

Synthesis of Dimethyl Terephthalate from Renewable Source Derived Platform Molecule

**Authors: Yagya Gupta, Amritesh Pachauri,
Aradhana Srivastava and Leena Khanna**

*University School of Chemical Technology
Guru Gobind Singh Indraprastha University*

Abstract—Biomass is the upcoming source for production of energy and chemicals as a replacement of fossil fuels. Non-food biomass can be pretreated and then converted through thermo-chemical or biological method to give a range of platform molecules. These platform molecules can be treated to give diverse range of chemicals. In this project, the production of Dimethyl terephthalate is studied. A novel reaction pathway is proposed utilizing retro-Diels Alder reaction of 1,4 Bis(methoxycarbonyl) bicyclo [2 2.2] oct-5-ene-2,3-dicarboxylic anhydride. The reaction pathway consisted of a biochemical route followed by chemical synthesis. This project focuses on the chemical synthesis of Dimethyl terephthalate in entirety. The objective of the project is to optimize the retro-Diels Alder reaction of 1,4- bis(methoxycarbonyl) bicyclo [2.2.2] oct-5-ene-2,3-dicarboxylic anhydride, measure its reaction parameters experimentally and feasibility of the reaction in different solvents theoretically. In this report, however, only the bromination of dimethyl cyclohexane-1,4-dicarboxylate and dehydrobromination of the resultant product is done to produce 2,3-dihydroterephthalic acid. The product of bromination is analyzed before further reaction.