

Perubahan kadar glukosa tikus Sprague-Dawley dengan Hiperglikemia pascapemberian ekstrak etanol Akar *Acalypha indica* Linn = Change of glucose level in Hyperglycemic Sprague-Dawley rats after Therapy with ethanol extracts of *Acalypha indica* Linn

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Abstrak

ABSTRAK

Pendahuluan: Hiperglikemia adalah kondisi dimana nilai GDP >126 mg/dL atau GDPP >200 mg/dL, dan merupakan kriteria penegakan diagnosis diabetes mellitus tipe 2 T2DM dan sindroma metabolik. Konsumsi makanan tinggi fruktosa dan kolesterol berperan dalam patofisiologi hiperglikemia. Ekstrak *Acalypha indica* Linn. memiliki efek hipoglikemik untuk membantu menurunkan gula darah. Metode: Sebanyak 29 ekor tikus Sprague-Dawley dibagi dalam lima kelompok. Empat kelompok diberi diit tinggi fruktosa dan kolesterol DTFK selama 1,5 bulan. Pada bulan selanjutnya pemberian diit disertai dengan pemberian ekstrak etanol akar *Acalypha indica* Linn. sebanyak 250 mg/kgBB/hari, metformin 100mg/kgBB/hari, atau kombinasi keduanya. Gula darah tikus dinilai sebelum dan sesudah periode terapi. Hasil: Tidak ditemukan perbedaan kadar glukosa darah sebelum dan setelah perlakuan pada kelompok yang diterapi AI $p=0,831$, metformin $p=0,056$, maupun kombinasi $p=0,908$. Tidak ditemukan perbedaan berat badan, berat hepar, ataupun berat pankreas yang signifikan $p=0,386$; $p=0,395$; dan $p=0,319$. Perbedaan yang signifikan tampak antara jenis terapi dengan berat lemak peritoneal $p=0,031$. Kadar glukosa terendah ditemui pada kelompok yang mendapat terapi kombinasi. Analisis: Ekstrak etanol akar *Acalypha indica* Linn., meskipun tidak signifikan, tampak menurunkan kadar glukosa darah pada tikus. Dibutuhkan penelitian lebih lanjut dengan periode induksi dan terapi yang lebih lama untuk lebih memahami efek hipoglikemik AI.

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ABSTRACT

Introduction Hyperglycemia is defined as condition where FBG 126mg dL or PPBG 200 mg dL, and is one of diagnosis criteria for type 2 diabetes mellitus T2DM and metabolic syndrome. Diet high in fructose and cholesterol plays a role in inducing hyperglycemia. Extract from *Acalypha indica* Linn. is proposed to have hypoglycemic effect, thus help reduce blood glucose. Methods Twenty nine Sprague Dawley rats were divided into five groups. Four groups were given high fructose high cholesterol diet for 1,5 month. In the following month, this diet was continued while rats were given either 250 mg kgBW day of ethanol extract of *Acalypha indica* Linn. root, 100 mg kgBW day of metformin, or both. Rats' blood glucose before and after therapy were measured. Result There is no significant difference between pre therapy and post therapy blood glucose in groups treated with AI $p=0,831$, metformin $p=0,056$, or both $p=0,908$. There is no significant difference in body weight, liver weight, nor pancreas weight $p=0,386$ $p=0,395$ and $p=0,319$. Statistically significant differences are found between therapy given and peritoneal fat weight $p=0,031$. Lowest glucose value is found in group receiving both AI and metformin. Analysis Ethanol extract of *Acalypha indica* Linn., albeit insignificant, is seen to lower blood glucose in rats. Further research with longer induction and therapy periods is needed to better understand AI's hypoglycemic effect.