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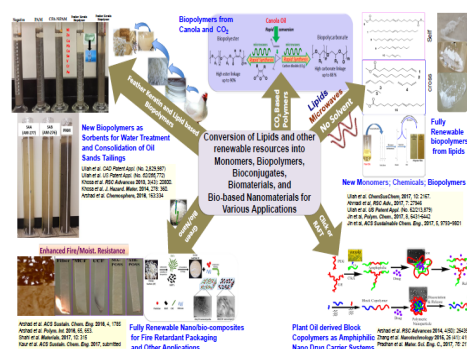


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Shifting to bio refinery, monomers, bio polymers, bio sorbents and bio materials from renewable lipid resources

In recent years, the use of renewable natural resources have become the focus of research in supplementing and/or replacing traditional petro chemical products due to growing energy demands and environmental concerns. The utilization of lipids and other renewable resources has been considered to play a primitive role towards sustainable development due to their large scale availability, built in functionality, bio degradability and no net carbon dioxide (CO₂) production. In addition, a broad range of monomers can be obtained as a single feedstock. These attributes make lipids a good fit for the development of renewable bio materials. This presentation will focus on the conversion of lipids from various sources including waste streams such as waste cooking oil and lipids extracted from spent fowl into monomers, bio polymers and bio materials for packaging water remediation, bio medical and other applications. The ability for complete conversion of oils in just few minutes under solvent free conditions into monomers, bio polymers and bio composites/nanocomposites is undoubtedly an attractive concept from both an academic and an industrial point of view.



References

1. Ullah A, Arshad M (2017) Remarkably Efficient Microwave-Assisted Cross-Metathesis of Lipids in Solvent Free Conditions, *ChemSusChem*; 10: 2167-2174.
2. Jin L, Geng K, Arshad M, Ahmadi R, Ullah A (2017) Synthesis of Fully Biobased Polyesters from Plant Oil. *ACS Sustainable Chemistry & Engineering*; 5: 9793–9801.
3. Kaur Arshad, Ullah (2018) In-Situ Nanoreinforced Green Bionanomaterials from Natural Keratin and Montmorillonite (MMT)/Cellulose Nanocrystals (CNC). *ACS Sustainable Chem. Eng.*; 6(2): 1977-1987.

Recent Publications

1. Ahmadi R, Ullah A (2017) Microwave-assisted rapid synthesis of a polyether from a plant oil derived monomer and its optimization by Box–Behnken design. *RSC Advances*; 7: 27946-27959.
2. Jin Zeng, Ullah (2017) Rapid copolymerization of canola oil derived epoxide monomers with anhydrides and carbon dioxide (CO₂). *Polymer Chemistry*; 8: 6431-6442.

Biography

Aman Ullah had pursued his PhD in Chemical Sciences and Technologies in 2010 at the University of Genova, Italy. He pursued his Postdoctoral studies before accepting an Assistant Professor position at the University of Alberta, Canada. He has been promoted to Associate Professor with tenure. He has been teaching a graduate course entitled Renewable Biomaterials. He has published more than 40 papers in reputed journals and 3 patent applications. His research is focused on the development of bio chemicals, bio polymers/bio materials from lipids and other renewable resources. He has received several awards including Canadian Rising Star award in Global Health by Grand Challenges Canada in 2012.

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