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Editorial

Development Feedstock and Production Methods for Lipid-Form Bioenergy

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LIPID

The increasing use of fossil fuels has led to environmental and energy security concerns. Because of this, efforts have been made worldwide to encourage the growth of renewable energy sources, with biofuel being a particularly appealing option. Lipid-derived biofuels have a higher energy density and are more compatible with existing infrastructure than other biofuels. The chemical composition of lipid feed stocks can be easily altered to improve their performance. Lipid feedstocks, lipid-based biofuels like biodiesel, and renewable alternatives to conventional gasoline, diesel, and jet fuel are therefore the primary focus of this review. The headways in lipid-related biofuel innovation as well as the properties of different lipid sources and their true capacity for use in the creation of biofuels are additionally the topic of conversation. In order to provide a broader context for lipid-based biofuel technology, current advancements in lipid production and profile optimization in the context of plant lipids, microbial lipids, and animal fats are also discussed (Alic et al., 2016).

Greenhouse gases are released into the atmosphere when fossil fuels are burned, resulting in serious environmental issues that will only get worse over time. Numerous nations are interested in developing renewable energy sources to combat climate change, reduce particulate emissions from the use of fossil fuels, and ensure energy security. Solar, wind, geothermal, hydropower, ocean energy, and biofuel, which is fuel made from renewable and sustainable sources, are all common sources of renewable energy. Due to their compatibility with existing infrastructure and relatively high energy density, biofuels outperform other clean energy sources. The Sustainable Development Scenario calls for the use of biofuel in transportation, as stated in recent reports from the International Energy Agency (Kelley et al., 2010).

Every significant theoretical advancement in biofuel technology has been closely linked to the properties of the substrates with which it is associated. The choice of feedstock has a significant impact on the technological advancement of biofuel production. The application of biofuel technology can also have varying effects on society and the economy, depending on the feedstock chosen. For example, edible oils and sugars are not ideal feedstocks for the production of low-cost biofuels because they are expensive and difficult to obtain because of competition in the market. However, using lipids that aren't edible, like waste animal fat, can increase the market value of biofuels while simultaneously lowering their price (Salmela et al., 2011).

Modern side-effects and waste have a lower beginning cost, however their utilization in the development of biofuels requires pre-handling, which may likewise inflate costs. In this way, innovation in biofuels is largely dependent on lowering the financial and social costs of obtaining the feedstock and increasing the quality and utility of the product. As a result, efforts to improve the economic viability of biofuel production by developing alternative feedstocks and processing technologies are gaining attention (Chen et al., 2014).

Creature fats, microbial lipids, and establish oils all contain a ton of capacity lipids, a large portion of which are triacylglycerol (TAG), making them fantastic biofuel feedstocks. In terms of the length of the carbon chain, the level of immersion, and fanning, the unsaturated fat moiety in these lipids has the same substance properties as regular energizes. As a result, there are a lot of renewable and lipid-based biofuels, like biodiesel, that can replace conventional gasoline, diesel, and jet fuels. have physiochemical properties that are comparable to those of conventional fossil fuels, making it simple to integrate them into infrastructure that is already in place. The composition of the lipid feedstock

has a significant impact on the lubricity, viscosity, and cold flow properties of fuels in terms of their physical properties. Because lipids are a very diverse class of organic compounds, the oils and fats that are currently available on the market have a wide range of physicochemical properties, including the presence of distinct functional groups. Lipid feedstocks for the production of biofuels can be further optimized to enhance fuel performance by blending or genetically altering species that produce lipids (Chen et al., 2017).

Despite the fact that a number of recent papers have provided a summary of the synthetic routes and economic value of biofuels, it is necessary to conduct a comprehensive investigation into the effect that lipid feedstocks have on the production of biofuels. This overview discusses the unique characteristics, production methods, and effects of lipid feedstock on biofuel properties of various lipid-derived biofuels. The development of lipid biotechnology, which has the potential to tailor lipid sources to better meet the requirements of ideal biofuel feedstocks, was also brought up for discussion. Biofuels made from animal fat, plant lipids, and microbial lipids were also discussed.

There has been an expansion in interest in the improvement of procedures to build the efficiency and piece of fitting lipid feedstocks because of the way that lipids are a critical asset for the development of biofuels and that the properties of lipids fundamentally affect the nature of biofuels. Metabolic engineering strategies that aim to improve the quality and content of storage lipids include increasing the supply of precursors and cofactors for lipid biosynthesis, speeding up TAG assembly, and downregulating.

To ensure energy security and reduce emissions of greenhouse gases and toxic compounds, numerous efforts have been made to develop clean energy, such as biofuel. The feedstock that is chosen has a significant impact on the production of biofuels' efficiency as well as their cost-effectiveness. A lipid made from fats from animals, plants, and microorganisms is one of the most promising options. The carbon-rich fatty acid moieties found in lipid feedstocks provide the lipid-derived.

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