

## Sulfonated Mesoporous Polymer (MP-SO<sub>3</sub>H): A Highly Efficient Solid Acid Catalyst for Carboxymethylation of Alcohols to Alkyl Methyl Carbonate

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### Abstract

Acid catalyzed carboxymethylation of alcohols is an emerging organic transformation that has grabbed the attention of scientific community in recent years. In the present study, sulfonated mesoporous polymer (MP-SO<sub>3</sub>H) is presented as a highly active solid acid catalyst to convert a wide range of alcohols into alkyl methyl carbonates. The remarkable catalytic activity of MP-SO<sub>3</sub>H is comparable to that of reported homogeneous acid catalysts. A good correlation was established between the catalytic activity and textural properties of the material. An exceptional catalytic activity of MP-SO<sub>3</sub>H was observed for DMC mediated carboxymethylation of bio-derived alcohols which is unmatched to conventional resins and zeolites. This superior activity of MP-SO<sub>3</sub>H is ascribed to its intrinsic mesoporosity, high acid strength and uniform coverage of surface area by active sites. The catalyst is recyclable, resistant towards leaching and can be used in successive runs without losing the original activity. To the best of our knowledge, MP-SO<sub>3</sub>H is the first solid acid catalyst to exemplify highest activity for the synthesis of different alkyl methyl carbonates using DMC. The protocol developed herein opens up new avenues to transform wide range of bio-alcohols into useful organic carbonates in the future.



### Biography:

Mr. Kempanna S. Kanakikodi has completed his bachelor degree (BSc) from Karnataka University Dharwad, and master's degree at Ranni Channamma University Belagavi, Karnataka state, India. Currently pursuing his PhD from Manipal Academy of Higher Education, Manipal, Karnataka, India.

### Speaker Publications:

1. "Solid acid catalyzed carboxymethylation of bio-derived alcohols: an efficient process for the synthesis of alkyl methyl carbonates" August 2020
2. "Tuning Acidity of Sulfonated Mesoporous Polymers (MP-SO<sub>3</sub>H) for Efficient Tetrahydropyranlation of Alcohols at Room Temperature" Journal of Chemistry select volume-5, Issue -1, January 2020  
Volume 23, Issue 1, January 2019, Pages 1-6
3. "Catalytic tertiary butylation of phenol over sulfonated mesoporous polymer catalyst (MP-SO<sub>3</sub>H): Exceptional selectivity towards 2,4-di-t-Butylphenol Microporous and Mesoporous Materials  
Volume 286, 15 September 2019, Pages 133-140
4. "Porous polydivinylbenzene (PDVB) as an efficient adsorbent for hydrocarbons: Effect of porogens on adsorption capacity" Volume 380, 15 January 2020, 122481
5. "Catalytic tertiary butylation of phenol over sulfonated mesoporous polymer catalyst (MP-SO<sub>3</sub>H): Exceptional selectivity towards 2,4-di-t-Butylphenol" Volume 286, 15 September 2019, Pages 133-140

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