The effect of hibiscus sabdariffa linn. on the homeostasis model assessment-insulin resistance and interleukin-6 level of streptozotocin induced diabetes mellitus sprague-dawley rats = Pengaruh hibiscus sabdariffa linn. terhadap homeostasis model assessment-insulin resistance dan level interleukin-6 pada tikus sprague-dawley diabetes mellitus yang diinduksi streptozotocin

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Abstrak

Latar Belakang: Hibiscus sabdariffa Linn dikenal sebagai herbal yang memiliki efek antioksidan dan antiinflamasi. Inflamasi merupakan salah satu mekanisme terjadinya diabetes mellitus, sebuah penyakit metabolik yang terjadi akibat gangguan pada insulin dan fungsi sel beta pancreas. Penelitian ini bertujuan untuk mengetahui potensi Hibiscus sabdariffa Linn. terhadap kadar HOMA-IR (Homeostasis Model Assessment-Insulin Resistance) dan Interleukin-6 pada kondisi diabetes mellitus.
Metode: Dua puluh empat tikus Sprague-Dawley ditempatkan secara acak menjadi enam kelompok; kontrol normal, normal dengan 200mg/kgBB Hibiscus, normal dengan 500mg/kgBB Hibiscus, kontrol diabetes, diabetes dengan 200mg/kgBB Hibiscus, dan diabetes dengan 500mg/kgBB Hibiscus. Hibiscus sabdariffa Linn diberikan selama 5 minggu kepada kelompok Hibiscus, dan sampel darah dari tiap kelompok diambil untuk menilai kadar gula darah, insulin, dan IL-6. Kadar IL-6 diukur menggunakan ELISA. HOMA-IR dicek menggunakan tes non-parametrik Kruskal-Wallis dan IL-6 dicek menggunakan one-way ANOVA untuk menilai signifikansi statistik.
Hasil: Tikus di kelompok diabetes yang diberikan 200mg/kgBB dan 500mg/kgBB Hibiscus memiliki nilai HOMA-IR dan kadar IL-6 yang lebih rendah walau tidak ada signifikansi statistik antar kelompok HOMA-IR (p= 0.127) dan IL-6 (p = 0.760).
Kesimpulan: Penelitian ini tidak menghasilkan signifikansi statistik terhadap penurunan HOMA-IR dan IL-6.
.....Introduction: Hibiscus sabdariffa Linn. is known as one of the herbs that possess antioxidant and anti-inflammatory benefits. Inflammation has been long suggested to be one of the pathophysiology of diabetes mellitus, a metabolic disorder that is rooted from insulin impairment and beta cell dysfunction. This study objective is to explore the antiinflammatory effect of Hibiscus sabdariffa Linn towards HOMA-IR (Homeostasis Model Assessment-Insulin Resistance) and Interleukin-6 in diabetes mellitus condition.
Methods: Twenty four Sprague-Dawley rats were randomly allocated into six different group; normal control group, normal with 200mg/kgBW of Hibiscus, normal with 500mg/kgBW of Hibiscus, diabetic control, diabetic with 200mg/kgBW of Hibiscus, and diabetic with 500mg/kgBW of Hibiscus. Hibiscus sabdariffa Linn. was administered for 5 weeks for the Hibiscus group, and the blood samples of each group are drawn to obtain blood glucose, insulin, and IL-6. IL-6 level was measured using ELISA kit. HOMA-IR statistical significance was checked using non-parametric Kruskal-Wallis test and IL-6 statistical significance was calculated using one-way ANOVA.
Results: Rats in diabetic group that are treated with 200mg/kgBW and 500mg/kgBW had lower value of HOMA- IR and IL-6 although there were no statistical significance between both HOMA-IR (p = 0.127) and

IL-6 ($p = 0.760$) group.
Conclusion: This study does not yield statistically significant decrease of both HOMA-IR and IL-6.