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A Green Future Fuel Trends and Techniques

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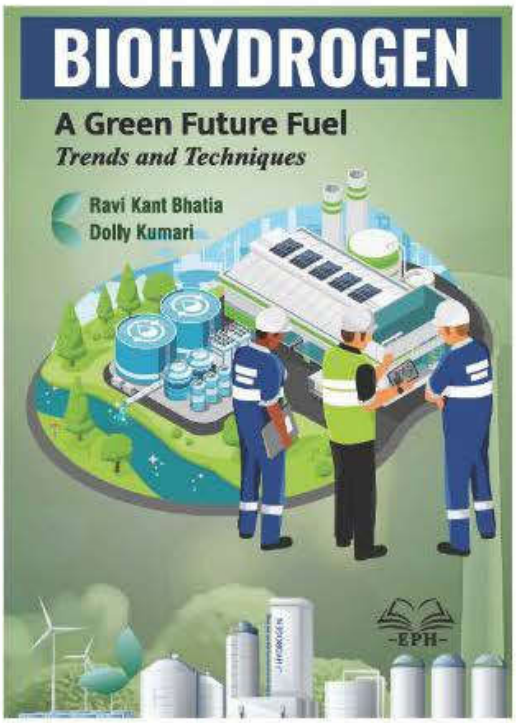

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Contents

Chapter - 2

Biohydrogen Production from Lignocellulosic Biomass: A Green Approach

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Abstract

Biohydrogen (bio-H_2), a carbon-low fuel known for its high energy efficiency, is gaining prominence as a renewable energy source amid increasing concerns about climate change and energy demand. Utilizing lignocellulosic biomass holds promise for establishing a clean energy infrastructure. Despite various technologies available for producing bio-H_2 from lignocellulosic biomass, such as direct and indirect biophotolysis and fermentations, they suffer from drawbacks like low yields and slow production rates. Bio-H_2, distinguishable among biofuels for its carbon neutrality, is achievable through thermochemical conversion methods, presenting an economically viable solution. While certain thermochemical conversion technologies are still in research and development, leveraging organic biomass for hydrogen production is strongly recommended due to its ability to yield larger quantities of the final product and its compatibility with existing infrastructure. This chapter aims to provide current insights into lignocellulose hydrogen conversion progress, tapping into its globally abundant availability.

Keywords: Biohydrogen, Biomass, Environment Sustainability, Green Fuel.