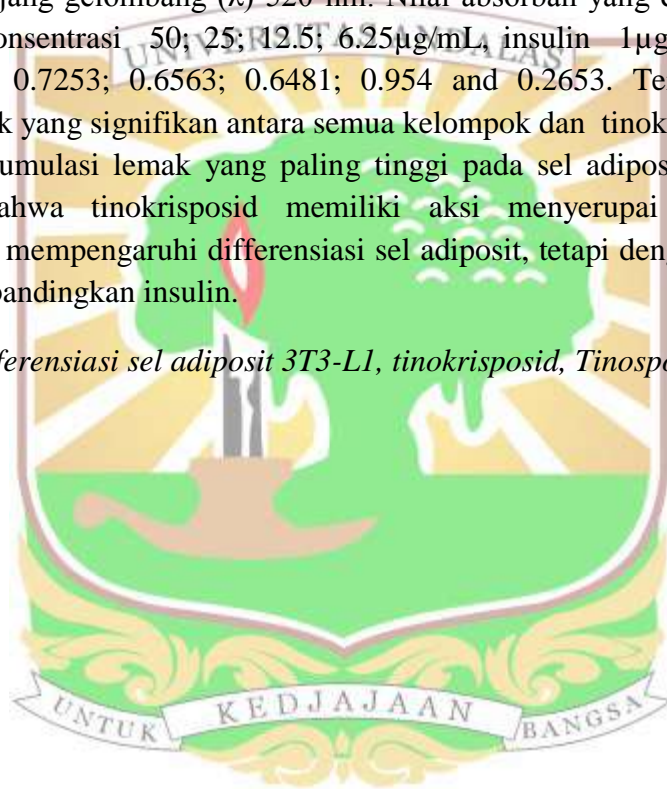


ABSTRAK

Tinokrisposid merupakan furanoditerpen glikosida hasil isolasi dari batang *Tinospora crispa*, yang memiliki efek antidiabetes secara *in vivo*. Sel adiposit yang berdiferensiasi akan sangat sensitif terhadap insulin karena peningkatan ekspresi reseptor insulin pada membran sel. Aktifitas diferensiasi adiposit tinokrisposid pada interval konsentrasi 50; 25; 12.5; 6.25 $\mu\text{g}/\text{mL}$ diuji terhadap sel 3T3-L1 menggunakan insulin 1 $\mu\text{g}/\text{mL}$ sebagai kontrol positif dan DMEM sebagai kontrol negatif. Pengaruh tinokrisposid terhadap diferensiasi adiposit diukur menggunakan metoda pewarnaan Oil-Red O dengan menentukan absorbansi larutan lemak dalam isopropanol 100% pada panjang gelombang (λ) 520 nm. Nilai absorbansi yang diperlihatkan oleh tinokrisposid konsentrasi 50; 25; 12.5; 6.25 $\mu\text{g}/\text{mL}$, insulin 1 $\mu\text{g}/\text{mL}$ dan DMEM adalah 0.7669; 0.7253; 0.6563; 0.6481; 0.954 and 0.2653. Terdapat perbedaan akumulasi lemak yang signifikan antara semua kelompok dan tinokrisposid 50 $\mu\text{g}/\text{mL}$ memberikan akumulasi lemak yang paling tinggi pada sel adiposit 3T3-L1. Dapat disimpulkan bahwa tinokrisposid memiliki aksi menyerupai insulin melalui kemampuannya mempengaruhi diferensiasi sel adiposit, tetapi dengan aktifitas yang lebih rendah dibandingkan insulin.

Kata kunci: diferensiasi sel adiposit 3T3-L1, tinokrisposid, Tinospora crispa



ABSTRACT

Tinocrisposide is a isolated furanoditerpen glycoside from *Tinospora crispa*, that has antidiabetic effect *in vivo*. Differentiated adipocyte cells are sensitive to insulin because of increasing on insulin's receptor expression on cell adipocyte membrane. Adipocyte cell differentiation activity of tinocrisposide in interval concentrations of 50; 25; 12.5; 6.25 μ g/mL has been investigated on 3T3-L1 cell line using insulin of 1 μ g/mL as a positive and DMEM as a negative control group. The effect of tinocrisposide was quantified with Oil-Red O staining methode by measuring absorbance of lipid solution in 100% isopropanol at wave length (λ) 520 nm. Tinocrisposide in the concentrations of 50; 25; 12.5; 6.25 μ g/mL, insulin of 1 μ g/mL, and DMEM groups showed absorbance value of 0.7669; 0.7253; 0.6563; 0.6481; 0.954, and 0.2653 respectively. It was found there were a significant statistically difference of lipid droplets accumulation amongs all groups ($p < 0.05$) and tinocrisposide concentration of 50 μ g/mL stimulates the highest lipid droplets accumulation on 3T3-L1 adipocyte cells. It can be concluded that tinocrisposide had insulin's mimicing action through its ability to stimulates adipocyte cell differentiation, but it had lower activity than insulin.

Keywords: 3T3-L1 adipocyte cell differentiation, tinocrisposide, Tinospora crispa

