Tentative Outline

Special Thematic Issue for the journal "Current Catalysis"

Title of the Thematic Issue: Catalytic Valorisation of Biomass-Derived Oxygenates

Sectional Editor: Shunmugavel Saravanamurugan

Co-Guest Editor: Hu Li, Sushil Kumar Kansal

- **Scope of the Thematic Issue:**

The consumption of energy, fuels, and commodity chemicals derived from limited fossil resources such as coal, oil, and natural gas has been increasing year on year due to the increase in the world population and the standard of living in developing countries. Also, the consumption of these fossil resources for producing fuels and chemicals has an adverse effect on the environment as harmful substances are released during production. Moreover, these fossil resources' availability is dwindling steadily, alarming to focus on renewable resources with a particular emphasis that could potentially supplant and alternative to fossil resources, not affecting the current chemical value-chain. Concerning this, the second-generation biomass, nonedible lignocellulosic-based feedstock, has been considered as an alternative renewable resource for producing chemicals and fuels. The lignocellulosic biomass is a highly abundant and naturally available terrestrial biomass composed of cellulose, hemicellulose, and lignin with multifunctional groups. Glucose, xylose and aromatic phenyl compounds are the primary substrates that could be derived from cellulose, hemicellulose and lignin, respectively. Moreover, these highly functionalised substrates can further be transformed into a wide array of biochemicals via various routes (e.g., isomerisation, deoxygenation, dehydration, oxidation, hydrogenation), for example, glucose to fructose, glucose to 5-hydroxymethylfurfural, glucose to lactic acid, xylose to furfural and lignin to phenolic compounds.

Catalytic transformation of biomass to value-added chemicals is one of the strategic approaches for selectively producing the target products. Thus, this special thematic issue invites review papers focused on '***Catalytic Valorisation of Biomass-Derived Oxygenates***.'

Keywords: Catalysis, biomass, cellulose, hemicellulose, lignin, oxidation, hydrogenation, deoxygenation

Sub-topics:

- Catalytic valorisation of lignocellulosic biomass
- Catalytic valorisation of cellulose
- Catalytic valorisation of hemicellulose
- Catalytic valorisation of lignin
- Catalytic valorisation of biomass-based oxygenates
- Catalytic production of biofuels, including biodiesel
- Catalytic valorisation of oxygenates to hydrocarbon fuels
- Catalytic functionalisation of cellulose
- Catalytic production of hydrogen from biomass-derived substrates
- Photocatalytic transformation of oxygenates to value-added chemicals

- Electrocatalytic transformation of biomass-derived substrates
- Catalytic deoxygenation of biomass-derived oxygenates
- Catalytic hydrodeoxygenation of biomass-derived substrates
- Catalytic hydrogenation of biomass-derived oxygenates
- Catalytic oxidation of biomass-derived oxygenates

Schedule:

✧ Thematic issue submission deadline: March 2023

Contacts:

Sectional Editor:

Shunmugavel Saravanamurugan

Affiliation: *Center of Innovative and Applied Bioprocessing (CIAB), Mohali, India*

E-mail: *saravana@ciab.res.in*

Co-Guest Editor:

1. Hu Li

Affiliation*: Guizhou University, Guiyang, China.*

E-mail: *hli13@gzu.edu.cn*

2. Sushil Kumar Kansal

Affiliation: *Dr. S. S. Bhatnagar University Punjab University, Chandigarh, India.*

Email: *sushilkk1@yahoo.co.in*