

ABSTRAK

Laksmi, Dyah Ayu. 2014. *Efek Ekstrak Biji Pare (Momordica charantia) dalam Menghambat Peningkatan Kadar Resistin Serum pada Tikus (Rattus norvegicus) Wistar dengan Diet Aterogenik*. Tugas Akhir, Program Studi Pendidikan Dokter Fakultas Kedokteran Universitas Brawijaya. Pembimbing: (1) Dr. dr. Setyawati Soeharto, M.Kes, (2) dr. M. Saifur Rohman, SpJP(K), PhD

Aterosklerosis terjadi akibat inflamasi kronis pada dinding pembuluh darah. Inflamasi ini melibatkan resistin yang berperan besar dalam progresivitas lesi. Sementara itu, saponin telah lama diteliti sebagai agen anti-aterosklerosis. Biji pare (*Momordica charantia*) yang masih memiliki daya guna rendah di Indonesia, terbukti mengandung saponin jenis triterpenoid. Namun, masih sangat jarang penelitian yang melibatkan saponin dari pare terhadap aterosklerosis. Penelitian ini bertujuan untuk membuktikan bahwa ekstrak biji pare yang diduga mengandung saponin dapat menghambat peningkatan kadar resistin serum. Studi *true experimental* dengan metode *randomized posttest only controlled group design*. Sebanyak 25 ekor tikus (*Rattus norvegicus*) Wistar jantan dibagi dalam 5 kelompok: K(+), KPA, KPB, dan KPC diberi diet aterogenik, serta K(-) diberi diet normal, masing-masing selama 12 minggu. Ekstrak biji pare diberikan mulai minggu 8 dengan dosis 150 µg/gBB (KPA), 300 µg/gBB (KPB), dan 500 µg/gBB (KPC). Setelah minggu 12, dilakukan ELISA dengan sampel serum. Uji *Kruskal Wallis* menunjukkan ada perbedaan bermakna kadar resistin serum antar kelompok ($p < 0,05$). Nilai koefisien korelasi (R) adalah -0,8516, berarti peningkatan dosis ekstrak biji pare berpengaruh negatif kuat terhadap kadar resistin serum. Uji *Mann-Whitney* menunjukkan kadar resistin K(+) lebih tinggi bermakna dibanding K(-) ($p < 0,05$), berarti pemberian diet aterogenik berpengaruh terhadap peningkatan kadar resistin serum. Dosis 150 µg/gBB dan 300 µg/gBB belum menampilkan penghambatan. Penghambatan resistin baru tampak pada dosis 500 µg/gBB, dibuktikan dengan uji *Mann-Whitney* yang menunjukkan tidak ada perbedaan bermakna antara kadar resistin K(-) dan KPC ($p > 0,05$). Kesimpulan penelitian ini adalah pemberian ekstrak biji pare (*Momordica charantia*) terbukti dapat menghambat peningkatan kadar resistin serum tikus Wistar dengan diet aterogenik. Perlu penelitian lebih lanjut untuk melihat pengaruh langsung ekstrak biji pare terhadap plak ateroma dan dinding pembuluh darah, uji toksisitas dan uji klinis ekstrak biji pare, serta pengembangan penelitian ke tingkat biomolekuler.

Kata kunci: aterosklerosis, *Momordica charantia*, resistin, saponin, inflamasi

ABSTRACT

Laksmi, Dyah Ayu. 2014. *Effects of Bitter Melon (Momordica charantia) seed Extract in Inhibiting Resistin Serum Levels in Wistar Rats (Rattus norvegicus) with Atherogenic Diet*. Final Assignment, Medical Program, Faculty of Medicine, Brawijaya University. Supervisors: (1) Dr. dr. Setyawati Soeharto, M.Kes, (2) dr. M. Saifur Rohman, SpJP(K), PhD

Atherosclerosis occurs as impact of chronic inflammation in blood vessel's wall. This inflammation involves resistin which plays major roles in lesion progression. Meanwhile, saponin has long been studied as anti-atherosclerosis agent. Bitter melon (*Momordica charantia*) seed which still has low efficiency in Indonesia, has been proven containing triterpenoid-type saponin. However, there are very rare studies involving saponin from bitter melon against atherosclerosis. This study is aimed to prove that bitter melon seed extract which is thought to contain saponins can inhibit serum resistin levels. This true experimental study uses randomized posttest only controlled group design. 25 male Wistar rats (*Rattus norvegicus*) were divided in 5 groups: K(+), KPA, KPB, and KPC were given atherogenic diet, while K(-) was given normal diet for 12 weeks, respectively. Bitter melon seed extract was given from week 8 at doses 150 µg/gBW (KPA), 300 µg/gBW (KPB), and 500 µg/gBW (KPC). After week 12, ELISA was performed using serum as sample. *Kruskal Wallis* test showed significant differences in serum resistin levels among all groups ($p < 0.05$). Correlation coefficient value (R) is -0.8516, means an increase in dose of bitter melon seed extract had strong negative effect on serum resistin levels. *Mann-Whitney* test showed that resistin level of K(+) was significantly higher than K(-) ($p < 0.05$), which means atherogenic diet has effect on the increase of serum resistin levels. Doses 150 µg/gBW and 300 µg/gBW did not show any inhibition yet. Resistin inhibition was seen at dose 500 µg/gBW, proved by *Mann-Whitney* test which showed no significant difference between resistin levels of K(-) and KPC ($p > 0.05$). The conclusion is bitter melon seed extract was shown to inhibit serum resistin levels of Wistar rats with atherogenic diet. Advanced studies are needed to discover direct effect of bitter melon seed extract on atheroma plaque and vessel's wall, toxicity and clinical trial of bitter melon seed extract, also biomolecular research development.

Keywords: atherosclerosis, *Momordica charantia*, resistin, saponin, inflammation