

Start Your Engines—with Algae!

By Regina M. Malczewski



By now, you may know that our bodies can get energy from algae ... but did you know that *cars* can, too? Around the world, chemists are looking for interesting new ways to make energy that do not depend on petroleum. Biofuels, including from algae and other living things, are one amazing possibility. The world of algae includes *microalgae* (also called **phytoplankton**), which are too small for us to see with our eyes. On the larger end, *macroalgae* (seaweed), are not only visible, but can also grow as tall as 200 feet (60m)!

Both types of algae contain oils that can be used as fuel. Because this oil is biodegradable, even if there is an accidental spill, it does not hurt the environment. And even the “waste” from algae fuel production is worth saving. Scientists can use it to feed animals or to help make other important chemicals, like antibiotics. For all these reasons, algae are valuable alternatives to petroleum.



Algae even have advantages over other natural sources of energy, like corn or wood:

- Algae are easy to grow, both on land (even where other crops will not grow) or in water (both fresh and salty). Also, they are not easily damaged by bugs or pests.
- Algae are not fussy, so they can be grown near to the people who will use them for energy. That means they will not need to be moved long distances—saving time, money, and effort!

- Compared with traditional crops, much more algae can be harvested from the same amount of space. In fact, one acre of algae can produce up to 100 times more fuel than one acre of sesame or palm trees. Part of the reason for this is that algae grow very fast. Also, we can develop other types of algae that produce unusually high amounts of oil.

There is still work to be done before people everywhere can use algae to make biofuel. Large amounts of water are needed, costs are currently high, and today's processing methods must be improved. Chemists, engineers, and biologists will continue to work together at this challenge and make more earth-friendly fuels, energized with algae!

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Word Search

Try to find the words listed below – they can be horizontal, vertical or diagonal, and read forward or backward!

P	J	B	E	M	A	C	R	O	A	L	G	A	E	O
Q	H	I	C	A	J	H	Z	R	E	L	H	C	R	E
C	U	O	I	T	Q	F	H	A	B	O	P	B	D	C
V	A	L	T	M	N	A	L	G	R	E	M	I	B	O
B	S	U	A	O	R	O	N	E	G	Y	X	O	E	S
E	Y	M	U	S	S	T	R	F	L	O	H	F	W	Y
A	N	I	Q	P	A	Y	L	I	I	D	Y	U	D	S
G	M	N	A	H	F	P	N	D	Z	V	W	E	O	T
L	R	E	G	E	K	E	N	T	R	J	T	L	O	E
A	O	S	K	R	E	O	L	Q	H	L	E	X	F	M
O	S	C	M	E	B	Q	P	H	G	E	A	R	T	H
R	N	E	E	R	L	E	U	R	K	E	S	C	V	E
C	M	N	A	A	E	P	H	I	N	U	Q	I	D	A
I	R	C	S	R	N	Z	D	E	E	W	A	E	S	A
M	O	E	G	C	H	L	O	R	O	P	H	Y	L	L

Aquatic	Earth	Microalgae
Atmosphere	Ecosystem	Nori
Biofuel	Food web	Ocean
Bioluminescence	HAB	Oxygen
Carbon dioxide	Kelp	Photosynthesis
Chlorophyll	Macroalgae	Seaweed

For answers to the word search, please visit www.acs.org/celebratingchemistry.