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PRODUCTION OF PHA (POLYHYDROXYALKANOTES) FROM Pseudomonas aeruginosa BY SOLID STATE AND SUBMERGED FERMENTATION

S. DHIVYA DEVI, S. SINDHUJA, Dr. K. RAVI SHANKAR*

Bharathidasan Institute of Technology, Anna University, Tiruchirapalli -24

*Corresponding Author: E-mail: ravichembio@gmail.com ; Ph: 9894491432

ABSTRACT

There has been considerable interest in the development and production of biodegradable polymer to solve the current problem of pollution by the continuous use of synthetic polymer of petroleum origin. PHA is a biodegradable material, with much potential biomedical application, including medical implants and drug delivery. The cost of PHAs production has restricted its application. The possibility of this polymer with comparable cost has been the main focus of this research. The study developed a system for screening production strain in order to optimize PHA production in *Pseudomonas aeruginosa*. Formation of intracellular PHA was observed in UV illuminator and light microscopy by using Sudan black stain and Nile blue staining technique. High amount of PHA produced in the excess of carbon and limited nitrogen condition. Submerged fermentation was carried out by using E2 medium and acetate was used as a sole carbon source. Solid state fermentation was carried out using paddy straw and corn stover as substrate and pretreatment of substrate was done by acidogenesis.

Keywords: Polyhydroxyalkanoates; *Pseudomonas aeruginosa*; sudan black stain; E2 medium; Solid state fermentation.

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