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CARBOXYLATE PLATFORM: THE ROAD LESS TRAVELED

The standard methods for converting lignocellulose to liquid biofuels are the sugar and thermochemical platforms. The sugar platform converts lignocellulose to sugars, which are subsequently fermented to products (e.g., ethanol, butanol) by choosing the appropriate microorganism. The thermochemical platform converts lignocellulose to synthesis gas (CO and H_2), which is catalytically reacted to products (e.g.,. mixed alcohols, hydrocarbons). The carboxylate platform is an alternative route to fuels and chemicals in which the lignocellulose is converted to mixed carboxylate salts (e.g., calcium acetate, propionate) using a mixed culture of microorganisms. The salts are concentrated and then catalytically converted to a variety of chemicals (e.g., carboxylic acids, primary alcohols, secondary alcohols, ketones, esters, ethers, aldehydes) and fuels (e.g., gasoline, jet fuel, diesel fuel).

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