KEMAMPUAN ASIMILASI KOLESTEROL KULTUR *Lactobacillus casei* STRAIN AP DAN AG SECARA *IN VITRO*

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INTISARI

Hiperkolesterolemia dapat menyebabkan penyakit aterosklerosis. Konsumsi bakteri probiotik dapat menurunkan kadar kolesterol di dalam tubuh. Penelitian ini bertujuan untuk mengetahui kemampuan asimilasi kolesterol oleh dua kultur bakteri yang diisolasi dari saluran pencernaan bayi Indonesia yang mengonsumsi Air Susu Ibu (ASI), yaitu *Lactobacillus casei* AP dan AG. Uji kolesterol dilakukan secara *in vitro* dengan menumbuhkan *Lactobacillus casei* AP dan AG pada suhu 37°C selama 24 jam pada media MRS broth yang mengandung 1,5% larutan kolesterol dengan perlakuan perbedaan kadar oxgall (0,1%, 0,3%, 0,4%, dan 0,5%) dan perbedaan suhu inkubasi (15°C, 37°C, 40°C, dan 45°C). Konsentrasi kolesterol pada supernatan diukur secara enzimatik menggunakan metode CHOD-PAP. Pengujian kemampuan asimilasi kolesterol pada fase pertumbuhan yang berbeda dilakukan dengan menumbuhkan kedua strain pada suhu 37°C selama 24 jam, dan dilakukan pengujian setiap 3 jam. Analisis data dilakukan menggunakan analisis variansi pola searah untuk analisis penurunan kadar kolesterol pada supernatan, perbedaan kadar oxgall medium, serta perbedaan suhu inkubasi, kemudian dilanjutkan uji *Duncan multiple range test* (DMRT). Uji beda nyata ditentukan pada P<0,05. Hasil penelitian menunjukkan bahwa kedua strain dapat mengasimilasi kolesterol pada medium. *Lactobacillus casei* AP dapat mengasimilasi kolesterol sebanyak 7,58 ± 0,45 mg/dL atau sebesar 35%, sedangkan *Lactobacillus casei* AG dapat mengasimilasi kolesterol sebanyak 12,29 ± 0,45 mg/dL atau sebesar 57%. Kedua strain mengasimilasi kolesterol secara optimum pada suhu 37°C dan kadar oxgall 0,1% pada fase exponensial.

Kata kunci: *Lactobacillus casei, In vitro*, Asimilasi kolesterol,

IN VITRO CHOLESTEROL ASSIMILATION ABILITY OF *Lactobacillus casei* STRAIN AP AND AG

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ABSTRACT

Hypercholesterolemia can lead to atherosclerosis. The consumption of probiotic bacteria can decrease cholesterol levels in the human body. The aim of this study was to investigate the cholesterol assimilation ability by cultures isolated from the digestive tract of Indonesian infants, *Lactobacillus casei* AP and AG. Cholesterol assimilation was carried out by growing *Lactobacillus casei* AP and AG at 37°C for 24 hours on MRS broth media containing 1.5% cholesterol solution with treatment of different oxgall levels (0.1%, 0.3%, 0.4%, and 0.5%) and differences in incubation temperature (15°C, 37°C, 40°C, and 45°C). The cholesterol concentration in the supernatant was measured enzymatically using the CHOD-PAP method. Testing the ability of cholesterol assimilation at different growth phases was carried out by growing both strains at 37°C for 24 hours, and tested every 3 hours. The data were tested with one way analysis of variance for analysis of cholesterol level reduction in supernatants, differences in oxgall levels, and differences in incubation temperature, then continued with Duncan multiple range test (DMRT). The difference test was determined at $P < 0.05$. The results showed that both strains was able to assimilate cholesterol in the medium. *Lactobacillus casei* AP was able to assimilate cholesterol by 7.58 ± 0.45 mg/dL or 35% of total cholesterol in medium. *Lactobacillus casei* AG was able to assimilate cholesterol by 12.29 ± 0.45 mg/dL or 57% of total cholesterol in medium. Both strains was able to assimilate cholesterol optimally at 37°C and oxgall 0.1%, at the exponential phase.

Keywords: *Lactobacillus casei, In vitro*, Cholesterol assimilation.