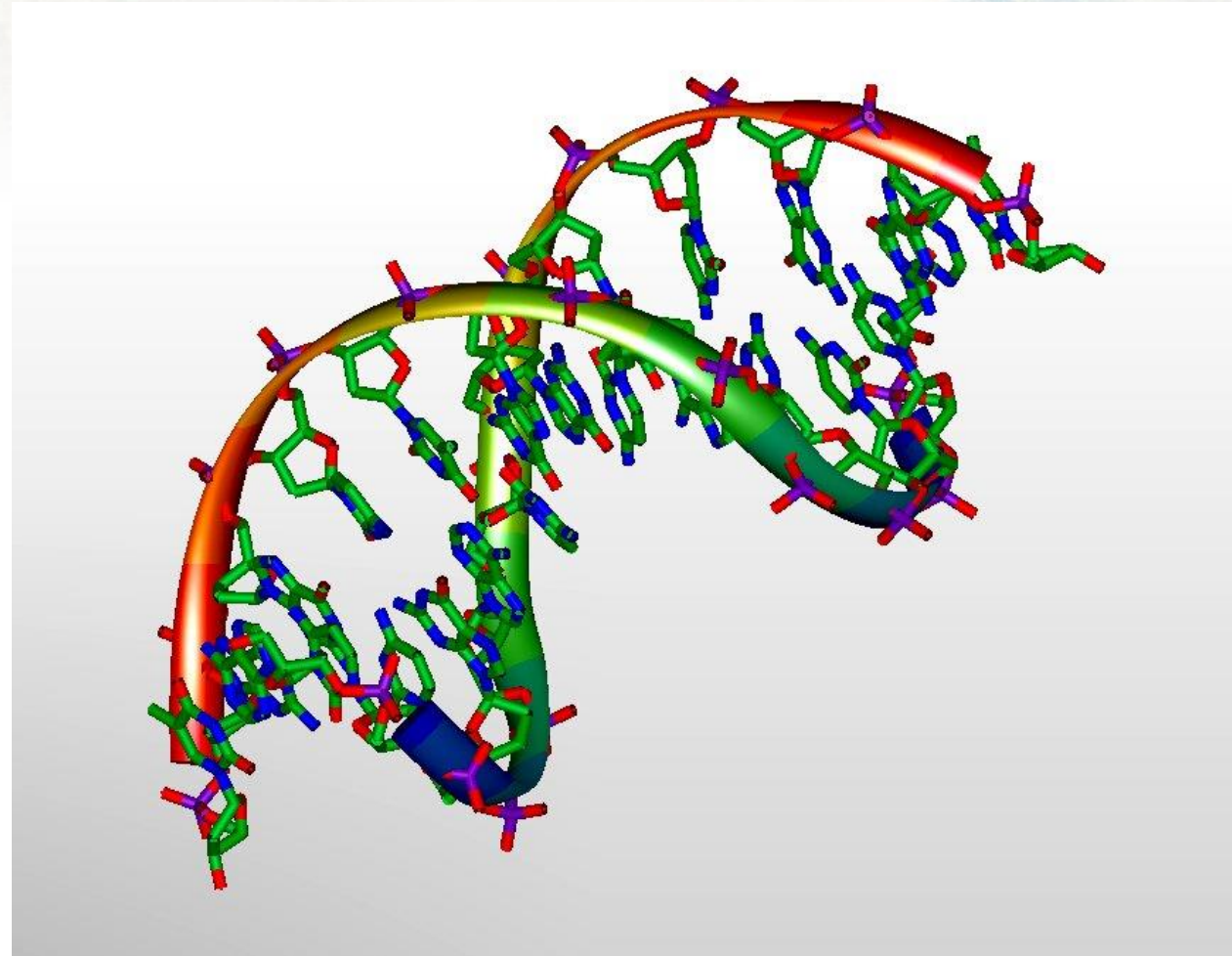
Genetic engineering, the key of Change

The ability to feed on plastic could be transferred to other organisms, through genetic manipulations.

New organisms could just degrade plastic, faster and in different conditions, or to produce another, valorous products.

Saccharomyces cerevisiae, a yeast, could produce bioethanol from plastic if modified.

Another fungus, *Agaricus bisporus* (Champignon) is a perfect food for animals and human. Modified, it would grow on plastic and not on fertilizer.



Investments and gains

As a new idea, the costs of Research start above 1M Euro. The idea of using the mushroom to feed people, could increase Research-costs, in order to develop a Consumer-safe product. Ecological impact should also be monitored.

On the other hand, prices per ton of Champignon are up to 15-time bigger than prices per pure plastic weight. At the same time, due to the low dry-biomass content in the mushrooms(2-3%), one ton of plastic could be converted in substantially more mushrooms.

While plastic is a contaminant of the ecosystem, mushroom are safe!



Research to be conducted

As a product designed for human use, research of safety should be done. Only this way, the product could enter the food market.

Some other genes, as ability to fix nitrogen or to live in diverse conditions, could help the organism to become more suitable for international agricultural use.



About us

Plastic Feeders is an idea developed by the PolyMore Team, a Romanian Start-up concerned about plastic recycling and Circular Economy

Find us on :

<https://polymore.ro/>

<https://www.instagram.com/polymore.ro/>

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