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HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW
KARYA ILMIAH : JURNAL ILMIAH

Judul Jurnal Ilmiah (Artikel) : Identifikasi Molekuler dan Karakterisasi Morfologi Nilam (*Pogostemon* sp.) dari Kabupaten Batang, Provinsi Jawa Tengah

Penulis Jurnal Ilmiah/ Jumlah penulis : Aeldo Yudifian, Anto Budiharjo, Rejeki Siti Ferniah, Hermin Pancasakti Kusumaningrum* / 4 orang

Status Pengusul : Corresponding author

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- c. Volume, nomor, bulan, tahun : 9(1): 66-74
- d. Penerbit : Agency for the Assessment and Application of Technology, BPPT
- e. DOI artikel (jika ada) : <https://doi.org/10.29122/jbbi.v9i1.4884>
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d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)		7,50		7,50
Total = (100%)		25,00		24,51
Nilai pengusul = (40% x 24,51) = 9.804				9,804

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Semarang, 27 April 2023

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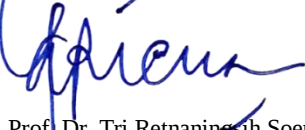
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ANTIDIABETIC ACTIVITY OF LEAF EXTRACT OF *Clerodendrum fragrans* Vent Willd IN *Rattus novergicus* INDUCED BY ALLOXAN

Aktivitas Antidiabetes Ekstrak Daun *Clerodendrum fragrans* Vent Willd Pada *Rattus novergicus* Yang Diinduksi Aloksan

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ABSTRACT

Sarang banua plants are grown in Simalungun, North Sumatra, Indonesia, and have been used by the community as traditional medicinal plants. Sarang banua plant is a type of *Clerodendrum fragrans* Vent Willd, including the family Verbenaceae. This study aimed to determine the antidiabetic activity of the leaf extract of sarang banua (*C. fragrans* Vent Willd) in white male rats (*Rattus novergicus*) induced by alloxan. This study used a RAL design with seven treatments, namely (K0) standard feed, (K1) Na-CMC 0.5%, (K2) metformin, (K3) ethanol extract 100 mg/kg bw, 200 mg/kg bw (K4), 300 mg/kg bw (5), (K6) ethyl acetate extract 200 mg/kg bw and 300 mg/kg bw (K7). Groups K1 to K7 were induced by alloxan before being given treatment. Each treatment was replicated three times. The results showed that the application of leaf extract of the *C. fragrans* affected on reducing the blood glucose levels of alloxan-induced rats. The used of ethanolic extract of *C. fragrans* 100 mg/kg bw resulted in the highest percentage decrease in blood glucose ($54.46 \pm 5.60\%$) of hyperglycemic rats induced by alloxan, close to a positive control ($56.63 \pm 1.86\%$).

Keywords: alloxan, antidiabetic activity, *Clerodendrum fragrans* Vent Willd, Indonesian medicinal plants, *Rattus novergicus*

ABSTRAK

Tanaman sarang banua yang terdapat di Simalungun, Sumatera Utara, Indonesia telah dimanfaatkan oleh masyarakat sebagai tanaman obat tradisional. Tanaman Sarang banua (*Clerodendrum fragrans* Vent Willd), termasuk famili Verbenaceae. Penelitian ini bertujuan untuk mengetahui aktivitas antidiabetes ekstrak daun Sarang banua (*C. fragrans* Vent Willd) pada tikus putih jantan (*Rattus novergicus*) yang diinduksi aloksan. Penelitian ini menggunakan rancangan RAL dengan tujuh perlakuan yaitu (K0) pakan standar, (K1) Na-CMC 0,5%, (K2) metformin, (K3) ekstrak etanol 100 mg/kg bb, 200 mg/kg bb (K4), 300 mg/kg bb (5), (K6) ekstrak etilasetat 200 mg/kg bb dan 300 mg/kg bb (K7). Kelompok K1 sampai K7 diinduksi aloksan sebelum diberikan perlakuan. Hasil penelitian menunjukkan bahwa pemberian ekstrak daun *C. fragrans* berpengaruh terhadap penurunan kadar glukosa darah tikus yang diinduksi aloksan. Pemberian ekstrak etanol *C. fragrans* 100 mg/kg bb menghasilkan persentase penurunan glukosa darah tertinggi ($54,46 \pm 5,60\%$) tikus hiperglikemik yang diinduksi aloksan, mendekati kontrol positif ($56,63 \pm 1,86\%$).

Kata Kunci: aktivitas antidiabetes, aloksan, *Clerodendrum fragrans* Vent Willd, tanaman obat Indonesia, *Rattus novergicus*



OPTIMIZATION OF *Agrobacterium*-MEDIATED GENETIC TRANSFORMATION OF *oshox4* GENE IN SATOIMO TARO (*Colocasia esculenta* var. *antiquorum*)

Optimasi Transformasi Genetik Gen *oshox4* Melalui *Agrobacterium* Pada Talas Satoimo (*Colocasia esculenta* var. *antiquorum*)

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ABSTRACT

Satoimo (Colocasia esculenta var. *antiquorum*) can be considered as an alternative food to support food diversification. The aim of this research was to obtain an optimum condition of the genetic transformation method of *Satoimo taro* through *Agrobacterium*-mediated genetic transformation using binary vector harboring gene construct of *oshox4* and *hpt* gene as a selectable marker to produce transgenic plants. Plant materials that were used in this study were meristem, root, leaf, petiole, and basal stem. Transformation procedures were carried out using three different co-cultivation periods (1, 2, and 3 days) and different optical densities of *A. tumefaciens* cells (0,5 and 0,7). Furthermore, callus induction was performed on MS medium containing 2,4-D, cefotaxime, hygromycin and then regenerated on MS medium containing thidiazuron and hygromycin. The putative transgenic plantlets were selected on MS medium containing hygromycin and analyzed using PCR. The results showed that putative transgenic plants derived from the basal stem could survive on a selection medium containing hygromycin and based on PCR analysis some of them contained the *oshox4* and *hpt* genes.

