Elastin Like Protein Production Kinetics at Different Environmental Conditions in E. coli

Introduction

Elastin-like polymers (ELPs) belong to the family of the elastomeric proteins, known to have excellent resilient properties. The ELPs are able to undergo inverse temperature transition along with other smart behaviour properties.

GAG220, an ELP composed by the monomer VPAVG, expressed by E. coli, was driven in a culture medium designed by us: BEPS (Bacterial Elastomeric Polymer Synthesis).

Objective

Screening of the production at different environmental conditions, namely incubation temperature, dissolved oxygen tension and primary carbon source concentration.

Results

A peak in the polymer production at the deceleration phase suggests biomass and polymer formation are directly related.

Further incubation leads to a decrease in the amount of the polymer recovered which suggests either polymer degradation or cell leakage.

An inhibitory effect in polymer is observed with the increase of dissolved oxygen concentration in the culture medium.

Conclusions

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Bibliography