

## Understanding 5-Hydroxymethylfurfural (HMF) Production Derived from Chitosan Using Solid Acids

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### Abstract

Selective chemical transformation of 5-hydroxymethylfurfural (HMF) from chitosan using various solid acids has been demonstrated in this study and we have discovered that the molar yield (%) of HMF chemically derived from commercial chitosan (chitosan-com) can reach 30±3% high while the reaction was carried out at 180°C for 2 h under co-solvent system. HMF production derived from solid acid A is comparable in comparison to the one from homogeneous catalysis systems using organic/inorganic acids shown in Figure 1. In addition, the tarry carbonaceous material was also produced upon the chitosan conversion which might impede the recyclability; however, solid acid A can be reused for chitosan conversion and it has shown 37% of recycling efficiency after regeneration.

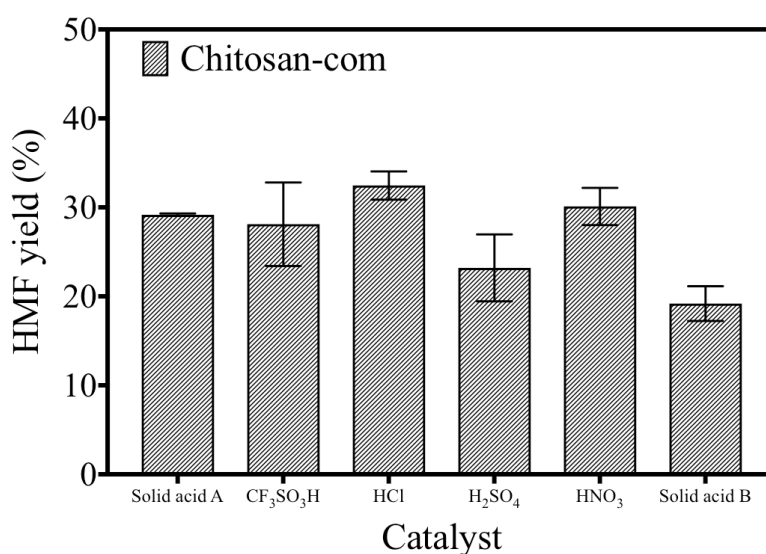


Figure. 1 The 5-hydroxymethylfurfural produced from commercial chitosan using heterogeneous and homogeneous catalysts.