Technology turns municipal wastewater algae into specialty chemicals for biofuels, bioplastics

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Gen3Bio has designed mobile 15-gallon enzymolysis pilot plants to be placed in wastewater treatment facilities to transform algae into specialty bio-based chemicals, such as biofuels or bioplastics. Credit: Purdue University

A startup is advancing a unique way to transform algae used to purify municipal wastewater into specialty bio-based chemicals such as biofuels or bioplastics that could help reduce the risk of toxic algae blooms that often kill fish and surrounding wildlife.

Algae from wastewater treatment facilities is typically disposed of in a landfill, which can be costly and environmentally challenging.

"There is a better way to repurpose this algae. We use our patented enzyme technology to break open the algae and take out the sugars, fats and proteins, and convert those into specialty chemicals," said Kelvin Okamoto, founder and chief executive officer of Gen3Bio, a startup commercializing the technology. "It's a way to keep the carbon cycle going by renewing the use of the algae into useful and safe products."

After the extraction of nutrients, various specialty chemicals can be made and sold. For example, the proteins and lipids can be dried into products such as agricultural fish food.

With Gen3Bio, a portion of the revenue generated from the specialty chemicals is given back to the facilities.

Gen3Bio has been accepted into two accelerator programs focused on advancing new environmentally friendly technologies – the BREW in Milwaukee and Carbontech Labs in San Francisco.

"It's a great opportunity for us to get guidance from mentors, network

with people in the wastewater treatment industry and ultimately pitch our technology to interested investors and customers," Okamoto said.

The BREW accelerator, sponsored by The Water Council, focuses on fresh water, wastewater treatment and water treatment technologies. Currently, five companies, including Gen3Bio, are involved in the BREW accelerator. The BREW accelerator offers those selected $50,000 in funds, connections to office and research space, and access to mentors. At the end of the program in June, Gen3bio, along with the other participants, will pitch their technologies to a panel of investors.

Carbontech Labs is sponsored by Carbon 180, which is working toward a carbon-neutral society in hopes of rolling back carbon levels in the atmosphere. Gen3Bio is in the first cohort of this virtual accelerator program.

As part of its participation in the Carbon Tech Labs accelerator, Gen3Bio has been assigned a resident entrepreneur to provide guidance.

Provided by Purdue University

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