

ABSTRAK

Latar Belakang: Depresi berkaitan dengan peningkatan stres oksidatif yang dapat menyebabkan ketidakseimbangan status redoks pada jaringan otak. Malondialdehid (MDA) merupakan produk peroksidasi lipid yang mencerminkan kerusakan oksidatif, sedangkan glutathione (GSH) merupakan antioksidan endogen yang berperan dalam mempertahankan keseimbangan redoks. Ekstrak biji ketumbar (*Coriandrum sativum* L.) memiliki potensi sebagai antioksidan, namun efektivitasnya terhadap kadar MDA dan GSH pada jaringan otak model depresi belum diketahui. Penelitian ini bertujuan untuk menganalisis efek pemberian ekstrak biji ketumbar (*Coriandrum sativum* L.) terhadap kadar MDA dan GSH pada jaringan otak tikus model depresi yang diinduksi *Chronic Unpredictable Mild Stress* (CUMS).

Metode: Penelitian eksperimental *in vivo* menggunakan 30 ekor tikus Wistar yang dibagi menjadi lima kelompok, yaitu kelompok normal, kontrol negatif, kontrol pembanding, ekstrak biji ketumbar dosis 100 mg/kgBB, dan 200 mg/kgBB. Model depresi diinduksi menggunakan CUMS. Kadar MDA dan GSH jaringan otak dianalisis setelah perlakuan, sedangkan perilaku *depression-like* dievaluasi menggunakan *Forced Swim Test* (FST).

Hasil: Kelompok kontrol negatif menunjukkan kadar MDA tertinggi dan GSH terendah. Kadar MDA menunjukkan perbedaan bermakna antar kelompok ($p = 0,0005$), demikian pula kadar GSH ($p = 0,0122$). Pemberian ekstrak biji ketumbar dosis 100 dan 200 mg/kgBB menurunkan kadar MDA dan meningkatkan kadar GSH dibandingkan kontrol negatif. Dosis 100 mg/kgBB menunjukkan respons biokimia lebih baik dibandingkan dosis 200 mg/kgBB. Namun, FST tidak menunjukkan perbedaan waktu imobilitas yang bermakna antar kelompok ($p = 0,57$).

Kesimpulan: Ekstrak biji ketumbar dosis 100 dan 200 mg/kgBB berpotensi memberikan efek antioksidan pada jaringan otak tikus model depresi berdasarkan perubahan kadar MDA dan GSH, tetapi belum menunjukkan perbaikan perilaku yang bermakna berdasarkan FST.

Kata kunci: *Coriandrum sativum* L., MDA, GSH, depresi, CUMS, stres oksidatif.

ABSTRACT

Background: Depression is associated with increased oxidative stress, which can lead to an imbalance in redox status in brain tissue. Malondialdehyde (MDA) is a lipid peroxidation product that reflects oxidative damage, while glutathione (GSH) is an endogenous antioxidant that plays a role in maintaining redox balance. Coriandrum sativum seed extract has potential as an antioxidant, but its effectiveness on MDA and GSH levels in brain tissue of depression models is not yet known. This study aims to analyze the effects of Coriandrum sativum seed extract administration on MDA and GSH levels in the brain tissue of rats with depression induced by Chronic Unpredictable Mild Stress (CUMS).

Methods: An in vivo experimental study was conducted using 30 Wistar rats divided into five groups: normal, negative control, comparison control, extract of coriander seed at doses of 100 mg/kg BW, and 200 mg/kg BW. Depression was induced using CUMS. MDA and GSH levels in brain tissue were analyzed after treatment, while depression-like behavior was evaluated using the Forced Swim Test (FST).

Results: The negative control group showed the highest MDA levels and the lowest GSH levels. There were significant differences in MDA levels among the groups ($p = 0.0005$), as well as in GSH levels ($p = 0.0122$). Administration of coriander seed extract at doses of 100 and 200 mg/kg BW reduced MDA levels and increased GSH levels compared to the negative control. The 100 mg/kg BW dose showed a better biochemical response than the 200 mg/kg BW dose. However, the FST did not show a significant difference in immobility time among the groups ($p = 0.57$).

Conclusion: Coriandrum sativum seed extract at doses of 100 and 200 mg/kg BW has the potential to exert antioxidant effects in the brain tissue of depression model rats, based on changes in MDA and GSH levels, but it has not yet demonstrated significant behavioral improvements according to the FST.

Keywords: Coriandrum sativum L., MDA, GSH, depression, CUMS, oxidative stress.