

Short Note on Algae Fuels

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Algae fuel, protoctist biofuel, or protoctist oil is another to liquid fossil fuels that uses protoctist as its supply of energy-rich oils. Also, protoctist fuels are another to unremarkably legendary biofuel sources, like corn and sugarcane. Once made of algae (macroalgae) it are often called algae fuel or algae oil. Several corporations and government agencies are funding efforts to cut back capital and in operation prices and create protoctist fuel production commercially viable. Like fuel, protoctist fuel releases greenhouse emission once burnt, however in contrast to fuel, protoctist fuel and alternative biofuels solely unharness greenhouse emission recently faraway from the atmosphere via chemical process because the protoctist or plant grew.

The energy crisis and therefore the world food crisis have lit interest in algaculture (farming algae) for creating biodiesel and alternative biofuels victimisation land unsuitable for agriculture. Among protoctist fuels' enticing characteristics are that they will be fully grown with smallest impact on H₂O resources, are often created victimisation saline and sewer water, have a high flash purpose, and are perishable and comparatively harmless to the surroundings if spilled. Protoctist value additional per unit mass than alternative second-generation biofuel crops thanks to high capital and in operation prices, however are claimed to yield between ten and a hundred times additional fuel per unit space. The US Department of Energy estimates that if protoctist fuel replaced all the crude oil fuel within the US, it'd need 15,000 sq. miles (39,000 km²), that is just zero.42% of the US map, or concerning half the acreage of Maine. This can be but space of corn harvested within the US in 2000. The head of the protoctist Biomass

Organization expressed in 2010 that protoctist fuel may reach value parity with oil in 2018 if granted production tax credits.

However, in 2013, Exxon Mobil Chairman and chief executive officer Rex Tillerson aforementioned that once committing to pay up to \$600 million over ten years on development in an exceedingly venture with J. Craig Venter's artificial genetics in 2009, Exxon force back once four years (and \$100 million) once it complete that protoctist fuel is "probably further" than twenty five years faraway from business viability. In 2017, artificial genetics and ExxonMobil reportable a breakthrough within the joint analysis into advanced biofuels. The breakthrough was that they managed to double super molecule content (from two hundredth in its natural kind to 40-55 percent) in an exceedingly genetically built strain of *Nannochloropsis gaditana*. On the opposite hand, Solazyme, Sapphire Energy, and Algenol, among others have begun business sale of protoctist biofuel in 2012 and 2013, and 2015, severally. By 2017, most efforts had been abandoned or modified to alternative applications, with solely some remaining. Protoctist are often reborn into varied forms of fuels, betting on the technique and therefore a part of the cells used. The lipid, or oily a part of the protoctist biomass are often extracted and reborn into biodiesel through a method kind of like that used for the other oil, or reborn in an exceedingly plant into "drop-in" replacements for petroleum-based fuels. Instead of following super molecule extraction, the macromolecule content of protoctist are often hard into bioethanol or butyl alcohol fuel.

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Received 11 June 2021; Accepted 17 June 2021; Published 22 June 2021

How to cite this article: Zhang Tang. Short Note on Algae Fuels. *J Biomed Syst Emerg Technol* 8 (2021): e106.