



Algae an answer to biofuels?

To the Editor: With reference to the editorial 'Humans – a threat to humanity',¹ recent information could bring a little light into the darkness.

Research in the Netherlands on diesel biofuels derived from algae,^{2,3} using a complex (and still expensive) photosynthetic process, could help to give alternative energy the bump it needs by way of green goo. Maritime biologist Professor Hein de Baar says that algae are ideal as biofuel; they yield 10 times more biofuel than corn or rapeseed, are easy to grow, are not a human food source, and can be produced without adding to CO₂ levels. He hopes that within a few years there will be cars running on algae oil.

Algae are the most common plants on earth, and make up most of the planet's biomass. CO₂ emissions could be reduced substantially if biofuel were produced from specially grown algae, since algae need CO₂ to grow. An intensive algae nursery would require large quantities of CO₂, which would be no problem if a nursery were hooked up to a power plant. Imagine: the plant's smoke stack emits copious CO₂ which would be captured and injected into large containers with algae situated next to the plant. The fast-growing algae could then serve as fuel for the power plant, thus creating a closed circle without any atmospheric emission of CO₂.

Biofuels have a bad reputation because some of them also serve as food for humans. In Latin America, prices of corn have



risen because the crop is used for fuel production. There is no such problem with algae (though some species are used as animal fodder).

Food production and algae nurseries are not incompatible. As Professor de Baar explains, 'A big container would have to be transparent to allow sunlight to enter. It could be a vertical container of several metres high, which would be aerated with air rich in CO₂. Another option is to have a mixture of algae and water flow through a series of horizontal pipes. At first the water would be quite clear, with some nutrients added, but it would end as a kind of pea soup, which could be pumped straight into a factory. The algae would be filtered out so they could be processed as fuel.'

Perhaps the water could be recycled and re-used afterwards?

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1. Van Niekerk JP. Humans – a threat to humanity. *S Afr Med J* 2008; 98: 163.
2. Haag AL. Pond-powered biofuels: Turning algae into America's new energy. Iowa, USA: Popular Mechanics, 29 March 2007. <http://www.popularmechanics.com/science/earth/4213775.html> (accessed 26 May 2008).
3. Algaculture. <http://en.wikipedia.org/wiki/Algaculture> (accessed 26 May 2008).