3rd World Biotechnology Congress

Alkaline hydrogen pretreatment lignocellulosic biomass: Status, perspectives and energy policy

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Lignocellulosic biomass is a renewable and abundant resource suitable for the production of bio-based products such a biofuels and chemicals. However, because of its complex chemical composition, requires a process that enhances th release of sugars. Pre-treatment is an essential step to increase the e ciency of enzymatic hydrolysis of lignocellulosic biomas e most widely used pre-treatment methods operate at high temperatures (160-290°C) and pressures (0.69 to 4.9MPa) and generate biological growth inhibitors such as furfural and hydroxymethylfurfural (HMF). us, the search for new approaches to an e ective pre-treatment that operates in ambient temperature and pressure and minimize the generation of inhibitors was intensi ed. Among these methods, the alkaline hydrogen peroxide (AHP) has gained space because is e ective for a wid range of lignocellulosic biomass, enabling high enzymatic hydrolysis e ciency. However, little is discussed in major literature reviews. erefore, the aim of this study was to investigate the use of alkaline hydrogen peroxide (O_2) as oxidative pre-treatment agent to improve the e ciency of enzymatic hydrolysis for di erent types of biomass and discuss the key points of the pre-treatment. Finally, the main challenges of this method for large-scale application are discussed. Also, for this talk, will be discussed the historical evolution of regional Brazil and state energy policy support for and the currently attractive social and economics of the production and use of ethanol from biomass.

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