Metabolic engineering of microorganisms for the production of biochemical and biopolymers

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Production of bio-based chemicals and polymers has gained much attention as one of the promising solutions to solve fossil fuel depletion problem and environmental problems such as global warming caused by much emission of CO_2. Also, biopolymers having complete biodegradability can solve plastic waste accumulation and microplastic problems. Biorefinery processes based on microbial fermentatitions have extensively been developed to substitute chemical processes based on fossil oils since carbon neutral target products can be produced from biomass-based renewable resources. Microorganisms have been engineered to efficiently produce target products by metabolic engineering strategies.

Here, the development of metabolically engineered microorganisms for the production of bio-based polymers is discussed.