

Exploring Microbial Synthesis Pathways for Polyhydroxyalkanoates: A Review

Prashant Kumar¹ and Dr. Akhilesh Kumar²
Research Scholar, Department of Microbiology¹
Assistant Professor, Department of Microbiology²
Sunrise University, Alwar, Rajasthan, India

Abstract: Plastic pollution is becoming a bigger issue as it doesn't break down Polyhydroxyalkanoates are macromolecule-polyesters that are produced spontaneously by a variety of microorganism species and have the potential to replace conventional plastics. Thanks to a variety of bacteria, PHAs completely degrade in a year, but plastic made from petroleum takes decades to do the same. Carbon dioxide and water are produced during this biodegradation process and then released back into the environment. The large-scale production of PHAs has been attempted several times. The use of genetically modified microorganisms may lead to the development of novel industrial techniques. The host's production of PHA and the expression of a few genes need to be maximized in order to achieve this goal. Obtaining large quantities of PHA at reasonable rates remains a difficulty, despite the enormous advancements in the production of transgenic organisms. This work highlights the expanding body of knowledge on the possible advantages of using microorganisms as a polyhydroxyalkanoate source.

Keywords: Polyhydroxyalkanoates (PHA), Microbial production, Bioreactors.

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