Development of purification and Screening for lipolytic enzyme from uncultivated microorganisms

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Abstract

Most of the microorganism species are largely untapped and could represent an interesting reservoir of genes useful for biotechnological applications.[1)] Unfortunately, a major difficulty associated with the methods used to isolate metagenomic DNA is related to the contamination of the extracted material with humic substances. These polyphenolic compounds inhibit the DNA processing reactions and severely impede cloning procedures.

In this work, we describe a simple and efficient method for the purification of metagenomic DNA from environmental samples. we added a chromatography step directly embedded into an agarose gel electrophoresis. This strategy enabled the metagenomic DNA extraction from various environmental samples and it appeared that the purity grade was compatible with digestion by restriction enzymes and polymerase chain reaction amplifications. Furthermore, We screened for lipolytic active clone which was obtained from the metagenomic library on the basis of tributyrin hydrolysis.

Reference

1. Streit, W. R., Daniel, R., Jaejer, K-E. Prospecting for biocatalysts and drugs in the genomes of non-cultured microorganisms(2004), Current Opinion in Biotechnology 15, 1-6.