

KAJIAN SELULER DAN MOLEKULER SINTESIS *CONJUGATED LINOLEIC  
ACID* DALAM PRODUK SUSU FERMENTASI OLEH STRAIN  
PROBIOTIK ASAL MANUSIA

**INTISARI**

Kafaah Estancia  
13/357112/PPT/00845

Penelitian ini bertujuan untuk melakukan investigasi gen-gen yang terlibat dalam sintesis *Conjugated Linoleic Acid* (CLA) dan mencari keberadaan CLA pada produk susu yang difermentasi menggunakan kultur *Lactobacillus casei* strain AP dan *Lactobacillus casei* strain AG. Teknik *Polymerase Chain Reaction* (PCR) digunakan untuk mengamplifikasi gen yang berperan dalam sintesis CLA. Produk susu fermentasi dianalisis menggunakan *Gas Chromatography-Mass Spectrometri* (GC-MS) untuk mengetahui CLA yang terbentuk. Tiga gen yang diduga mengkode enzim pensintesis CLA yaitu *cla-hy*, *cla-dh*, dan *cla-dc* hasil PCR berhasil diamplifikasi pada *Lactobacillus casei* strain AG, sedangkan pada *Lactobacillus casei* strain AP dari ketiga gen tersebut tidak berhasil diamplifikasi. Hasil GC-MS pada produk susu fermentasi *Lactobacillus casei* strain AG adanya senyawa CLA sebesar 4,5% (relatif), sedangkan pada produk susu fermentasi *Lactobacillus casei* strain AP keberadaan CLA tidak terdeteksi.

Kata kunci: susu, fermentasi, probiotik, *Lactobacillus casei* strain AP,  
*Lactobacillus casei* strain AG, CLA

STUDY ON CELLULAR AND MOLECULAR OF SYNTHESIS CONJUGATED  
LINOLEIC ACID IN MILK FERMENTED BY PROBIOTIC STRAIN  
FROM GASTROINTESTINAL TRACT

**ABSTRACT**

Kafaah Estancia  
13/357112/PPT/00845

One of the benefits of probiotic is capable in synthesizing conjugated linoleic acid (CLA) as a functional bioactive compounds for health. The objectives of this study was to investigate the genes involved in CLA biosynthesis, and to measure level of CLA in fermented milk products using *Lactobacillus casei* strain AP and *Lactobacillus casei* strain AG as starters. Polymerase Chain Reaction (PCR) techniques were used to amplify the genes that play a role in the synthesis CLA. Fermented milk products were analyzed using Gas Chromatography-Mass Spectrometry (GC-MS) to measure the CLA produced. The result of GC-MS in fermented milk product *Lactobacillus casei* strain AG detected 0,45 % (relative) CLA, whereas in fermented milk product *Lactobacillus casei* strain AP CLA was not detected. The three genes proposed encoding enzymes to synthesize CLA *cla-hy*, *cla-dh*, and *cla-dc* gene were successfully amplified in *Lactobacillus casei* strain AG, while in *Lactobacillus casei* strain AP all of these three genes were not amplified.

Keywords: milk, fermentation, probiotic, *Lactobacillus casei* strain AP, *Lactobacillus casei* strain AG, CLA