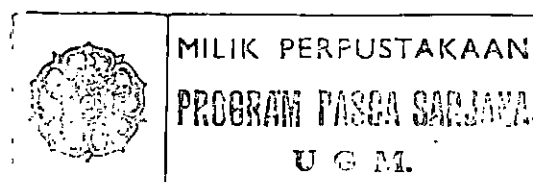


Efek Hipokolesterolemik Yogurt yang Disuplementasi Probiotik *Indigenous* pada Tikus *Sprague Dawley*

Intisari

Kadar kolesterol darah yang tinggi merupakan faktor resiko timbulnya aterosklerosis yang selanjutnya dapat menyebabkan penyakit-penyakit degeneratif seperti jantung koroner. Oleh karena itu, menjaga kadar kolesterol serum pada level yang normal dapat menurunkan resiko penyakit jantung koroner. Beberapa probiotik dan produknya seperti yogurt dapat menurunkan kadar kolesterol serum, akan tetapi kemampuannya dalam menurunkan kolesterol berbeda di antara strain. Penelitian ini bertujuan untuk mempelajari kemampuan isolat lokal *Lactobacillus sp* Dad13 dan yogurt yang disuplementasi sel *Lactobacillus sp* Dad13 dalam menurunkan kolesterol secara *in vivo* pada hewan coba. Empat puluh delapan ekor tikus *Sprague Dawley* jantan berumur 2 bulan dibagi dalam 8 kelompok dan diberi 2 macam diet yaitu diet standar AIN-93 dan hiperkolesterol secara *ad libitum*. Adaptasi dengan pakan standar dilakukan selama 1 minggu, kemudian tikus diberi diet hiperkolesterol selama 1 minggu. Selama 4 minggu perlakuan, tikus diberi susu skim steril 10% (kontrol), suspensi sel *Lactobacillus sp* Dad13 dalam susu skim, yogurt, dan yogurt yang disuplementasi sel *Lactobacillus sp* Dad13 sebanyak 1 ml secara *force feeding*. Pada akhir perlakuan dilakukan analisa profil lipida serum, sifat fisik, kimiawi, dan mikrobiologi digesta yang meliputi berat, kadar air, pH, kolesterol, dan total bakteri asam laktat (BAL). Hasil penelitian menunjukkan bahwa pada kelompok pakan standar, total kolesterol, high density lipoprotein (HDL), trigliserida (TG), low density lipoprotein (LDL), dan rasio LDL/HDL pada ketiga perlakuan turun secara signifikan ($P < 0,05$) jika dibandingkan dengan kontrol. Pada kelompok pakan hiperkolesterol, total kolesterol, TG, dan HDL turun secara signifikan pada perlakuan sel *Lactobacillus sp* Dad13. Penurunan kolesterol terbanyak pada kelompok pakan standar dengan perlakuan sel *Lactobacillus sp* Dad13 yaitu sekitar 39,8%. Pemberian sel probiotik dapat meningkatkan populasi BAL digesta. Penurunan kolesterol serum sejalan dengan rendahnya konsentrasi kolesterol digesta. Dari hasil penelitian dapat disimpulkan bahwa sel probiotik lokal *Lactobacillus sp* Dad13 terbukti mempunyai efek hipokolesterolemik secara *in vivo* dan dapat dikembangkan sebagai makanan fungsional yang dapat menurunkan kolesterol.

Kata kunci : probiotik, bakteri asam laktat, yogurt, efek hipokolesterolemik



Hypocholesterolemic Effect of Yoghurt which Supplemented with Indigenous Probiotic Culture in *Sprague Dawley* Rats

Abstract

A high serum cholesterol level may be a contributing risk factor for development of atherosclerosis and causes some degenerative diseases such as coronary heart disease. Therefore, maintaining serum cholesterol concentration at the normal level could reduce the risk of coronary heart disease. Some of probiotics and its products such as yoghurt could decrease serum cholesterol level. However, a variation was found among strains in their capability to decrease the cholesterol level. The purpose of this research was to study the ability of *Lactobacillus sp* Dad13 and yoghurt which supplemented with *Lactobacillus sp* Dad13 to reduce serum cholesterol level. Forty eight male *Sprague Dawley* rats, 2 month old, were divided into eight groups of six rats each and fed with two different diets (standard AIN-93 and hypercholesterol diet). For 2 wk before the experiments, rats were fed with standard diet (1 wk) and hypercholesterol diet (1 wk). At the end of the week, lipid profile were measured. When experiments started, standard and hypercholesterol diet were assigned to four groups of six and treated with 10% sterile skimmed milk, *Lactobacillus sp* Dad13 culture, yoghurt, and yoghurt which supplemented with *Lactobacillus sp* Dad13 culture 1 ml each. The treatment were given by force feeding. The results showed that total cholesterol, high density lipoprotein (HDL), triglyceride (TG), low density lipoprotein (LDL), and LDL/HDL ratio decreased significantly ($P < 0,05$) in the group fed with standard diet and in all treatment. In the group fed with hypercholesterol diet and treated with *Lactobacillus sp* Dad13 culture, total cholesterol, TG, and HDL decreased significantly whereas in the group treated with yoghurt and yoghurt which supplemented with *Lactobacillus sp* Dad13 the reduction were not significant. The highest reduction of total cholesterol was found in the group fed with standard diet and treated with *Lactobacillus sp* Dad13 culture (39,8%). Probiotics culture feeding could raise lactic acid bacteria population in cecal contents. The lower serum cholesterol concentration, the lower cholesterol concentration in cecal contents. In conclusion, *Lactobacillus sp* Dad13, an indigenous probiotic culture, was proved to posses hypocholesterolemic effect and can be developed as functional food.

Key words : probiotic, lactic acid bacteria, yoghurt, hypocholesterolemic effect