

21st Sep 2010 Nature Power

Designers at the 2010 London graduate shows exhibited a raft of innovative ideas that explore cleaner and greener energy solutions.

Harvesting the Value

Royal College of Art graduates Lisa Johansson and Maximo Riadigos are both battling against the quantity of waste being sent to landfills. They each showcased systems that make producing your own biofuels at home easy and practical.

Johansson's Compost Distiller provides a simple and sustainable solution for processing organic kitchen waste into ethanol, soil nutrients and compost.

Harnessing the energy and nutrients stored in waste before it becomes soil, Johansson says that with the assistance of an industrial distiller she can make 95% proof ethanol, which is powerful enough to run an automobile.



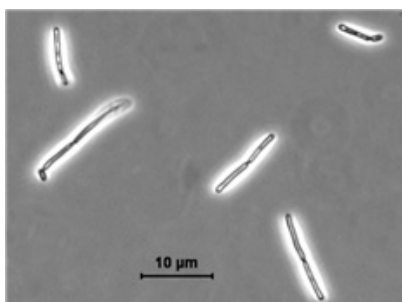
Brazilian designer Riadigos has created Feed Me – a system for greenhouses that treats domestic food waste using anaerobic digestion (biodegradation of waste without oxygen) and transforms it into biogas and liquid fertilizer. The biogas can be burnt to keep the greenhouse warm in the winter and the liquid fertilizer gives nutrients to the plants.

Feed Me takes the consumer a step closer to self-efficiency. Creating a closed-loop nutrient system by turning organic food waste into fertilizer, that's absorbed by plants and will in turn then provide food waste to feed back into the system.

Hard-Working Bacteria

Damian Palin, another Royal College of Art graduate, has explored biomimetic principles to create a new form of sandstone. Working with loose aggregates and bacteria, Palin has created an energy-efficient and sustainable building material without the harmful environmental impact of industrial processes.

Using mechanisms that occur in nature, A Radical Means employs a bacterium that forms calcium carbonate crystals when dissolved in calcium and urea. These crystals form bonds between the loose sand, which results in a material that can be cast into any shape at biological temperatures.

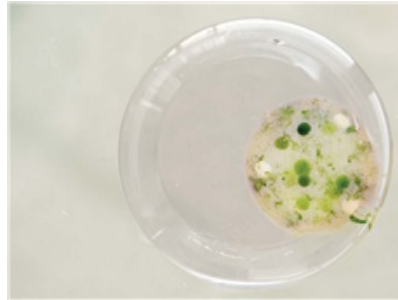


Illuminated Algae

Exploring how biological processes can be used to design domestic living textiles, Central Saint Martins College graduate Marin Sawa has created architectural algae textiles. Sawa's project Algaerium celebrates the special characteristics of green and white algae. Sawa has created a new type of bio-power in the form of light from bioluminescent algae.

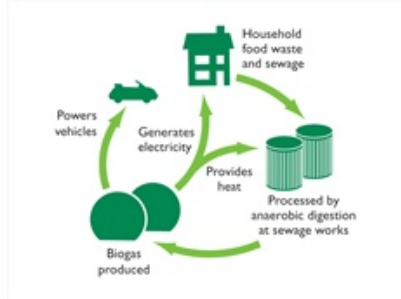
Algaerium is made up of a modular structure that pumps micro algae through clear flexible tubes. The movement within the system agitates the bioluminescent algae and makes it glow.

Algae is traditionally grown on an industrial scale, but Algaerium brings this powerful green marvel into the home environment for living light.



Dung Beetle

It is not only experimentally minded graduates who are showcasing the future applications of biofuel. Showing that there are uses for all types of organic waste is the sustainable energy company GENeco. It has unveiled a Volkswagen Beetle that runs on compressed methane gas extracted from human waste. The biogas is produced from the methane gas generated at the Wessex Water sewage works during its treatment process. The waste is broken down by oxygen-starved bacteria into methane gas, which is harvested and placed in tanks in the boot of the Bio-Bug Beetle.



These projects all demonstrate the extensive and powerful uses of organic waste, and are paving the way to a bio-fuelled future.

- geneco.uk.com
- johalisa.com
- maximoriadigos.com
- marins.co.uk

