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Biofunctionalization of Polymers and Their Applications

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Abstract Polyhydroxyalkanoates (PHAs) are a family of biopolyesters synthesized by many types of bacteria as carbon and energy reserve materials. PHAs combine properties of thermal processibility, biodegradability, biocompatibility and sustainability. They have attracted attention from fermentation, materials and biomedical industries. Recent environmental concerns such as CO_2 emissions and plastic pollution as well as rapid exhaustion of petroleum resources have increased public and industrial interests in these unique materials. In fact, PHA has slowly evolved into an industrial value chain ranging from microbial fermentation, bioplastic packaging, biofuel, medical implants, drug delivery, protein purification, chiral chemicals and drug development. This chapter will discuss microbial PHA production and its applications in various fields.

Keywords Biofuel · Biomaterials · Bioplastics · Biopolyesters · Drug targeting · Fermentation · PHB · Polyhydroxyalkanoates · Production · Protein purification

Contents

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