

INTISARI

ZAMZANI I. 2016. PENGARUH PEMBERIAN KOMBINASI FRAKSI ETIL ASETAT BUAH PARE (*Momordica charantia*. L) DAN ETIL ASETAT RIMPANG KUNYIT (*Curcuma domestica*. Val) TERHADAP KADAR GLUKOSA DARAH DAN EKSPRESI PROTEIN GLUT 4 JARINGAN OTOT PAHA (*soleus muscle*) PADA TIKUS RESISTENSI INSULIN. TESIS. FAKULTAS FARMASI. UNIVERSITAS SETIA BUDI

Diabetes melitus tipe 2 dapat disebabkan oleh resistensi jaringan terhadap insulin disertai defisiensi relatif pada sekresi insulin. Faktor resistensi insulin dapat disebabkan oleh obesitas. Sel lemak juga mengeluarkan TNF α yang menyebabkan resistensi dengan cara menurunkan ekspresi *glucose transporter-4* (GLUT-4) di sel lemak dan otot. Pengobatan DM tipe 2 dapat dilakukan dengan buah pare dan rimpang kunyit. Tujuan penelitian ini adalah untuk mengetahui pengaruh kombinasi fraksi etil asetat (FEA) buah pare dan rimpang kunyit terhadap kadar glukosa darah pada model tikus resistensi insulin, dan besaran kombinasi paling optimal terhadap penurunan kadar glukosa, serta mengetahui ekspresi GLUT-4 di jaringan otot tikus resistensi insulin.

Hewan diinduksi resistensi insulin dengan pemberian *High Fat Diet* dan fruktosa. Kelompok perlakuan dibagi menjadi kontrol normal, kontrol negatif (larutan cmc-na 1%), kontrol positif (metformin 45 mg/Kg BB), FEA kunyit (10 mg/ 200g BB), FEA pare (0,4 mg/ 200g BB), Kombinasi FEA kunyit : FEA pare (5 : 0,8 mg/200g BB), Kombinasi FEA kunyit : FEA pare (10 : 0,4 mg/200g BB), dan Kombinasi FEA kunyit : FEA pare (20 : 0,2mg/200g BB).

Hasil uji aktivitas antidiabetes menunjukkan bahwa kombinasi Fraksi EA Kunyit:Fraksi EA Pare (20 mg/ Kg BB:0,2mg/200g BB) memberikan efek paling optimal terhadap penurunan kadar glukosa darah tikus sebesar 48,08% dan memberikan efek paling optimal terhadap peningkatan jumlah protein GLUT 4 sebesar 29,474. Hasil analisis statistik ($p < 0,05$) menunjukkan hubungan antara jumlah peningkatan protein GLUT 4 dengan persen penurunan kadar glukosa darah adalah linear atau saling mempengaruhi.

Kata kunci: fraksi etil asetat, buah pare, rimpang kunyit, kadar glukosa darah, GLUT 4

ABSTRACT

ZAMZANI I. 2016. THE EFFECT OF COMBINED MOMORDICA (*Momordica charantia* L.) FRUIT ETHYL ACETATE FRACTION AND TURMERIC (*Curcuma domestica*. Val) RHIZOME ETHYL ACETATE FRACTION ON BLOOD GLUCOSE LEVEL AND THE EXPRESSION OF GLUT 4 PROTEIN EXPRESSION IN SOLEUS MUSCLE IN INSULIN-RESISTANT RATS, THESIS, PHARMACY FACULTY, SETIA BUDI UNIVERSITY, SURAKARTA.

Diabetes mellitus type 2 can be resulted from the tissue insulin resistance accompanied with relative deficiency in insulin secretion. Insulin resistance factor can be due to obesity. The fatty cell also releases TNF α resulting in resistance by means of lowering *glucose transporter-4* (GLUT-4) expression in the fatty cell and muscle. The treatment of DM Type 2 can be conducted using momordica fruit and turmeric rhizome. The objectives of research were to find out the effect of combination of momordica (*Momordica charantia* L.) fruit ethyl acetate fraction and turmeric (*Curcuma domestica*. Val) rhizome ethyl acetate fraction (EAF) on blood glucose level in insulin-resistant rat model and the most optimum combination to reduce glucose level, and to find out the expression of GLUT-4 in insulin-resistance rats' muscle.

The animal insulin resistance was induced by High Fat Diet and fructose. The treatment groups were divided into normal control, negative control (CMC-Na solution 1%), positive control (metformin 45 mg/Kg BW), turmeric EAF (10 mg/200 g BW), momordica EAF (0.4 mg/200g BW), combined turmeric EAF: momordica EAF (5:0.8 mg/200g BW), combined turmeric EAF: momordica EAF (10:0.4 mg/200g BW), and combined turmeric EAF: momordica EAF (20:0.2 mg/200g BW).

The result showed that combination of turmeric EAF (ethanol extract fraction) and Momordica EAF (20 mg/200g BW: 0.2 mg/200g BW) exhibited the most optimum effect on lowering the blood glucose level in the rats (48.08%) and exhibited the most optimum effect on increasing the number of GLUT 4 protein (29.474). The result of statistic analysis ($p < 0.05$) showed that there was a linear relationship between the increased number of GLUT 4 protein and the percentage of lowered blood glucose level.

Keywords: ethyl acetate fraction, momordica fruit, turmeric rhizome, blood glucose level, GLUT 4.