

# A Review of Polyhydroxyalkanoates: From Biosynthesis to Commercialization Efforts

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**Abstract:** *Due to growing petroleum prices and knowledge of the harmful effects of petroleum-based polymers, a petroleum-based economy is moving to one based on natural feedstocks. One of the primary implications of this economic change is the widespread use of biobased polymers like Polyhydroxyalkanoates (PHAs). Despite their biodegradability and biocompatibility, PHAs' expensive cost has limited their use. As is known, raw material costs greatly affect PHA manufacturing costs. PHAs may be made from agro-industrial waste to develop materials with adequate physicochemical properties for various purposes. Much study has been done on renewable, affordable raw materials such as whey, lignocellulosic wastes, sewage, and molasses to replace the costly commercial medium and cut manufacturing costs. This research examines commercially viable PHA fermentation methods, substrates, and microorganisms*

**Keywords:** Polyhydroxyalkanoates (PHA), Biosynthesis pathways, Market trends

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