

Scientists harvest algae as global fuel of future

Science: North-east research could be next big energy story

BY CAROLINE BRODIE

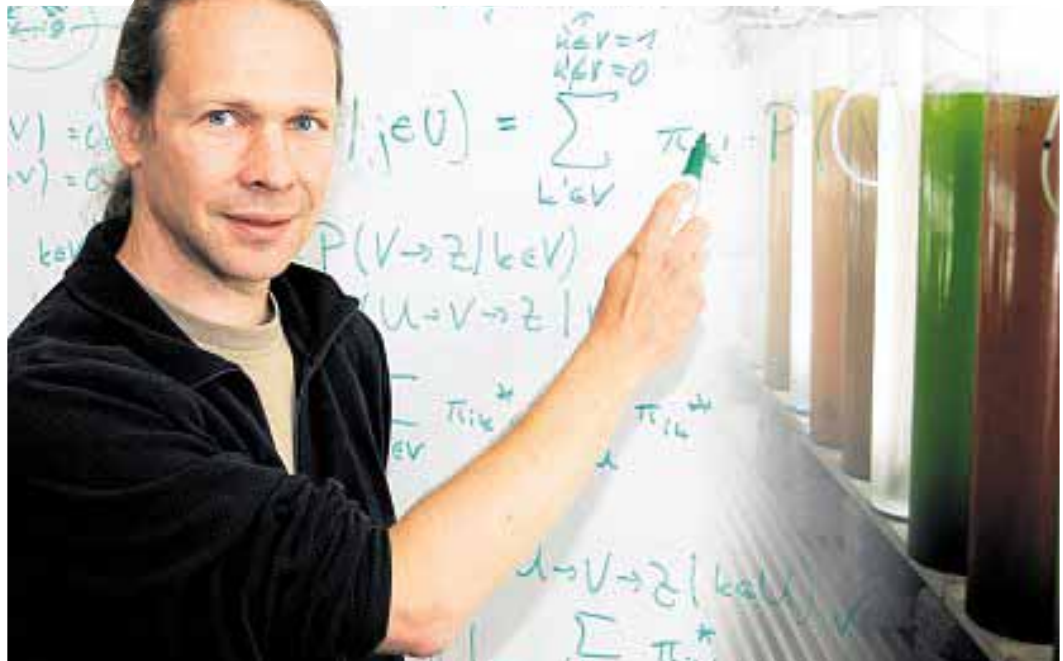
Scientists who believe algae holds the key to the world's fuel demands have embarked on a £3.5million study - with the backing of Scotland's first minister.

Alex Salmond yesterday praised the 12-strong international research team, led by Aberdeen University, which will explore new ways of making biofuels out of microscopic algae

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found in the world's oceans and seas. Biofuels are currently made from crops, such as corn or sugarcane, but project co-ordinator Dr Oliver Ebenhoeh says this is not sustainable.

"We need to find efficient ways of supplying our energy demand in a way that doesn't compete for valuable resources like arable land or fresh water," he said. "You can't just put corn in your car's gas tank because it's being used to feed millions already - it



EXPLORATION: Dr Oliver Ebenhoeh with microalgae being cultivated in photo-bioreactors

won't be sustainable. This is one of the key motivations to look into marine microalgae.

"Cultivating algae using water that can't be used for irrigation, like salt water or brackish water, makes sense as it's so vast - it's all around us and there's no competition to use the land

to grow other things." Yesterday, Mr Salmond said the AccliPhot project - which is due to run for four years and is backed by £3.5million of EU funding - could herald another exciting development in Scotland's energy story.

He said: "The team at Aberdeen University is using

cutting-edge techniques to support the development of a sustainable biofuel from microscopic algae.

"In many ways, these researchers are ideally placed to undertake this work, being based in a city that has a magnificent heritage in the offshore industry."

Scientists from Germany,

Italy, Switzerland, France, Ireland and the UK will be involved in the research.

Dr Ebenhoeh, of Aberdeen University's Institute of Complex Systems and Mathematical Biology, said his team came from diverse backgrounds, which would allow them to tackle the research in a unique way.



Not as simple as skimming algae off a pond

Researchers already know that biofuels can be made out of algae but it is not as simple as skimming the green stuff off the surface of the pond and pumping it into a fuel tank.

Various mechanical and chemical methods must be used to extract the oil from the algae and convert it into fuel. The key lies in finding

cost-effective ways to do this, but a growing body believe algae biofuels could contribute hugely to the planet's energy consumption if the right technology can be developed.

Algae biofuels would also offer advantages over those made from land plants, including algae's ability to grow on non-croplands in

cultivation ponds of freshwater, salt water, or wastewater.

Dr Oliver Ebenhoeh said his team wanted to understand how plants and microalgae respond to changes in light and other conditions and use that to make new products. While the main focus is on biofuels, the study could also

yield advances in antibiotics and nutritional supplements, or even produce chemical compounds used in the cosmetics industry.

He said: "We're hoping to understand the principles guiding these changes to environments then see if this can be scaled up to industry scale. Applications are enormous as you can

look into targeted pharmaceuticals or precursors for the chemical industry."

Microalgae eat nothing but carbon dioxide, light and some minerals. Cells of microalgae typically measure between a few to several hundred micrometres and can be grown in vast numbers in water tanks called photo-bioreactors.

