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## 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 as biofuels and chemicals. However, because of its complex chemical composition, requires a process that enhances the release of sugars. Pre-treatment is an essential step to increase the efficiency of enzymatic hydrolysis of lignocellulosic biomass. The 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). Thus, the search for new approaches to an effective pre-treatment that operates in ambient temperature and pressure and minimize the generation of inhibitors was intensified. Among these methods, the alkaline hydrogen peroxide (AHP) has gained space because is effective for a wide range of lignocellulosic biomass, enabling high enzymatic hydrolysis efficiency. However, little is discussed in major literature reviews. Therefore, the aim of this study was to investigate the use of alkaline hydrogen peroxide ( $H_2O_2$ ) as oxidative pre-treatment agent to improve the efficiency of enzymatic hydrolysis for different 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.

### Biography

Alexandre Libanio Silva Reis is a Bachelor's degree in Biological Sciences from the Federal Rural University of Pernambuco (2000), a Master's Degree in Biochemistry from the Federal University of Pernambuco (2004) and a PhD in Biology from the University of Pernambuco (2014). He is currently Administrative and Scientific Director of Fungi Nordeste Biotecnologia, working in the area of inovative and development of new nutraceutical products from the cultivation of filamentous fungi. He has experience in the field of biochemistry and biomass conversion, with emphasis on enzymology, purification, characterization, immobilization of proteins and genetics of fungi for alcoholic fermentation.

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