



## **BIOMASS VALORIZATION: CONVERSION OF C6 SUGARS INTO 5-HYDROXYMETHYLFURFURAL BY HETEROGENEOUS CATALYSIS**

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5-Hydroxymethylfurfural (5-HMF) is considered a molecule of high commercial interest due to the wide range of applications in the chemical industry. Examples of its application are the production of biofuels, such as 2,5-dimethylfuran, solvents, such as 2,5-dimethyltetrahydrofuran, and in the preparation of monomers for the polymers production, as an example the 5-furanedicarboxylic acid (FDCA), which is a potential substitute for terephthalic acid in the production of polyesters, such as polyethylene terephthalate (PET). In this scenario, the present work aims the development of a methodology for the synthesis of 5-HMF that is compatible with the 12 principles of green chemistry and the 17 Sustainable Development Goals adopted by the United Nations. In this study, the conversion of fructose to 5-HMF was carried out using sulfamic acid catalyst, which is a low-cost, easy-to-handle and non-corrosive mineral acid and using microwave energy as the heating source. The search for the best reaction condition was determined after optimization reactions in which the reaction time, temperature and quantity of the catalyst were evaluated. Under ideal conditions a conversion of 98.46% of fructose was observed, and a selectivity of 84.23% in the formation of 5-HMF. The 5-HMF was characterized by nuclear magnetic resonance spectroscopy and mass spectrometry.

Palavras-chave: 5-hidroximetilfurfural, frutose, química verde

Apoio: UCS, CNPq, CAPES