

BIOPROCESSING OF LACTIC ACID BY FERMENTATION TECHNIQUE

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Chapter 8

Synthesis Lactic Acid from Kenaf Bast by Using *Lactobacillus rhamnosus*

Nurhafizah Seeni Mohamed, Nur Hanis Mohd Sibi, Nur Aimi Mohd Nasir, Mohd Adlan Mustafa Kamalbhryn, Maizirwan Mel, Hazleen Anuar, Rashidi Othman

Abstract

Lactic acid (LA) is the most widely occurring carboxylic acid in nature which chemically known as 2-hydroxy-propanoic acid ($\text{CH}_3\text{CHOHCOOH}$). Normally, the raw material that been used in LA production are obtain by using starch or cellulose from the plant. The common types of starch used are from field corn, wheat and many more which considered it as less economical since they have to compete with the food sources industries. Thus, kenaf (*Hibiscus cannabinus*) is found to be the best alternative plant to substitute the raw material for LA production. This is due to its short period of harvest time and process high quality cellulose. It is a lignocellulosic material which is naturally resistant to breakdown to its structural sugars that will inhibit microorganisms to be accessed through. Therefore, it needs to undergo pre - treatment process either by mild acid hydrolysis or base hydrolysis in order to liberate glucose before being used in fermentation process. After fermentation process was carried out, the highest lactic acid produced is at run 2 since run 1 is hold as control solvent.

Keyword(s): Lactic acid, kenaf bast, lignocellulosic, fermentation