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Algaeology 2010:10:04

Governments are researching which renewable energy to invest in. But the answer could lie somewhere you might not think of: at the bottom of a pond. A group of designers are exploring how algae could be grown at home to provide us with power.

Words: Max Reyner
Visuals: Julian Ellerby

They're green. They're slimy. And they cloud waterways. But algae are not just a nuisance, and could be an easy way to produce energy. According to scientists, the majority of their mass is made up of lipid oil, a substance that can easily be converted into algae biodiesel. In other words, burning algae can produce a lot of power. And algae burn cleanly too. It is no wonder then, that governments are pouring money into algae research.

But algae could also be cultivated at home. And rather than burned, electricity could be derived from photosynthesis, the process by which a plant converts oxygen and light into organic compounds. British designer Mike Thompson has proposed how this might power a light for his project Latro. 'While researching nanotechnology, I stumbled across an article about scientists investigating the electrical potential of plants,' he says. 'It mentioned how scientists from Yonsei [in South Korea] and Stanford University had managed to draw a small electrical current from algae during photosynthesis.' In effect, they used the algae like a battery.

Thompson used this process in his Latro light concept. A person breathes into a container, filling up the lamp with carbon dioxide. Photosynthesis in the algae then creates a current to power the light bulb. 'As advances in technology lead to increasingly energy-efficient products,' says Thompson, 'plant life such as algae could become attractive sources for energy.'

To tap the energy in algae, there needs to be a system for cultivating it. As part of her degree at Central St Martins College in London, designer Marin Sawa imagined what a home-cultivation plant would look like and created an algae-growing system for the home. The system, called Algaerium, borrows techniques from molecular gastronomy to convert wet algae to dry algae. These dry, solid algae can then be used to produce energy. They can be eaten too, particularly as algae are rich with Omega 3 oil. In addition, the Algaerium visibly indicates when photosynthesis takes place, changing from orange to yellow. 'It's a new kind of greenery that visualizes photosynthesis through colours,' says Sawa.

Similarly, designer James Shaw has imagined how an algae cultivation system might function. For his WaldenHome project, Shaw designed a concept for a photo-bioreactor in the home that grows algae for food. It uses easy-to-find objects such as jars and composting equipment to grow algae. After cultivating a batch of algae, it can be dried out and rolled around to combine into solid lumps, similar to cheese.

The current trend for grow-your-own, as explored in our report on the [Rurban Revolution](#), is evolving. 'It's going towards something less agricultural and more like a laboratory,' says Sawa. LS:N Global expects to see more scientific, grow-your-own labs in the future.

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