Keywords: *Colocasia esculenta* var. *antiquorum*, drought, *hpt* gene, *oshox4* gene, stress

ABSTRAK

Satoimo (Colocasia esculenta var. *antiquorum*) dapat dijadikan sebagai alternatif pangan untuk mendukung penganekaragaman pangan. Tujuan penelitian ini adalah mendapatkan kondisi optimal untuk transformasi genetik talas *Satoimo* menggunakan gen *oshox4* yang dimediasi oleh *Agrobacterium tumefaciens*. Transformasi genetik dilakukan dengan menggunakan vektor biner yang mengandung gen *oshox4* dan gen *hpt*. Bahan tanaman yang digunakan dalam penelitian ini adalah meristem, akar, daun, tangkai daun dan pangkal batang talas *Satoimo*. Transformasi dilakukan dengan menggunakan tiga perlakuan waktu ko-kultivasi (1, 2, dan 3 hari) serta dua optical density (0,5 dan 0,7). Selanjutnya dilakukan induksi kalus pada media MS yang mengandung 2,4-D, cefotaksim, hogromisin dan diregenerasikan pada media MS yang mengandung thidiazuron dan higromisin. Plantlet putatif transgenik diseleksi menggunakan media MS yang mengandung higromisin serta dianalisis menggunakan PCR. Hasil penelitian menunjukkan bahwa tanaman putatif transgenik yang berasal dari pangkal batang dapat bertahan hidup pada media seleksi yang mengandung higromisin dan berdasarkan analisis PCR, beberapa di antaranya mengandung gen *oshox4* dan gen *hpt*.

Kata Kunci: cekaman, *Colocasia esculenta* var. *antiquorum*, gen *hpt*, gen *oshox4*, kekeringan

**Short Communication****CHANGES IN BLOOD GLUCOSE LEVELS IN EXPERIMENTAL ANIMALS WITH HYPERGLYCEMIA DUE TO LIME (*Citrus aurantifolia* Swingle) PEEL EXTRACT****Perubahan Kadar Glukosa Darah pada Hewan Eksperimental dengan Hiperglikemia akibat Ekstrak Lime (*Citrus aurantifolia* Swingle)****Rivan Virlando Suryadinata*, Kezia Sefania, Heru Wijono**Faculty of Medicine, **Surabaya University (UBAYA)**, Raya Kalirungkut Street, Kali Rungkut, Rungkut, Surabaya City, East Java 60293, Indonesia*Email: rivan.ubaya@gmail.com**ABSTRACT**

Chronically elevated levels of glucose in the blood can lead to various complications. As a result, it can accelerate the damage to various organ tissues in the body. Several measures are needed to maintain the stability of normal blood glucose levels to prevent tissue damage, as well as providing additional intake such as lime peel extract which is believed to have high flavonoid content in lowering blood glucose levels. For this reason, this study aimed to analyse changes in blood glucose levels by giving lime extract to alloxan-induced experimental animals. This study uses an experimental post-test control group design. The results showed increased in blood glucose levels in the positive control group ($p < 0.005$). In addition, the lime (*Citrus aurantifolia* Swingle) peel extract treatment group showed changes in blood glucose levels ($p < 0.005$). It was concluded that increasing the intake of lime peel extract can reduce blood glucose levels.

Keywords: alloxan, blood glucose, hyperglycemia, lime, *Rattus novergicus***ABSTRAK**

Peningkatan kadar glukosa dalam darah secara kronis dapat menyebabkan berbagai komplikasi. Akibatnya, dapat mempercepat kerusakan berbagai jaringan organ dalam tubuh. Beberapa tindakan diperlukan untuk menjaga stabilitas kadar glukosa darah normal untuk mencegah kerusakan jaringan. Serta memberikan asupan tambahan seperti ekstrak kulit jeruk nipis yang dianggap memiliki kandungan flavonoid yang tinggi dalam menurunkan kadar glukosa darah. Untuk itu, penelitian ini bertujuan untuk menganalisis perubahan kadar glukosa darah dengan pemberian ekstrak jeruk nipis pada hewan coba yang diinduksi aloksan. Penelitian ini menggunakan rancangan eksperimen post-test control group design. Hasil penelitian menunjukkan adanya peningkatan kadar glukosa darah pada kelompok kontrol positif ($p < 0,005$). Selain itu, kelompok perlakuan ekstrak kulit jeruk nipis (*Citrus aurantifolia* Swingle) menunjukkan perubahan kadar glukosa darah ($p < 0,005$). Oleh karena itu, dapat disimpulkan bahwa peningkatan asupan ekstrak kulit jeruk nipis dapat menurunkan kadar glukosa darah.

Kata Kunci: aloksan, gula darah, hiperglikemia, kapur, *Rattus novergicus*