

- white biotechnology -

BIOFUELS - AN OVERVIEW

Claudio and Mar

WHY SHOULD WE USE BIOFUELS ?

There are many problems about the current energy sources:

- The lack of sources
- The irregular distribution
- The environment problem

Searchers are working on different projects in order to solve these problems. **Biofuels** might be a solution.

Biofuels are fuels obtained from biomasses, which are the biodegradable part of agriculture products, forestry industrial residues.



Free pictures on:
<https://commons.wikimedia.org/>

Biofuels have not always been the same, but they have developed in time. There are four generations.

WHICH ARE THE DIFFERENT GENERATIONS?

The **first generation** is composed of fuels made using crops like soy, sugar cane and corn. The main problem is the competitiveness with the crops cultivated for food purposes.



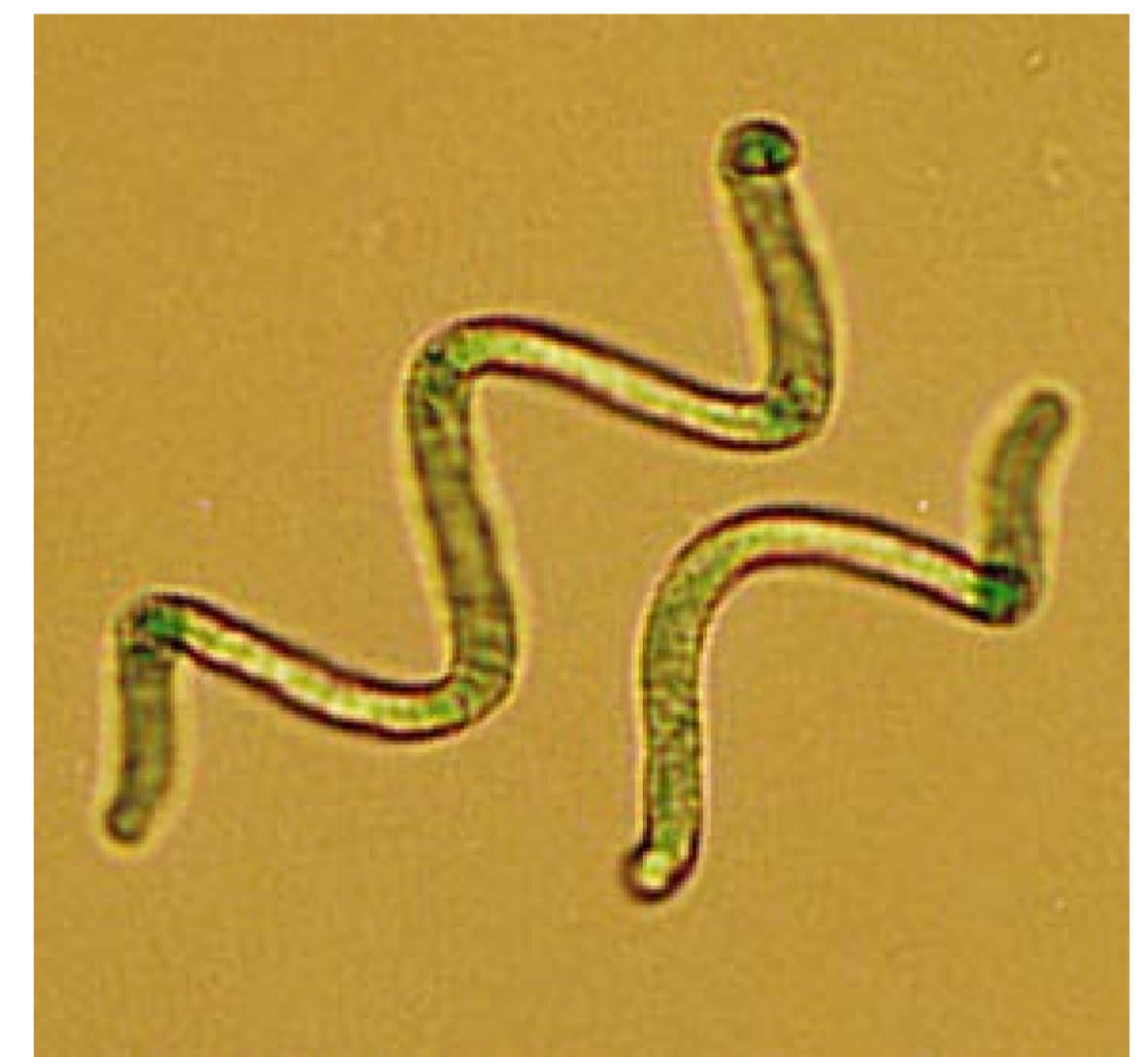
Free picture on <https://www.flickr.com/photos/unitedsoybean/10478924204>

The **second generation** uses the cellulosic waste obtained from woods and food industry. The most important second generation biofuel is bioethanol which is an alcohol obtained from fermentation of monosaccharide and polysaccharide.

The main problem of the second generation is the cost of processing the cellulosic waste. They are trying to decrease the price of the process by using specific enzymes.

The **third generation** uses algae in order to create biomasses just using solar energy and de CO₂.

Biodiesel made from algae oil (instead of plant oil) is an example for a third generation biofuel. This oil can be extracted from *Spirulina platensis*. Afterwards the oil is chemically transformed to biodiesel.



Free picture on: <https://commons.wikimedia.org/wiki/File:Spirul2.jpg>

The last step of the biofuel evolution is the **fourth generation**. It's very similar to the third one, but there's one big difference: it implies genetic modified organisms which use more CO₂.

This way we obtain two advantages: we both gain energy and reduce the dioxide carbonic rate.

There would be many effects linked with the spread of biofuels:

- There would be a big change in the energetic economy because many countries would start to use them.
- The increase in the value of waste because people would start to consider it more important.
- The diffusion of the green culture, with people starting to pay more attention to nature and see it not only as a useless think but also as a nice resource.



Free picture on <https://pixabay.com/de/erde-globus-welt-%C3%B6kologie-gr%C3%BCn-159123/>