Efektivitas ekstrak buah pare (Momordica charantia L.) terhadap kondisi fatty liver tikus Sprague-Dawley yang diberi pakan tinggi lemak tinggi kolesterol = Effectivity of bitter gourd extract (Momordica charantia L.) against fatty liver condition of Sprague-Dawley rats fed with High-Fat, High-Cholesterol diets

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Abstrak

Latar Belakang: Prevalensi non-alcoholic fatty liver disease (NAFLD) diprediksi akan terus meningkat selama beberapa tahun ke depan, dimana NAFLD dikaitkan dengan peningkatan asupan lemak dan kolesterol. Pare (Momordica charantia L.) mempunyai berbagai zat aktif yang berperan dalam proteksi hati. Penelitian ini bertujuan untuk melihat gambaran histopatologi dari tikus yang diinduksi oleh pakan tinggi lemak tinggi kolesterol beserta efek dari pemberian ekstrak pare dan simvastatin terhadap perbaikan kondisi hati tikus.
Metode: Penelitian ini merupakan studi eksperimental in-vivo dengan menggunakan hewan coba tikus jantan Sprague-Dawley. Sebanyak 25 ekor tikus dengan berat awal 200- 250 gram dibagi secara acak menjadi 5 kelompok. Seluruh tikus diberikan pakan tinggi lemak tinggi kolesterol selama 3 bulan. Selanjutnya, kelompok kontrol positif diberikan simvastatin dengan dosis 0,9 mg/kgBB, kelompok kontrol negatif tidak diberi perlakuan, sedangkan kelompok dosis 1, dosis 2, dan dosis 3 diberikan ekstrak pare dengan dosis 50 mg/kgBB, 100 mg/kgBB, dan 200 mg/kgBB berturut-turut. Setelah 3 pekan, organ hati tikus diambil dan dibuat preparat histopatologi. Sediaan dinilai dengan perbesaran 1x40 sebanyak 5 lapang pandang untuk setiap tikus. Nilai steatosis, ballooning hepatocyte, dan inflamasi lobular dinilai dari setiap lapang pandang dijumlahkan sebagai NAFLD activity score dan dibandingkan antar kelompok.
Hasil: Terdapat gambaran steatosis dan inflamasi lobular pada tikus yang diinduksi pakan tinggi lemak tinggi kolesterol, tetapi belum mencapai gambaran ballooning hepatocyte. Dosis 3 (200 mg/kgBB) mempunyai mean rank NAS yang lebih rendah dibandingkan dengan kelompok kontrol dan dosis lainnya yaitu sebesar 9,50. Simvastatin mempunyai mean rank paling rendah dari semua kelompok yaitu sebesar 7,90. Walaupun demikian, perbedaan antar kelompok pada penelitian ini tidak mencapai nilai yang bermakna (p = 0,166).
Kesimpulan: Pemberian pare dengan dosis 50 mg/kgBB, 100 mg/kgBB, dan 200 mg/kgBB serta simvastatin 0,9 mg/kgBB selama 2 pekan tidak menunjukkan perbedaan perbaikan kondisi NAFLD pada tikus yang diinduksi pakan tinggi lemak dan tinggi kolesterol yang bermakna secara statistik.
.....Introduction: The prevalence of non-alcoholic fatty liver disease (NAFLD) is predicted to continue to increase over the next few years, where NAFLD is associated with
increased fat and cholesterol intake. Bitter gourd (Momordica charantia L.) has various active substances that play a role in liver protection. This study aims to look at the histopathological picture of mice induced by high-fat, high-cholesterol diets along with the effects of administering bitter melon extract and simvastatin on improving the liver condition of mice.
Method: This research is an in-vivo experimental study with using male Sprague-Dawley rats. A total of 25 rats with an initial weight of 200-250 grams were randomly divided into 5 groups. All rats were given a

high-fat, high-cholesterol diet for 3 months. Furthermore, the positive control group was given simvastatin at a dose of 0.9 mg/kgBW, the negative control group was given no treatment, while the group dose 1, dose 2, and dose 3 were given bitter melon extract at a dose of 50 mg/kgBW, 100 mg/kgBW, and 200 mg/kgBW consecutively. After 3 weeks, the rat livers were taken and histopathological preparations were made. The preparations were assessed at 1x40 magnification for 5 visual fields for each rat. The steatosis, hepatocyte ballooning, and lobular inflammation values assessed from each visual field were summed as a NAFLD activity score and compared between groups.
Results: There was a picture of steatosis and lobular inflammation in rats induced by a high-fat, high-cholesterol diet, but it did not reach the stage of ballooning hepatocyte . Dose 3 (200 mg/kgBW) had a lower mean NAS rank compared to the control group and other doses, namely 9.50. Simvastatin had the lowest mean rank of all groups, namely 7.90. However, the difference between groups in this study did not reach a significant value ($p = 0.166$).
Conclusion: The administration of bitter melon at doses of 50 mg/kg body weight, 100 mg/kg body weight, and 200 mg/kg body weight, along with simvastatin at 0.9 mg/kg body weight for two weeks, did not show statistically significant differences in the improvement of NAFLD conditions in rats induced by a high-fat and high-cholesterol diet.