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Circular economy and sustainability of bioplastics and biobased materials: New challenges and future prospective

Renewable resource-based nature of bioplastics and biobased materials is not enough in bringing these emerging bioproducts to market place for societal benefit. Circular economy is a concept that targets waste minimization through a closed loop system thereby helping a sustainable development. The co-product and byproduct of one industry can find value-added uses if appropriately integrated in the design and engineering of biobased materials of commercial attraction. Bioplastic as such may be comparatively expensive as compared to traditional and petro-based plastics. An undervalued co-product of one industry can be integrated into a bioplastic in creating novel biobased materials for new industrial uses. The coproducts from biofuel, pyrolysis as well as food processing industries show immense potential as fillers or reinforcing materials for plastics in creating a range of eco-friendly and sustainable biocomposites. This presentation will provide an overview on the recent development of these biobased composite materials for industrial uses in green packaging, consumer products and light weight auto-parts.

Biography

Dr. Amar K Mohanty, a Full Professor and Premier's Research Chair in Biomaterials and Transportation is the Director of Bioproducts Discovery & Development Centre at University of Guelph, Ontario, Canada. He is an international leader in the field of bioplastics, biobased materials and advanced biorefining with a focus in engineering new sustainable materials. He has more than 500 publications to his credit including 260 peer-reviewed journal papers, 25 patents (granted/ filed), several conference presentation, 15 book chapters and three edited books - his total citations being 13,827 with h-index of 56. He was the recipient of the Andrew Chase Forest Products Division Award from the American Institute of Chemical Engineers (AIChE) and Jim Hammer Memorial Service Award from the BioEnvironmental Polymer Society. His R&D excellence has helped in developing a number of industrial products and recently his research innovations have brought three biobased products to the market place.

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