



Development of an integrated Bio and Chemical process to convert food waste in High Value Chemicals



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Concerns about environmental change and the exhaustion of fossil fuel call for their replacement by renewable resources. Food waste, being renewable has immense potential for the generation of fuels and chemicals owing to the fact that it's composed mainly of hydrocarbons and is functionally active. Ongoing endeavors to develop a food waste based technology for producing fuels and chemicals are directed towards identifying a platform molecule, which is biologically or chemically derived and can be converted into a variety of fuels and chemicals via catalytic processing. Several molecules such as lactones, levulinic acid, lactic acid, furans, etc. are proposed as potential platforms molecules in the updated list of US Department of Energy's "Top 10" bio-based products from bio refinery carbohydrates. In this project, an interdisciplinary approach is envisaged here, in which platform chemicals are extracted from food waste source and processed using a bio-catalytic (*fermentation*) transformation to produce a desired platform chemical, which is further valorized using a heterogeneous catalytic reaction to produce high value chemicals like Poly-Lactic acid, Acrylic acid.

