

Efek Ekstrak Air Daun Pegagan (*Centella asiatica*) terhadap Aktivitas SOD dan Kadar MDA pada Jaringan Jantung Tikus yang Mengalami Infark Miokard akibat Isoproterenol = Effect of *Centella asiatica* Water Extract Against Activity of SOD and MDA levels in Isoproterenol-Induced Myocardial Infarction in Rats

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Abstrak

Latar belakang: Infark Miokard (MI) merupakan salah satu penyebab utama morbiditas dan mortalitas di dunia. Salah satu mekanisme yang mendasari terjadinya MI ialah adanya produksi reactive oxygen species (ROS) berlebihan atau keadaan stres oksidatif. Berbagai tata laksana diupayakan untuk dapat mengatasi penyakit ini salah satunya adalah pengobatan herbal. Tanaman *Centella asiatica* telah dikenal memiliki berbagai efek farmakologikal yang bermanfaat, salah satunya adalah sebagai antioksidan. Penelitian ini bertujuan untuk mengetahui efek ekstrak air daun *Centella asiatica* terhadap parameter stres oksidatif, khususnya aktivitas SOD dan kadar MDA jaringan jantung tikus yang telah mengalami MI. Metode: Penelitian ini menggunakan sampel jaringan jantung tikus tersedia di laboratorium yang merupakan bagian dari penelitian besar berjudul "Efek Kardioproteksi Tanaman Herbal Indonesia (*Moringa oleifera*, *Centella asiatica*, *Andrographis paniculata*) melalui Aktivitas Antioksidan dan Antiinflamasi pada Model Infark Miokard Tikus yang diinduksi Isoproterenol.". Pada penelitian ini digunakan tiga kelompok dari enam kelompok yang digunakan di penelitian besar tersebut. Kelompok pertama ialah normal tanpa perlakuan, kelompok kedua (Iso) diberi isoproterenol dengan dosis 85 mg/kgBB. Kelompok ketiga (Iso + ekstrak CA) diberi isoproterenol dosis 85 mg/kgBB dan ekstrak air daun *Centella asiatica* dosis 200 mg/kgBB. Kadar protein jaringan dihitung menggunakan uji Bradford. Aktivitas SOD jaringan diperiksa menggunakan EZ SOD Assay Kit sementara kadar MDA diperiksa menggunakan metode TBARS. Hasil: Berdasarkan hasil penelitian ini, tidak ditemukan adanya perbedaan kadar MDA yang signifikan antar ketiga kelompok ($p=0,105$). Pada hasil pemeriksaan SOD, ditemukan penurunan yang tidak signifikan pada kelompok Iso ($p=0,106$) dibandingkan kelompok normal. Pada kelompok Iso + ekstrak CA ditemukan penurunan aktivitas SOD yang tidak signifikan ($p=0,490$) dibandingkan kelompok Iso. Kesimpulan: Pada penelitian ini, belum dapat dibuktikan bahwa ekstrak air daun *Centella asiatica* memiliki efek kardioprotektif terhadap aktivitas SOD dan kadar MDA jaringan jantung tikus.

.....Introduction: Myocardial infarction (MI) is one of the common causes of morbidity and mortality in the world. One of the underlying mechanisms of MI is due to excessive production of oxygen reactive species (ROS) in cells and tissues. This phenomenon is also known as oxidative stress condition. Many therapies are being developed to overcome MI such as medicinal herbs. *Centella asiatica* has been known for its useful therapeutic potential. For instance, it has some antioxidant compounds which can help reduce free radicals by scavenging them. Thus, this study aimed to analyze the effects of *Centella asiatica* water extract against SOD activity and MDA levels in isoproterenol-induced myocardial infarction in rats. Method: In this study, we used available rat heart tissues in the laboratory which were part of the previous study. Subjects were divided into three treatment groups as follows: normal, Iso, and Iso + extract CA. Isoproterenol were administered at 85 mg/kg BW and *Centella asiatica* water extract were administered in the third group at 200

mg/kg BW on the previous study. Bradford tests were performed to measure the concentration of total protein in samples. Activity of SOD were assessed by EZ-SOD Assay Kit. While levels of MDA were assessed by the TBARS assay method. Result: According to the findings of the study, there were non-significant differences in MDA levels among subjects in three groups ($p=0,105$). There was a non-significant decrease in activity of SOD ($p=0,106$) in the Iso group compared to the normal group. Also, there was a non-significant decrease in activity of SOD ($p=0,490$) in the Iso + extract CA group compared to the Iso group. These results are not in accordance with previous studies. Conclusion: In this study, it has not been proven that *Centella asiatica* water extract has cardioprotective effects against activity of SOD and MDA levels in isoproterenol-induced myocardial infarction in rats. This is probably due to some different treatments from previous studies.