

## Bacteria

### Environment

#### Modified microorganisms

A group of American scientists have succeeded to create some genetically modified organisms that can produce oil. The most popular biological fuel nowadays in the United States is ethanol, which is obtained mainly from corn, but this new technology could replace it. In fact, ethanol has only two thirds of the energetic power of oil and it takes a lot of resources to produce. Instead, oil from microorganisms requires only minor infrastructure investments but further studies are needed before starting this kind of production. American scientists have thought of taking pieces of DNA which are responsible for the conversion cycle of glucose into energy storage molecules from different organisms and then combine this genetic material and insert it into a microorganism to give it instructions to produce hydrocarbons. Other microorganism genes have been modified so as to block other metabolic functions so that they will concentrate on oil production. Scientists have discovered a way to alter parts of DNA sequencing to increase oil production, but so far the output is still too low. One of the weak points in this production is the source of cellulose with which to feed the microorganisms and they hope that soon they will be able to find a cheaper and more efficient one.

#### Energy production

Some bacterial strains of the genus *Zymomonas* can transform sugar into ethanol, the same alcohol that can be found in wine and beer. The ethanol obtained from these bacteria is mixed with petrol to make fuel. This process is used in particular in hot countries, where sugary substances, such as sugarcane, are extensively produced. Methane too can be produced with the aid of bacteria. Methanogen bacteria take their name from their ability to produce gas by fermenting organic substances, such as animal faeces and waste. This ability is exploited to produce bio-gas for heating or cooking.