

Suplementasi Serat Pangan Karagenan dalam Diet untuk Memperbaiki Parameter Lipid Darah Mencit Hiperkolesterolemia / Hernawati, Wasmen Manalu, Agik Suprayogi, Dewi Apri Astuti

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Abstrak

Karagenan merupakan bahan pangan alamiah yang mengandung serat cukup tinggi. Penelitian ini bertujuan mempelajari pengaruh serat pangan karagenan pada parameter lipid darah mencit jantan hiperkolesterolemia. Penelitian dilakukan di Laboratorium Fisiologi Universitas Pendidikan Indonesia dan Fakultas Kedokteran Hewan Institut Pertanian Bogor pada bulan Agustus 2011 sampai Maret 2012. Penelitian dilakukan dengan menggunakan rancangan acak lengkap dengan lima kelompok perlakuan, yaitu kontrol negatif; mencit normokolesterolemia yang diberikan pakan standar, kontrol positif; mencit hiperkolesterolemia tanpa suplementasi karagenan, kelompok perlakuan; kelompok mencit hiperkolesterolemia yang diberikan suplementasi karagenan 15%, 30%, dan 46%. Kadar serat makanan tidak larut pada masing-masing pakan mencit percobaan ialah 6,92; 8,75; 10,48; 12,27; dan 14,05%. Parameter yang diukur ialah bobot badan, konsentrasi kolesterol total serum, hati, dan feses, serta kadar trigliserida, high density lipoprotein (HDL), low density lipoprotein (LDL), dan glukosa dalam serum. Hasil penelitian menunjukkan suplementasi karagenan sebesar 46% menurunkan bobot badan sebesar 7,99%, kadar total kolesterol sebesar 18,78%, trigliserida sebesar 17,53%, dan LDL sebesar 71,33%, serta meningkatkan HDL sebesar 15,59% dan 20,47%. Suplementasi serat pangan karagenan dapat menurunkan kandungan kolesterol hati sebesar 38,46% dan meningkatkan pembuangan kolesterol melalui feses sebesar 57,07%. Suplementasi serat pangan karagenan sebesar 46% dalam diet hiperkolesterolemik dapat memperbaiki parameter lipid darah mencit hiperkolesterolemia.

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The Carrageenan Dietary Fiber Supplementation in Feed to Improving Blood Lipid Parameters of Hypercholesterolemic Mice. Carrageenan is example of food with high content of fiber. An experiment was conducted to study the effects of carrageenan supplementations on blood lipid parameters of hypercholesterolemic male mice. The experiment were done at animal cages Departemen of Biology Education, Indonesia University of Education and Fisiology Laboratory Faculty of Veteriner Medicine, Bogor Agricultural Institute on August 2011 until March 2012. The experimental mice were assigned into a completely randomized design with 5 treatments i.e., negative control group; normocholesterolemic mice fed with a standard diet, positive control group; hypercholesterolemic mice fed with a standard diet without carrageenan supplementation, treatments group; hypercholesterolemic mice feds with supplemented with 15%, 30%, and 46% carrageenan. The nonsoluble content of dietary fiber in the experimental treatments were 6.92, 8.75, 10.48, 12.27, and 14.05%, respectively. The parameters measured were body weight, cholesterol levels of blood serum, liver and feces, triglyceride, high density lipoprotein (HDL), low density lipoprotein (LDL) and glucose levels. Supplementation of carrageenan as a source of dietary fiber increased serum HDL concentrations, and decreased body weight, serum cholesterol, triglyceride, and LDL concentrations of hypercholesterolemic male mice without a significant effect on serum glucose concentrations. Hypercholesterolemic mice fed with a supplemented with 46% carrageenan decreased body

weight by 7.99%, total serum cholesterol by 18.78%, triglyceride by 17.53%, LDL by 71.33%, and increased HDL by 15.59% and 20.47%. Carrageenan supplementation reduce liver cholesterol levels by 38.46% and increased cholesterol excretion through feces by 57.07%. Supplementation of 46% carrageenan in hypercholesterolemic fed is effective in improving blood lipid parameters of hypercholesterolemic male mice.