

## Pengaruh Pemberian Ekstrak *Centella asiatica* terhadap Kadar Karbonil Otak Tikus *Rattus norvegicus* Usia 12, 24, dan 36 Minggu = Effect of *Centella asiatica* on Carbonyl Content in 12, 24, and 36 weeks old *Rattus norvegicus* Rats's Brain

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### Abstrak

Biaya penanganan penyakit neurodegeneratif sangat tinggi. Penyebab penyakit ini adalah penuaan yang dikaitkan dengan stres oksidatif. Stres oksidatif menyebabkan kerusakan protein yang menghasilkan karbonil. *Centella asiatica* (CA) berpotensi sebagai antioksidan yang dapat menurunkan kejadian stres oksidatif, termasuk di otak. Penelitian eksperimental ini menggunakan 36 ekor tikus *Rattus norvegicus* yang dibagi menjadi enam kelompok, yaitu kelompok kontrol dan perlakuan CA usia 12, 24, serta 36 minggu. Kelompok perlakuan CA diberi ekstrak CA 300 mg/kgBB selama 30 hari. Kadar karbonil diukur menggunakan uji spektrofotometer. Kadar karbonil otak tikus 36 minggu lebih tinggi bermakna dibandingkan tikus 12 minggu ( $p=0,004$ ) dan 24 minggu ( $p=0,016$ ). Kadar karbonil otak tikus 24 minggu yang diberi ekstrak CA lebih tinggi bermakna dibandingkan tikus kontrol 24 minggu ( $p=0,026$ ). Kadar karbonil otak tikus 12 dan 36 minggu yang diberi ekstrak CA tidak berbeda bermakna dibandingkan tikus kontrol 12 minggu ( $p=0,956$ ) dan 36 minggu ( $p=0,602$ ). Kadar karbonil otak tikus dipengaruhi oleh usia tikus, lebih tinggi secara bermakna pada kelompok usia 36 minggu dibandingkan dengan kelompok usia 12 dan 24 minggu. Ekstrak CA 300 mg/kgBB menyebabkan peningkatan kadar karbonil pada otak tikus usia 24 minggu, namun tidak pada usia 12 dan 36 minggu.

.....The cost of treating neurodegenerative diseases is very high. The cause of this disease is aging caused by oxidative stress. Oxidative stress causes the breakdown of proteins that produce carbonyls. *Centella asiatica* (CA) may be an antioxidant that can reduce oxidative stress, including in the brain. This experimental study used 36 *Rattus norvegicus* rats which were divided into six groups, namely the control group and the CA treatment group aged 12, 24, and 36 weeks. The brain carbonyl levels of 36 weeks rats were higher than those of 12 weeks ( $p=0.004$ ) and 24 weeks ( $p=0.016$ ) rats. Brain carbonyl levels of 24 weeks rats that were given CA extract were higher than those of 24 weeks control rats ( $p=0.026$ ). Brain carbonyl levels of rats 12 and 36 weeks given CA extract were not significantly different from control rats at 12 weeks ( $p=0.956$ ) and 36 weeks ( $p=0.602$ ). Brain carbonyl levels were affected by the age of the rats, significantly higher in the 36 weeks age compared to the 12 and 24 weeks age. CA extract 300 mg/kgBW caused an increase in carbonyl levels in the brains of rats aged 24 weeks, but not at the age of 12 and 36 weeks.