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Efficacy of Green Nano Catalyst Synthesis for Fuel Production incorporating Lignocellulosic Biomass

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Abstract—Till the recent past, conversion of lignocellulosic woody biomass to chemicals and fuels has taken immense research and development around the globe. The demand is to explore energy sources and fossil fuels. The energy conversion process is effective of biomass is able to achieve the needs of energy. Lignin is the only sustainable aromatic resource in nature. Its utilization has attracted worldwide much attention. The whole world is after using Renewable resources instead of Non-Renewable ones due to several reasons such as continuous depletion, harmful environmental impacts and expensive procedures of extraction. There are completed research works to acquire biodiesel biomass catalyst-based processes. Some places lignin derived catalysts give a promising role in taking this target and showing significant benefit such as less cost, environment friendliness, high thermo-stability and catalytic type activity. This work examines the recent trends in lignocellulosic biomass material conversion into the fuels, and through lights on innovative synthetically approaches based on novel biocatalyst and chemo systems and process plans utilizing the biomass-derived technical lignin and carbohydrates. Lignocellulosic from Terrestrial plant biomass is more available and containing polymeric carbohydrates and lignin material; equally recognizing as an attractive feedstocks' renewable for energy, Materials and chemicals as alternatives to fossils fuels to gain the targets for sustainable development future. Consequently, Lignin derived catalyst can be used to produce biofuels sources like Biodiesel fuel. The present review work highlights the lignocellulosic biomass taken lignin catalyst for biodiesel production via sustainable green chemistry method. It also sheds light on the feasibility, efficiency and low cost of this catalyst for biodiesel production.

Keywords— Biodiesel, Biomass, Lignocellulosic Material, Lignin Derived Catalyst