

**PERBANDINGAN PEMBERIAN EKSTRAK PEGAGAN (*Centella asiatica* (L.))  
DAN SIMVASTATIN TERHADAP *SUPEROXIDE DISMUTASE* (SOD)  
PADA TIKUS MODEL HIPERKOLESTEROLEMIA**

Shinta Nurunnisa<sup>1</sup>, Nafiisah<sup>2</sup>, Tendi Novara<sup>3</sup>

<sup>1</sup>Program Pendidikan Dokter Fakultas Kedokteran Universitas Jenderal Soedirman

<sup>2</sup>Departemen Histologi Fakultas Kedokteran Universitas Jenderal Soedirman

<sup>3</sup>Fakultas Kedokteran Universitas Jenderal Soedirman

Alamat surel: [shinta.nurunnisa@mhs.unsoed.ac.id](mailto:shinta.nurunnisa@mhs.unsoed.ac.id)

**ABSTRAK**

**Latar belakang** – Pegagan (*Centella asiatica* (L.)) memiliki efek antioksidan karena mengandung komponen aktif seperti triterpenoid saponin, tanin, flavonoid, dan vitamin C. Komponen tersebut menunjukkan efek yang baik pada kondisi hiperkolesterolemia. Terapi hiperkolesterolemia sendiri saat ini menggunakan obat golongan statin seperti simvastatin sebagai obat lini pertama.

**Tujuan** – Membandingkan pengaruh ekstrak pegagan (*Centella asiatica* (L.)) dan simvastatin terhadap aktivitas enzim *superoxide dismutase* pada tikus model hiperkolesterolemia.

**Metode Penelitian** – Penelitian ini menggunakan metode *true experimental* dengan desain *posttest only with control group*. Jumlah sampel sebanyak 32 ekor tikus *Rattus norvegicus* galur *Sprague-Dawley* yang dibagi ke dalam 4 kelompok. Kelompok 1 sebagai kontrol sehat diberi perlakuan pakan standar, kelompok 2 sebagai kontrol negatif diinduksi hiperkolesterolemia dan diberi pakan standar, kelompok 3 sebagai kontrol positif diinduksi hiperkolesterolemia dan diberi simvastatin 1,8mg/kgBB/hari, dan kelompok 4 diinduksi hiperkolesterolemia dan diberi ekstrak pegagan (*Centella asiatica* (L.)) 500mg/kgBB/hari. Sampel darah diambil pada minggu ke-5 dan dinilai aktivitas SOD menggunakan *WST-1 Assay*. Data dianalisis menggunakan *One-way ANOVA*.

**Hasil** – Dari hasil penelitian didapatkan rata-rata aktivitas SOD kelompok perlakuan sebesar 73% dan paling mendekati nilai kelompok kontrol sehat (82%). Uji statistik menunjukkan hasil signifikan antarkelompok ( $p=0,000$ ).

**Kesimpulan** – Pemberian ekstrak pegagan (*Centella asiatica* (L.)) lebih baik secara signifikan dibanding pemberian simvastatin terhadap aktivitas SOD pada tikus model hiperkolesterolemia.

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**Kata kunci:** *Centella asiatica*, simvastatin, *superoxide dismutase*, hiperkolesterolemia

**COMPARISON OF *Centella asiatica* (L.) EXTRACT AND SIMVASTATIN  
ADMINISTRATION ON SUPEROXIDE DISMUTASE (SOD) IN  
HYPERCHOLESTEROLEMIA RAT MODEL**

Shinta Nurunnisa<sup>1</sup>, Nafiisah<sup>2</sup>, Tendi Novara<sup>3</sup>

<sup>1</sup>Program Pendidikan Dokter Fakultas Kedokteran Universitas Jenderal Soedirman

<sup>2</sup>Departemen Histologi Fakultas Kedokteran Universitas Jenderal Soedirman

<sup>3</sup>Fakultas Kedokteran Universitas Jenderal Soedirman

Alamat surel: [shinta.nurunnisa@mhs.unsoed.ac.id](mailto:shinta.nurunnisa@mhs.unsoed.ac.id)

**ABSTRACT**

**Background** – *Centella asiatica* (L.), commonly known as *pegagan*, possesses antioxidant effects due to its active components such as triterpenoid saponins, tannins, flavonoids, and vitamin C. These components exhibit promising effects in conditions like hypercholesterolemia. The current therapy for hypercholesterolemia often involves statin drugs as a first-line medication, such as simvastatin.

**Objective** – This study aims to compare the effect of *Centella asiatica* (L.) extract and simvastatin on superoxide dismutase enzyme activity in a hypercholesterolemia rat model.

**Research method** – The research employed a true experimental method with a posttest-only with control group design. A total of 32 Sprague-Dawley strain *Rattus norvegicus* rats were divided into four groups. Group 1 served as a healthy control, receiving standard feed; group 2, as a negative control, was induced with hypercholesterolemia and given standard feed; group 3, as a positive control, was induced with hypercholesterolemia and administered simvastatin at 1.8 mg/kgBW/day; and group 4, induced with hypercholesterolemia, was given *Centella asiatica* (L.) extract at 500 mg/kgBW/day. Blood samples were taken in the 5th week, and superoxide dismutase activity was assessed using the WST-1 Assay. Data were analyzed using One-way ANOVA.

**Results** – The research findings reveal an average SOD activity of 73% in the group given *Centella asiatica* (L.), closely approaching the value of the healthy control group (82%). Statistical tests show significant differences between the groups ( $p=0.000$ ).

**Conclusion** – The administration of *Centella asiatica* (L.) extract is significantly more effective than simvastatin in enhancing SOD activity in the hypercholesterolemia rat model.

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**Keywords:** *Centella asiatica*, simvastatin, superoxide dismutase, hypercholesterolemia