Existing biotechnology could save energy and cut CO2 by 100 percent

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A new analysis has concluded that use of existing biotechnology in the production of so-called bulk chemicals could reduce consumption of non-renewable energy and carbon emissions by 100 percent. The study appeared in the Nov. 15 issue of ACS' *Environmental Science & Technology*.

Bulk chemicals like ethylene, butanol or acrylic acid are the basic raw materials used in the production of everything from plastics and fertilizers to electronic components and medicines.

Currently derived from crude oil and natural gas, bulk chemical production creates billions of tons of carbon dioxide each year. Still, the application of industrial biotechnology for the production of bulk chemicals has received much less attention than alternative fuel or biomass-derived energy production.

B. G. Hermann and colleagues analyzed current and future technology routes leading to 15 bulk chemicals using industrial biotechnology, calculating their carbon emissions and fossil energy use. With biotechnology advances in the future, the researchers suggest that worldwide CO2 savings in the range of 500-1000 million tons per year are possible.

Even today, bio-based bulk chemicals "offer clear savings in non-renewable energy use and green house gas emissions with current technology compared to conventional petrochemical production."

Source: ACS

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