

# Seminario de Química Física



Martes 19 de mayo de 2026 – 12:00 h



Sala de Grados (Biblioteca)

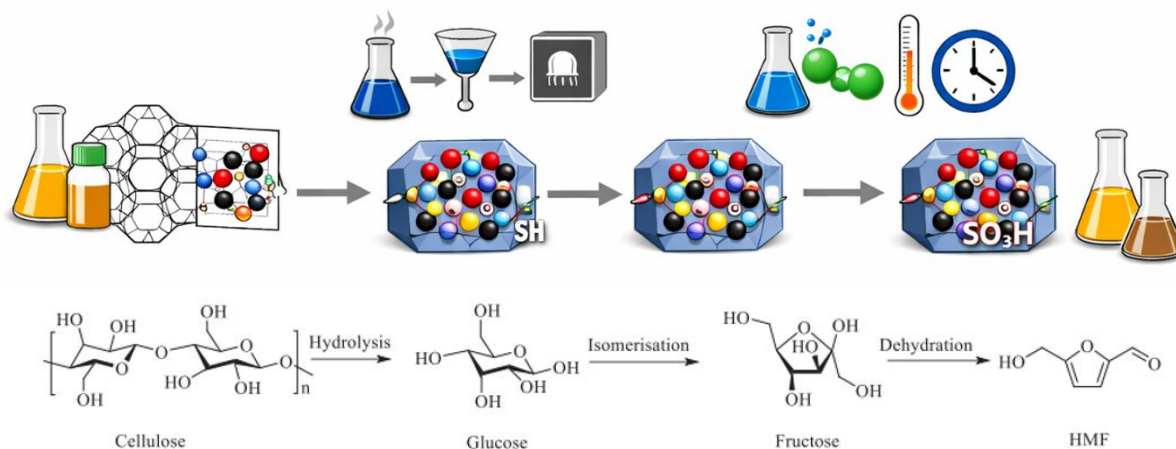
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## MW-Assisted Catalytic Conversion Of Bamboo Waste In Ionic Liquids Into Platform Chemicals

Ethiopia celebrates a huge diversity in natural resources. With well over 1.44 million hectares of forest covered with indigenous bamboo, Ethiopia is the largest bamboo grower in Africa, with a total share of nearly 32% of the African region and 3.89% of the world total production of bamboo. The country has two species, namely *Yushania alpina*, planted and managed by farmers in the highlands, and *Oxytenanthera abyssinica*, which grows naturally in the lowlands. Today, hundreds of thousands of Ethiopians in small cottage industries earn their livelihoods from bamboo cultivation and processing activities. The International Network for Bamboo and Rattan (INBAR), which Ethiopia joined as a member in 2002 estimates that Ethiopia's potential revenue and employment from bamboo is immense, which has the potential to grow 3 million hectares of plantations, 5 billion USD in revenue and 1.3 million jobs. Moreover, as part of its continued efforts to further standardize the bamboo sector, Ethiopia recently adopted six national standards on bamboo furniture, bamboo bicycles, bamboo scaffolding, bamboo incense sticks, bamboo-based activated carbon and bamboo culm grading. With the rapidly increasing global demand for bamboo products, it is quite evident that this will result in the production of huge volumes of bamboo waste as sawdust, shavings, etc. This waste is an abundant lignocellulose material. These abundant biomass resources can be converted into several valuable platform chemicals such as 5-hydroxymethylfurfural (HMF), levulinic acid (LA), furfural, sorbitol, etc., which can be obtained through acid-catalysed dehydration of carbohydrates. As compared to the other lignocellulosic materials, the cellulose content of bamboo is relatively high, while the low lignin content facilitates the easy treatment to extract biodegradable composite materials (cellulose nanofibers (CNFs) and cellulose nanocrystals (CNCs)).



The robust structure of cellulose and low stability of HMF under harsh reaction conditions present a challenge in the selective conversion of cellulose to HMF. Production of platform chemicals from lignocellulosic biomass at high selectivity and yields at economical costs is one of the main challenges of obtaining the products. Heterogeneous acid catalysts, which contain both Lewis and Brønsted acid sites in ionic liquids are synthesized and characterized for the conversion biomass into platform chemicals. Both Brønsted and Lewis acid sites could accelerate the degradation of the biopolymer and dehydration of the monosaccharide to downstream products.