

New fuels from bacteria

A breakthrough in the production of biofuels has been developed by scientists in Germany. Research published in the September 2006 issue of *Microbiology*, a Society for General Microbiology journal, describes how specially engineered bacteria could be used to make fuel completely from food crops.

“Biodiesel is an alternative energy source and a substitute for petroleum-based diesel fuel,” explains Professor Steinbüchel of the Westfälische Wilhelms-Universität in Münster. “A growing number of countries are already making biodiesel on a large scale, but the current method of production is still costly”.

“Biodiesel production depends on plant oils obtained from seeds of oilseed crops like rapeseed or soy”, explains Professor Steinbüchel. “However, production of plant oils has a huge demand of acreage which is one of the main factors limiting a more widespread use of biodiesel today. In addition, biodiesel production must compete with food production for the plant oil feedstock, which also raises some ethical concerns”.

Microdiesel, as the scientists have named it, is different from other production methods because it not only uses the same plant oils, but can also use readily available bulk plant materials or even recycled waste paper if engineering of the production strain is more advanced.

Also, it does not rely on the addition of toxic methanol from fossil resources, like many other biodiesels. The bacteria developed for use in the Microdiesel process make their own ethanol instead. This could help to keep the costs of production down and means that the fuel is made from 100% renewable resources.

“Due to the much lower price of the raw materials used in this new process, as well as their great abundance, the Microdiesel process can result in a more widespread production of biofuel at a competitive price in the future”, says Professor Steinbüchel.

There is a growing number of fuels used in cars and homes that are produced with the help of microbes. UK ministers are considering doubling the targets for the amount of biofuels sold in Britain by 2015.

Note to News Editors

Professor Alexander Steinbüchel at Institut für Molekulare Mikrobiologie und Biotechnologie, Westfälische Wilhelms-Universität Münster, Germany, has published the research paper ‘Microdiesel: *Escherichia coli* engineered for fuel production’, co-authored by Rainer Kalscheuer and Torsten Stölting, in the September 2006 issue of *Microbiology* (pages 2529-2536), a Society for General Microbiology journal.

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The Society for General Microbiology disseminates current research findings in microbiology in its four distinguished journals. Each journal has an international editorial board, and rigorous peer review ensures that only high-quality papers are published. *Microbiology*, issued monthly, is one of the world's leading microbiological journals. For over 50 years it has been publishing high-quality research across the whole spectrum of the subject. To see for yourself, visit <http://mic.sgmjournals.org/>

The SGM is the largest microbiology society in Europe, and has over 5,500 members worldwide. The Society provides a common meeting ground for scientists working in research and in fields with applications in microbiology including medicine, veterinary medicine, pharmaceuticals, industry, agriculture, food, the environment and education.

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