

How much mileage do you get from sawdust?

June 27 2011

As vacationers gas up to hit the road this summer, they could find themselves wondering about alternative fuels and their potential to ease the strain on pocketbooks and the environment.

Imagine filling up your tank with fuel derived from straw or [sawdust](#). Researchers at the University of Calgary's Schulich School of Engineering are developing new ways to produce [biofuel](#) from organic waste in a sustainable and affordable way.

“Our goal is to make biofuel production more efficient and economical,” explains Dr. Nader Mahinpey, director of the Bio Energy Laboratory at the Schulich School of Engineering. “We are experimenting with the combination and range at which we apply high temperatures and pressure and determining what types of chemicals or other substances we need to add.”

His research involves the production of biofuels from the non-edible parts of plants – such as the straw from flax, barley and wheat – and not food crops. In the past, biofuels from food crops such as corn or sugar cane have been associated with a host of problems including food shortages, spikes in food prices and the debate over whether to use valuable land and water resources to grow crops for food or fuel.

Dr. Mahinpey extracts oil from plant material using a process called pyrolysis, which involves intense temperatures between 400°C and 600°C. The oil must then be upgraded before it can be used as a transportation fuel. Dr. Mahinpey and his team are developing upgrading

processes and even finding ways to turn the waste by-products of biofuel conversion into useful chemicals and products such as fertilizer.

“Biofuel production needs to become more efficient and we need to develop technology that can be used on a large scale,” says Dr. Mahinpey. “Even then, biofuels won’t be the only solution to meet energy demand. We will need a combination of sources including wind and solar power.”

Provided by University of Calgary

Citation: How much mileage do you get from sawdust? (2011, June 27) retrieved 29 April 2024 from <https://phys.org/news/2011-06-mileage-sawdust.html>

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