

# Hydrogen peroxide goes green in undergrad's published paper on renewable energy

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Most of us know hydrogen peroxide as a way to bleach hair, but MacKenzie Mayo is using it to help turn yard waste into renewable energy.

A chemistry major, MacKenzie applies hydrogen peroxide to [algae](#), sawdust and grass clippings so that they can be more easily converted to biofuels like natural gas. She's the lead author of an academic [journal](#)

[article](#) on the topic.

What's more, the hydrogen peroxide changes to water in the process.

“That’s one of the advantages to using this kind of pretreatment,” she said. “A lot of other treatments leave some toxic waste.”

The research could be applied in any setting with a stream of incoming organic waste. At landfills, for example, yard waste could be separated and fed into a machine designed to digest the material and convert it to methane gas. Such equipment is already being developed and used by MacKenzie’s mentor, Professor Jaron Hansen, at dairy farms in Utah and China.

With graduation coming in April, MacKenzie is polishing an Honors thesis that will demonstrate the optimal concentrations of [hydrogen peroxide](#) and UV light when processing [sawdust](#) and grass clippings.

“The thing that gets me most excited is the fact that this is a [renewable energy](#) source,” MacKenzie said. “I feel like I have a responsibility to figure out how to live more sustainably and be cleaner with the energy we use.”

Provided by Brigham Young University

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