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Combination of Solid Adsorbents and Liquid Cosolvents to Increase HMF Yields from Glucose

A novel method significantly increases high-yield production of 5-hydroxymethylfurfural (HMF) from glucose, resulting in lower side products for sustainable polymers and chemicals manufacturing.

5-hydroxymethylfurfural (HMF) is a value-added product that can be upgraded into polymers, pharmaceuticals, and biofuels through a number of well-researched processes. One such polymer is a renewably sourced polymer, polyethylene furanoate (PEF), which is similar to the petroleum based polyethylene terephthalate (PET). Large scale usage of PEF and other HMF upgraded products are hindered by current HMF production methods which are lower yield due to incomplete consumption of glucose and various side reactions. Researchers at Purdue University have developed a novel method to increase HMF yields from a glucose source. Through experimentation, Purdue researchers demonstrate that HMF yield increases by >200 percent while a significant reduction in polymerization of HMF to side products is observed by using Purdue's method.

Advantages:

-Higher Yields of HMF

-Lower undesirable products from side reactions

Potential Applications:

-HMF production

-Sustainable plastics production

TRL: 4

Intellectual Property:

Technology ID
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Category
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Chemicals & Advanced Materials/Green & Bio-Based Chemistry
GreenTech/Sustainable Packaging Materials

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