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Sugar is the new oil: Transitioning petroleum economy to bio-economy

Sugars (1G+2G) are being touted as the new oil in the future. Moving from petroleum-products to biomass-based products is considered as a paradigm shift for the virtual development of biorefinery. The biorefinery is a sustainable platform for the production of the myriad of bioproducts including biofuels/bioenergy to cater the societal demands of energy and chemicals at the upfront. The establishment of biorefineries is inevitable for the development of a sustainable, energy independent society while keeping the environment safe and clean. Several big industries such as DSM, Dow-Dupont, BASF, Novozymes, Braschem, Clariant, Abengoa and others are aggressively venturing into the development of bio-based products from lignocellulosic biomass eventually strengthening the economy. In reality, concerted efforts for the technological solution and financial inclusions are required to develop the robust pitch for cost-competitive production of biomass-derived fuels and chemicals. For the technological point of view, process improvement in process engineering employing industrially relevant parameters and real techno-economic analysis are pivotal for the cost competitive production of renewable fuels and chemicals. This presentation will elaborate on the potential of biorefineries, global bioeconomy, technology readiness level of some interesting biochemicals and key challenges in 2G sugars recovery and biofuels and biochemical production at large scale operations under biorefinery concept.

Biography

Anuj Kumar Chandel is a USP-CAPES visiting Professor and Researcher of Industrial Biotechnology at Engineering School of Lorena, University of Sao Paulo (USP), Brazil. He received his Bachelor's, Master's and PhD degrees from Meerut University, IIT-Roorkee and JNT University, Hyderabad, India, respectively. Before joining USP-Lorena, he has worked as a Lead Scientist at Sugarcane Technology Centre (CTC)-Piracicaba, Brazil and was responsible for scientific leadership for deployment of cellulosic ethanol process at demonstration plant and scale-up activities. Overall, he has 17 years' research experience working in industries and Universities on biofuels production, industrial enzymes production and membrane-based separations. He has published 58 articles in peer-reviewed journals and 30 book chapters. He has also co-edited 7 books on Xylitol, Sustainable Degradation of Lignocellulosic Biomass, Brazilan Biofuels Development, Indian Biofuels Development, Extremophiles, Sugarcane biorefinery and Sustainable sources of energy: Enzymatic resources. His contributions span the biomass science, biotechnology and policy domains and include sustainable development of biofuels and biochemicals under biorefinery concept. A frequently invited presenter on technical and strategic aspects of biomass energy, in prominent forums and International conferences.

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