

A low-cell density cultivation technique for polyhydroxybutyrate overproduction in *Escherichia coli*

Il Lae Jung, In Gyu Kim

Department of Radiation Biology, Environmental Radiation Research Group,
Korea Atomic Energy Research Institute, P.O. Box 105, Yusong, Taejon 305-600, Korea
Phone number: +82-42-868-8031, Fax number: +82-42-861-95

Polyhydroxybutyrate derived from microorganisms have drawn much attention as candidates for manufacturing natural and biodegradable thermoplastics and elastomers for a wide range of applications. In this study, we developed a new cultivation method in order to reduce polyhydroxybutyrate production cost. We suggest that initial low inoculum (below tens of thousands) acted as important factors for polyhydroxybutyrate overproduction in *Escherichia coli*. Three essential seed fermentors for the cultivation using a main fermentor [vol=185.37m(3)] did not required any more, and complex feeding control could be simplified by the method. The low cell inoculum technique greatly reduced the major equipment specification and purchase cost and as well as annual operating cost. The strategies developed in this study can allow biodegradable plastic produced by recombinant *E. coli* to reenter the plastic industry.

References

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