

Isolasi gen palmitoyl-acp thioesterase pada kelapa sawit (*Elaeis guineensis* Jacq.)

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Abstrak

Plant quality improvement, as a source of oil, was one of the objective of oil palm plant breeding program, such as genetic engineering. Palmitoyl-ACP thioesterase (PAT) gene was an enzyme code, which influenced the synthesis of palmitic acid, where its existence was unexpected in crude palm oil (CPO), due to its negative impact on human health. The first step in genetic engineering was isolating the gene which related to the plant's negative trait. The gene silencing phase was expected to avoid the expression of gene PAT, to reduce the proportion of palmitic acid as well as increasing the content of oleic acid, which was expected to present in CPO.

The aim of the research was to identify nucleotide sequence of the PAT gene of the oil palm. The procedure of the research included, extraction the DNA from leaves, gene isolation through specific primer design and amplification, cloning the PAT gene including ligation and transformation, a series of confirmation and verification, and PAT gene sequencing.

The result showed that 2 fragments of DNA had been isolated by using 2 different pair of primers, they was PAT I and PAT II fragment. PAT I gene fragment was amplified by using PAT II and PAT TF primers. Recombinant plasmid carrying PAT I gene fragment had been produced through cloning, ligation and transformation inside the strain of DH5a *Escherichia coli*. The targeted fragment inside the plasmid then was sequenced and producing 1,063 bp fragment. 750 bp length PAT II gene, was amplified by PAT U and PAT UR primer.