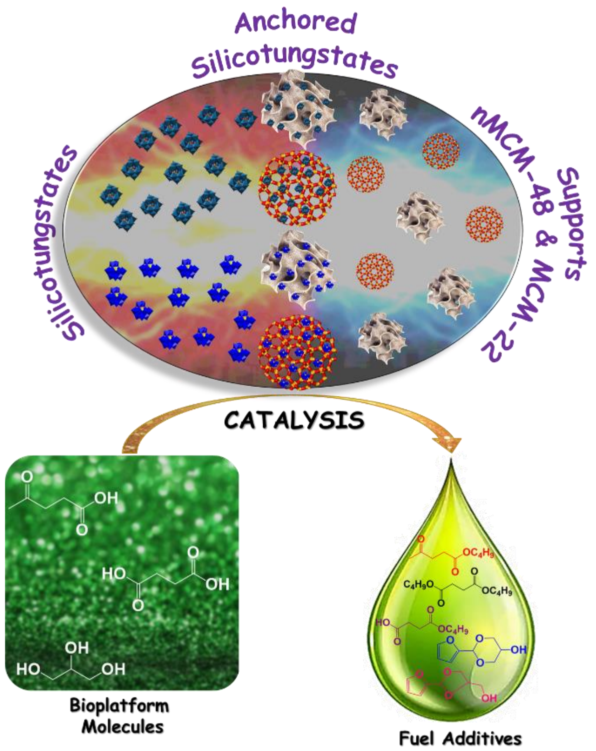
Main Conclusion



- Series of catalysts comprising SiW_{12}, SiW_{11}, nano-porous MCM-48 and MCM-22 were synthesized successfully.
- Synthesis of biofuel additives- Butyl levulinate, Dibutyl succinate and Glycerol acetals under mild reaction conditions via esterification and acetalization reactions of important bioplatform molecules were carried out effectively.
- All the processes are economic and environmental viable as the potential multifunctional nature of biomass derived platform molecules, were utilized to give value added products, thereby contributes commendably towards the energy transitions.
- The structure, geometry and inherent acidity of the support are important factors that matters in the catalytic activity.
- In all the transformations, the TON was found in the range 1214 – 7355 (exceeding 1000), indicating that all the catalysts are of industrial importance.