

PRODUCTION OF RENEWABLE POLYMERS FROM CROP PLANTS

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Polymers, plastics, rubber, polyhydroxyalkanoate, cyanophycin

Plants produce a range of biopolymers for purposes such as structural integrity, carbon storage, and defense against pathogens and desiccation. Several of these natural polymers are used as food, materials, and increasingly as an energy carrier. In this presentation, we will focus on plant biopolymers used as materials in bulk applications, such as plastics and elastomers, in the context of depleting resources and climate change, and cover technical and scientific bottlenecks in the production of novel or improved materials in transgenic or alternative crops plants. The biopolymers discussed are natural rubber, and several polymers that are not naturally produced in plants, such as polyhydroxyalkanoates, fibrous proteins, and poly-amino acids. In addition, monomers or precursors for the chemical synthesis of biopolymers, such as 4-hydroxybenzoate, itaconic acid, fructose, and sorbitol, are briefly discussed.